MINERAL RESOURCES

NVCP SUPPORTING DOCUMENT

LAMB CREEK IRON ORE PROJECT – SITE-WIDE NVCP

M47/1592, L47/1008

11 APRIL 2025 VERSION [00]

DOCUMENT INFORMATION

The purpose of this document is to provide supporting information for PMI's application for a Native Vegetation Clearing Permit (NVCP) and addresses the requirements as prescribed under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004.*

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Acknowledgement of Country

MinRes is committed to reconciliation and recognises and respects the significance of Aboriginal and Torres Strait Islander peoples' communities, cultures, and histories. MinRes acknowledge and respect Aboriginal and Torres Strait Islander peoples as the traditional custodians of the land.

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ABBREVIATIONS

Abbreviation	Definition
ACN	Australian Company Number
AEP	Annual Exceedance Probability
AHIS	Aboriginal Heritage Inquiry System
ASS	Acid Sulphate Soils
BC Act	*Biodiversity Conservation Act 2016*
BIF	Banded Iron Formation
BNTAC	Banjima Native Title Aboriginal Corporation RNTBC
BOM	Bureau of Meteorology
CALM Act	*Conservation and Land Management Act 1984 (WA)*
CEMP	Construction Environmental Management Plan
CID	Channel Iron Deposits
C:N	Carbon to Nitrogen
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DBCA	Department of Biodiversity, Conservation and Attractions (WA)
DEC	Department of Conservation (WA) now DWER
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety (WA), formerly DMIRS
DMIRS	Department of Mines, Industry Regulation and Safety (WA), now DEMIRS
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation (WA)
ECEC	Effective cation exchange capacity
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EP Act	*Environmental Protection Act 1986*
EPA	Environmental Protection Authority
FVMP	Flora and Vegetation Management Plan
GWOS	Groundwater Operating Strategy
ha	Hectare
IBRA	Interim Biogeographic Regionalisation for Australia
LCIOP	Lamb Creek Iron Ore Project
km	Kilometre
LGA	Local Government Area
LAP	Land Activity Permit

m	Metre
mbgl	Metres below ground level
MCP	Mine Closure Plan
MHERC	Mineral Resources Heritage, Environment Reference Committee (Banjima People)
MIB	Martidja Banyjima
MNES	Matters of National Environmental Significance
MinRes	Mineral Resources Limited
NAFI	Northern Australia Fire Information
NVCP	Native Vegetation Clearing Permit
OEMP	Operations Environmental Management Plan
P2	Priority 2
PAF	Potentially Acid Forming
PEC	Priority Ecological Community
PMI	Process Minerals International
RIWI Act	*Rights in Water and Irrigation Act 1914*
RL	Reduced Level
RoM	Run of Mine
SFMP	Significant Fauna Management Plan
SRE	Short-range Endemic
SWL	Standing Water Level
SWMP	Surface Water Management Plan
TEC	Threatened Ecological Community
TSSC	Threatened Species Scientific Committee
WA	Western Australia
WAH	Western Australian Herbarium
WRL	Waste Rock Landform

1. INTRODUCTION

The Proponent, Process Minerals International (PMI), a wholly owned subsidiary of Mineral Resources Limited (MinRes) (ACN 118 549 910), proposes to develop the Lamb Creek Iron Ore Project (LCIOP) (the Proposal) located approximately 130 kilometres (km) northwest of Newman via the Great Northern Highway (**Figure 1**), in the East Pilbara Local Government Authority (LGA) in Western Australia (WA).

PMI seeks approval to clear native vegetation under Part V of the *Environmental Protection Act 1986* (EP Act) on mining tenements M47/1592 (pending conversion from R47/19) and L47/1008 to facilitate the Project's resource development. PMI has applications for mining leases over all tenements and seeks to clear up to 638.4 hectares (ha) within an 860.9 ha Purpose Permit Area located on these tenements.

1.1 Purpose

The purpose of this document is to provide supporting information for PMI's application for a Native Vegetation Clearing Permit (NVCP) and address the requirements as prescribed under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004.*

This document provides a holistic assessment of the Project based on ecological studies within and in proximity to the Proposed Clearing Footprint and includes assessment of the Project against the 10 Clearing Principles (the Clearing Principles), as defined in Schedule 5 of the *Environmental Protection Act 1986* (EP Act).

This NVCP application supporting document is structured to provide the following information:

- description and map of the area proposed for clearing in regard to location, size and purpose;
- site overview with a brief description of local climate, biogeographic region, geology, land use and land systems, soils, hydrology and hydrogeology;
- description of the area to be cleared in regard to vegetation type, condition and representation in a regional context;
- list of flora species present and their conservation status;
- identification of any Threatened or Priority flora within the proposed clearing area;
- description of broad fauna habitat;
- a list of conservation significant terrestrial fauna species; and
- discussion of the proposed vegetation clearing in relation to the Ten Clearing Principles

1.2 Nomenclature

Key nomenclature used in this document:

- Clearing Permit Area: Development footprint (860.9 ha)
- Proposed Clearing Footprint: Area to be cleared (up to 638.4 ha)

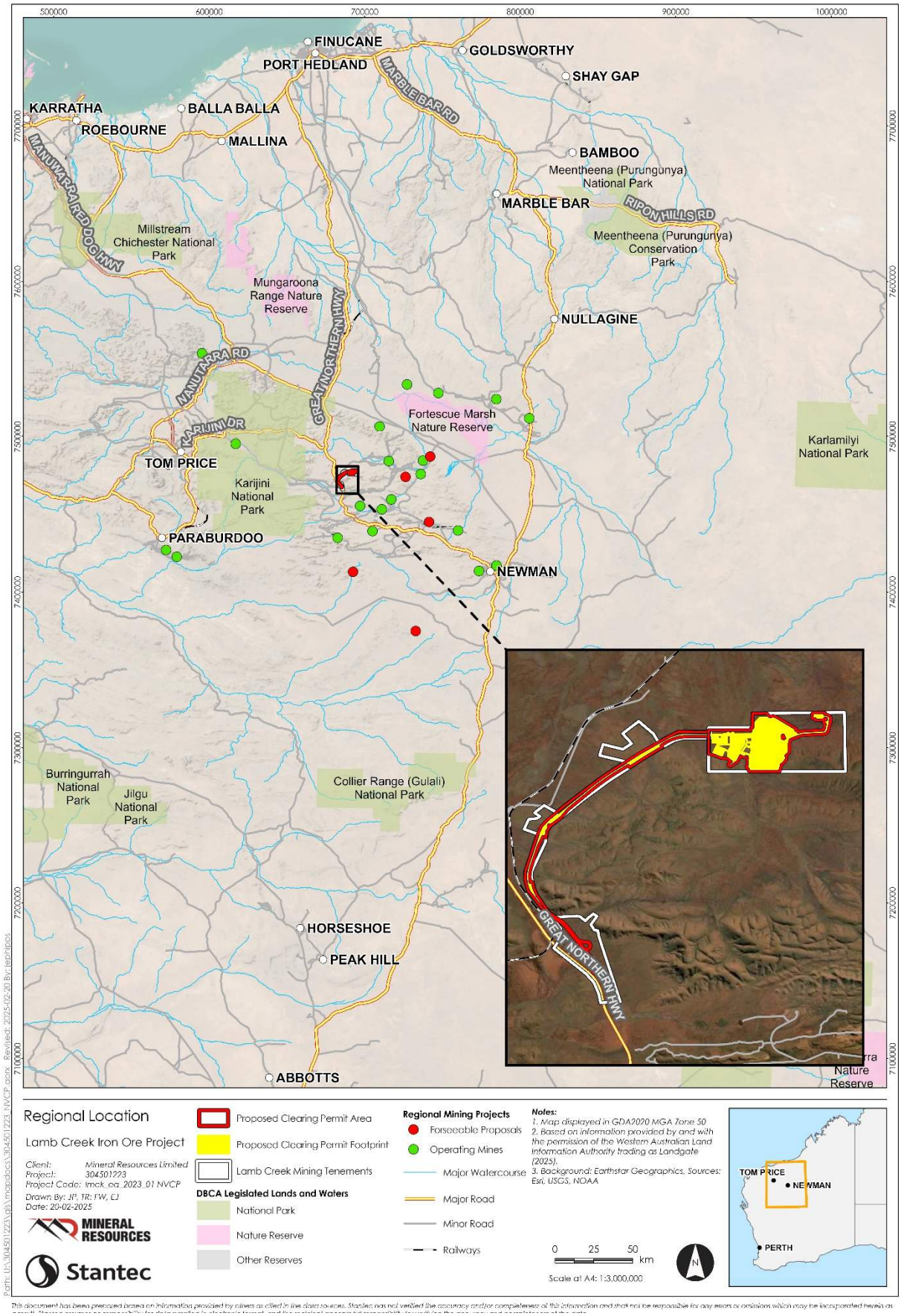

Figure 1: Project Location

1.3 Existing Approvals

The LCIOP was referred to the Environmental Protection Authority (EPA) under Part IV of the EP Act (Section 38 referral, APP-0026940) in December 2024. Following EPA's review of the referral, the scale and nature of potential environmental impacts of the LCIOP were found not to require assessment under Part IV, and a "Not Assessed" decision was reached by the EPA on 11 April 2025 (Ref. APP-0026940). As a result, approval for native vegetation clearing is being sought under Part V of the EP Act which is addressed in this document. Approval of prescribed activities will also be sought under Part V of the EP Act (Table 1).

Table 1: Pending Approvals for the Proposal

Process	Approval Authority	Relevant Legislation
Mining Proposal	DMIRS	*Mining Act 1978*
Mine Closure Plan	DMIRS	*Mining Act 1978*
Native Vegetation Clearing Permit	DWER	Part V Division 2 of the EP Act 1986
Bed and Banks Permit	DWER	*Rights in Water and Irrigation Act 1914*
Groundwater Licence	DWER	*Rights in Water and Irrigation Act 1914*
Works Approval	DWER	Part V of the EP Act 1986
EPBC	DCCEEW	*Environment Protection and Biodiversity Act 1999*

2. BACKGROUND

2.1 Location, Tenure and Site Layout

The proposed Clearing Permit Area lies within two tenements listed in **Table 2** and shown in **Figure 2.** These two tenements are held by Process Minerals International Pty Ltd, a wholly owned subsidiary of MinRes, and the mining tenure (M47/1592) overlies the Juna Downs pastoral lease held by Rio Tinto.

In addition, L47/1008 encroaches on one or more of the following tenements and land parcels:

- E 47/1329-I – Hamersley Iron Pty Ltd
- E 47/1790-I - Hamersley Iron Pty. Ltd
- ML 281SA - Itochu Minerals & Energy of Australia Pty Ltd, Mitsui Iron Ore Corporation Pty Ltd, BHP Minerals Pty Ltd
- Road - Main Roads Western Australia (Road)
- GE L021124 - (Hamersley Iron Pty Ltd – Yandicoogina Rail)
- PL N050471 – Juna Downs Pastoral Lease

Table 2: Project Tenements

Tenement	Area (Ha)	Holder	Granted	Expiry
M47/1592	1,200.4	Process Minerals International Pty Ltd	Pending	Pending
L47/1008	998.9	Process Minerals International Pty Ltd	16/07/2021	27/03/2044

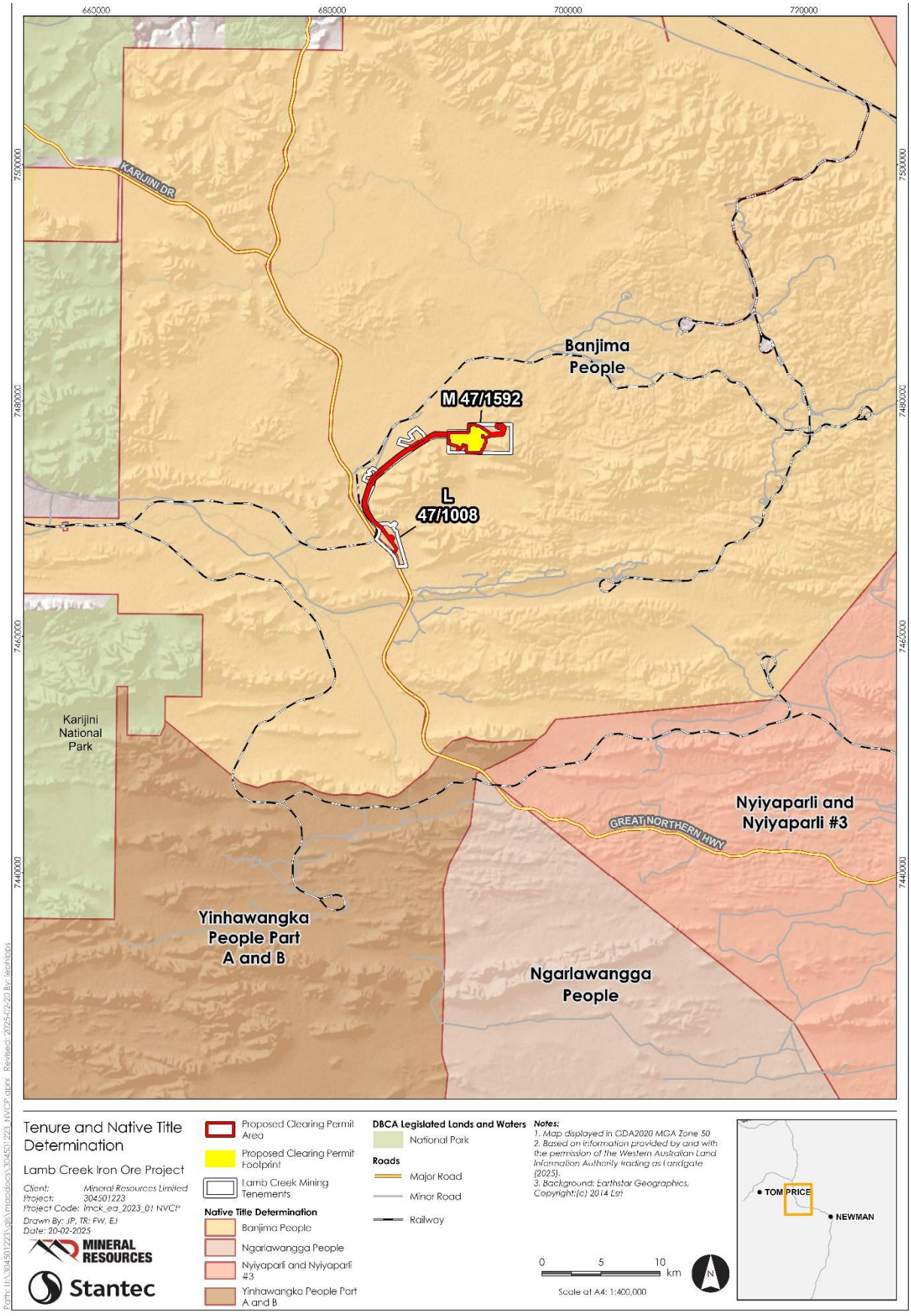

Figure 2: Lamb Creek Mining Tenements and Native Title Determination

2.2 Contact Details

The primary person responsible for the Proposal is as follows:

Proponent: Process Minerals International (PMI) a wholly owned subsidiary of Mineral Resources Limited (MinRes) (ACN 118 549 910)
Address: 20 Walters Drive, Osbourne Park, WA, 6017
Postal Address: Locked Bag 13, Osbourne Park DC, WA, 6916
Corporate contact: Celine Mangan – General Manager Environment and Heritage
Phone: +61 8 9315 8774
Email: celine.mangan@mrl.com.au

3. PROPOSED ACTIVITIES

The proposed Project involves the development of an open cut mine to allow the extraction of iron ore from the Lamb Creek deposit. This will comprise a multi-stage crushing and screening process plant and associated mine infrastructure including, but not limited to, site offices, maintenance and equipment service area, water pipelines, fuel storage, power generation, telecommunications, and an accommodation village for site personnel.

3.1 Description of Proposed Activities

The Project will consist of the development of an open cut iron ore mine and two waste rock landforms (WRLs) and supporting mining infrastructure, as detailed below.

The main mining activities that will require vegetation clearing are listed below:

- Mining and processing elements:
- open pit;
- internal haul roads;
- run of mine (RoM) pad;
- two waste rock landforms (WRLs);
- processing facilities;
- explosives storage;
- water storage dam;
- laydown/hardstands;
- ore stockpiles; and
- topsoil stockpiles;
- Infrastructure elements:
- accommodation camps;
- light/heavy vehicle roads;
- workshops;
- power supply infrastructure;
- fuel/hydrocarbon storage;
- potable water storage;
- waste disposal; and
- sewage treatment and disposal.

3.2 Estimated Vegetation Disturbance Requirements

MinRes proposes the removal of up to 638.4 ha of native vegetation within the Proposed Clearing Footprint to allow the works listed in Section 3.1. The Proposed Clearing Footprint (638.4 ha) and proposed Clearing Permit Area (860.9 ha) are shown in **Figure 3**.

MinRes will ensure that clearing is minimised as much as practicable and is maintained within the boundaries of the Clearing Permit Area, which has been designed to avoid and minimise impacts to the eight taxa listed under the *Biodiversity Conservation Act 2016* (BC Act) within and surrounding the Clearing Permit Area.

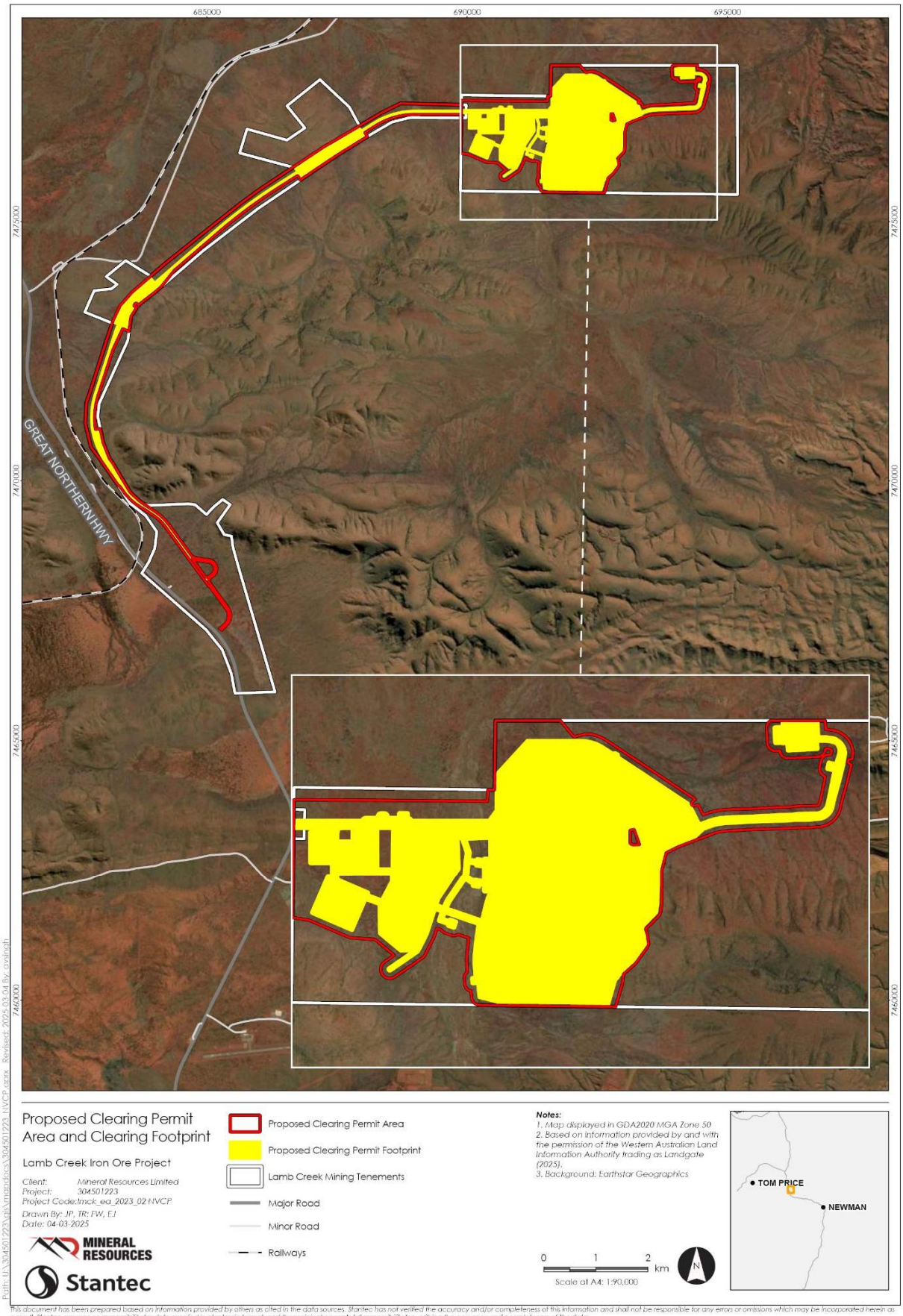

Figure 3: Proposed Clearing Permit Area and Clearing Footprint of this NVCP Application

3.3 Method of Vegetation Disturbance

MinRes will ensure all clearing and ground disturbance is carried out in accordance with the Land Activity Permit Procedure (MRL-EN-PRO-0005) and Land Clearing Procedure (MRL-EN-PRO-0004). Noting this, the following methods of vegetation clearing will be implemented during the construction phase of the Project:

- prior to clearing, a Project specific internal Land Activity Permit (LAP) (MRL-PD-PRO-0001) will be completed and signed off by multi-disciplinary MinRes departments;
- clearing areas will be delineated in accordance with the Project specific internal LAP, the clearing will be surveyed and demarcated with survey pegs and flagging tape;
- vegetation will be removed prior to topsoil striping. Vegetation will generally be cleared 'blade up' with bulldozers or graders within the Clearing Permit Area. Diggers and loaders may be used around drainage lines as required;
- the upper 0.2 m (topsoil) of the soil profile within the proposed disturbance area is stripped (where possible) and placed in stockpiles (paddock dumped not greater than 2m in height with adequate distance between them to create a series of mounds and troughs);
- subsoil may also be stripped and stockpiled separately to ensure adequate capping and growth media is collected;
- any rock fragments and surface litter present within the soil profiles will be collected and stockpiled with the topsoil;
- machinery operators will aim to minimise the frequency and intensity of disturbance, so they do not compromise the structural integrity of the material. Handling of topsoil will be minimised as much as possible, particularly when wet;
- soil stripping is planned to occur as close as possible to the time the proposed disturbance is scheduled to commence.

3.4 Rehabilitation and Maintenance

MinRes will implement a Mine Closure Plan (MCP) (submitted with Mining Proposal Reg ID 500175) in accordance with *Mine Closure Plan Guidance – How to prepare in accordance with Part 1 of the Statutory Guidelines for Mine Closure Plans* ((Department of Mines Industry Regulation and Safety 2020). Progressive rehabilitation will be undertaken over the life of the mine, with progressive backfilling of the pit occurring during all three stages of pit development, to at least 5 m above the pre-mining water table. An appropriate rehabilitation plan incorporating surface treatments and seed selection, collection, storage, and management will be implemented.

Areas disturbed through implementation of the Project will be designed to be safe and non-polluting and constructed so that final shape, size, stability, and ability to support local native vegetation are comparable to natural landforms in the area.

Weed and hygiene management measures will be implemented prior to arrival on site to minimise the risk of spreading or introducing weeds within the proposed Clearing Permit Area.

The following topsoil management measures will be undertaken:

- Available topsoil stripped from all clearing areas and stockpiled for use during rehabilitation;
- Material movement and storage incorporated in mine planning;
- Respreading of stockpiled topsoil and vegetation over rehabilitation areas as soon as they become available;
- Pre-stripping of topsoil not to be undertaken in wet conditions;
- Topsoil stripping depth will be pre-determined;
- Topsoil stockpiled to a height of no more than 2 m in height or other evidence based restrictions;
- Topsoil stockpiles located away from drainage channels and trafficable areas, and appropriately signed and recorded for future reference.

- Consider other growth media, and seed pellets where necessary.

3.5 Indicative Timeline

Subject to approval, construction of the Project is anticipated to commence in quarter three of 2025. The Project is not a staged development, and an indicative implementation schedule is shown in Table 3.

Table 3: Indicative development schedule for the Project

Stage	Indicative Timing
Commence construction	Q3 2025 to Q1 2026
Commence commissioning	Q4 2025 to Q1 2026
Commence operation	Q4 2025
Commence mining, haulage and export	Q4 2025 to Q1 2026
End operations	FY 2029
Commence decommissioning and closure	FY 2030

4. RECEIVING ENVIRONMENT

4.1 Biogeographical Location

The Interim Biogeographic Regionalisation for Australia (IBRA) is a bioregional framework that divides Australia into 89 biogeographic regions and 419 subregions on the basis of climate, geology, landforms, vegetation, and fauna (Thackway and Cresswell 1995). The proposed Clearing Permit Area lies within the Pilbara bioregion and the Hamersley (PIL3) subregion. The Hamersley subregion is described as a mountainous area of Proterozoic sedimentary ranges and plateaux, dissected by gorges of basalt, shale and dolerite (Kendrick 2001). Vegetation of the subregion is typically Mulga (*Acacia aneura*) low woodland over bunched grasses on fine textured soil in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soil of the ranges (Kendrick 2001).

4.2 Climate

The climate of the region is typically arid, with hot summers and cool winters. Rainfall can be highly variable, but generally higher in late summer as a result of tropical lows and cyclonic activity moving inland from the north-west coast. The closest Bureau of Meteorology (BOM) weather station to the Project area is Newman Airport (station number 007176), located approximately 130 km south-east. Rainfall data has been recorded since 1971 and temperature data since 1996. At Newman Airport, annual mean rainfall was 325 mm and annual mean maximum temperatures ranged from 23°C in June to 39°C in December (**Figure 4**) (BoM 2022).

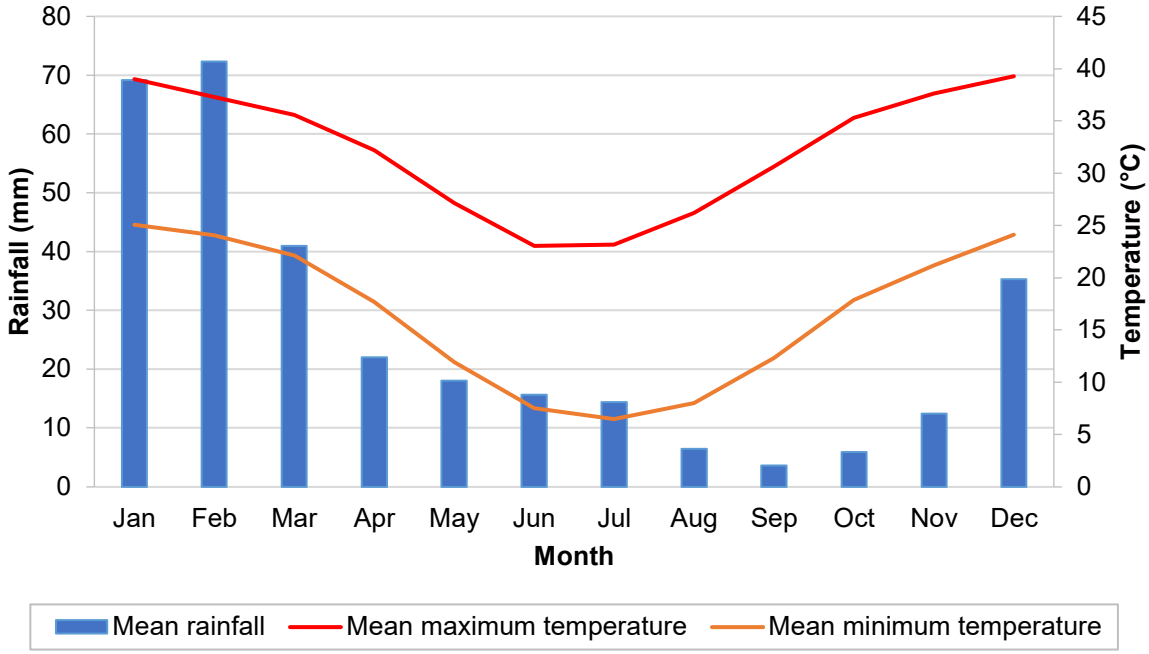

Figure 4: Mean monthly rainfall (1971-2021) and temperature data (1996-2021) recorded at Newman airport (station number 007176)

4.3 Land Use

The Clearing Permit Area is largely within the Juna Downs pastoral lease (LPL N050471). The dominant land uses in the Pilbara bioregion are pastoralism, conservation, mining, agriculture, tourism and urban.

4.4 Land Systems

The proposed Clearing Permit Area intersects five different land systems within the Hamersley subregion: Boolgeeda, McKay, Newman, Platform and Wannamunna. A description of each land system the approximate area of each land system within the proposed Clearing Permit Area are presented in **Table 4**.

Table 4: Land Systems of the Proposed Clearing Permit Area

Land System	Description (Van Vreeswyk *et al.* 2004)	Area within Proposed Clearing Permit Area (ha)(%)	Area within the Clearing Footprint (ha)(%)
Boolgeeda	Stony lower slopes and stony plains and narrow drainage floors and channels, supporting hard and soft spinifex grasslands and mulga shrublands, level stony plains and narrow sub-parallel drainage floors, relief up to 20 m. Often occurs below hill systems such as Newman and Rocklea.	762 (88.5)	562.1 (88.0)
McKay	Hills, ridges, plateaux remnants and minor breakaways of sedimentary and meta sedimentary rocks supporting hard spinifex grasslands; relief up to 100 m.	20.1 (2.3)	12.7 (2.0)

Land System	Description (Van Vreeswyk *et al.* 2004)	Area within Proposed Clearing Permit Area (ha)(%)	Area within the Clearing Footprint (ha)(%)
Newman	Rugged high mountains, ridges and plateaux with near vertical escarpments of jaspilite, chert and shale, supporting hard spinifex grasslands; relief up to 400 m.	53.5 (6.2)	51.2 (8.0)
Platform	Stony upper plains, dissected slopes and drainage floors, supporting hard spinifex grasslands. Erosional surfaces formed by partial dissection of the old tertiary surface. The gently inclined upper plains have extensive marginal dissection zones with gently inclined to steep slopes. Floors incised up to 30m with steep stable marginal slopes becoming wider downslope.	21.4 (2.5)	9.5 (1.5)
Wannamunna	Hardpan plains and internal drainage tracts supporting mulga shrubland and woodlands, and occasionally eucalypt woodlands). Depositional surfaces, level hardpan wash plains subject to overland sheet flow. Broad internal drainage flats receiving run-on from adjacent hardpan surfaces; rare, channelled tracts but moistly no organised through drainage; relief up to 5m.	4 (0.5)	3 (0.5)

4.5 Landform Soil and Geology

4.5.1 Landform

The landform types within the proposed Clearing Permit Area are considered to be extensively represented within the subregion. Gazetted landforms in the region include Iron Ore Ridge, which runs east-west around 12 km south of the Project Area (location of BHP's 'Mining Area C' iron ore mine as shown in **Figure 1**) (MBS Environmental 2021).

4.5.2 Topography

The topography of the subregion is rugged, comprising three small mountain ranges; Packsaddle Range in the centre, Jirrpalpur Range in the south and the Hancock Range to the north (Rapallo 2021b). The proposed Clearing Permit Area is situated within the Hancock Range, which is characterised by low rugged hills. The area ranges in elevation from approximately 700 m RL to 800 m RL on a ridgeline on the east side, although majority of the site is between 700 m RL and 720 m RL, with typical surface slopes of about 1%. The eastern ridge has a maximum height of approximately 1,064 m RL.

4.5.3 Soil

A baseline soil and landform assessment was undertaken in 2021, and the physical and chemical properties of soil in the proposed Clearing Permit Area are summarised below (MBS Environmental 2021):

- Stony soils were dominant, particularly in areas of higher elevation; gravel contents reflected this and were mostly >50% throughout the soil profile. Small pockets of red sandy loam were present in lower-lying areas, particularly in proximity to drainage channels.
- Depth to refusal (hardpan) varied between 700 and 2,000 mm.

- Topsoil and subsoil consisted of sandy loam and loamy sands. The soil contained between 12 and 18% clay and were generally non-dispersive, slightly to moderately acidic (5.6 - 6.6) and non-saline, having EC values of less than 10 mS/m. Consistent with their sandy texture, soils generally had a low cation exchange capacity (ECEC) and exhibited organic carbon and carbon to nitrogen (C: N) ratios typical of soils from northern Western Australian.
- Most nutrients and trace elements were present in adequate concentrations within topsoils with the exception of boron; cobalt; molybdenum and nickel, which may be deficient. Phytoavailable manganese concentrations were classified as elevated in some soils; the concentrations were unlikely to impact plant growth.
- Concentrations of potentially environmentally significant metals and metalloids were below relevant ecological investigation levels and consistent with levels typical of Australian soils, with the exception of selenium. It was found that while pseudo-total selenium concentrations were elevated, phytoavailable concentrations were low, indicating the presence of low levels of soluble forms of selenium and correspondingly a minimal environmental risk or phytotoxicity/ecotoxicity potential.

4.5.4 Geology

The proposed Clearing Permit Area occurs within the Hamersley Ranges which dominate the subregion (Thorne and Tyler 1997). Basement rocks in the region comprise early Proterozoic Brockman Iron Formation and Weeli Wolli Formation within the Hamersley Basin, a late Archaean to early Proterozoic (2,765-2,470 million years) depositional basin which is exposed over most of the southern part of the Pilbara Craton (MBS Environmental 2021). The Brockman Iron Formation, consisting of banded iron formation (BIF) and shale, is the main iron formation within the Hamersley Group (Trendall and Blockley 1970). The geological units found within the Project Area are outlined in **Table 5**.

Table 5: Clearing Area Geological Descriptions (Thorne and Tyler 1997)

Geological Unit	Description
Brockman Iron Formation	BIF, chert and pelite.
Quaternary Alluvium	Unconsolidated silt, sand and gravel; in drainage channels and adjacent floodplains
Quaternary Alluvium and Colluvium	Red-brown sandy clayey soil; on low slopes and sheetwash areas.
Cainozoic Colluvium	Partly consolidated quartz and rock fragments in silt and sand matrix; old valley-fill deposits.

4.6 Surface Hydrology and Hydrogeology

Within the Hamersley subregion, drainage runs into either the Fortescue River to the north, the Ashburton River to the south, or the Robe River to the west (Kendrick and McKenzie 2001) (**Figure 5**). There are no permanent or semi-permanent surface water features in the proposed Clearing Permit Area.

The Lamb Creek orebody is located approximately 600 m east of Mine Creek, which drains northward to a confluence with Marillana Creek about 9 km north of the proposed Clearing Permit Area. Marillana Creek flows into Weeli Wolli Creek which supports the Weeli Wolli Spring, listed as a Priority 2 (P2) priority ecological community (PEC), associated with riparian woodland and forest associations of unusual composition, relatively high diversity of stygofauna, and a diverse microbat assemblage (Department of Biodiversity Conservation and Attractions 2022; Kendrick and McKenzie 2001). Weeli Wolli Creek eventually transitions to a channel with an alluvial fan floodplain before discharging to the Fortescue Marshes (approximately 100 km downstream).

The Weeli Wolli Spring is the nearest site (approximately 31 km) considered to be of high ecological and cultural value, as it represents a rare source of permanent water within the region and is located upstream of the confluence of Weeli Wolli Creek and Marillana Creek.

Within the subregion, diffuse recharge to the groundwater system occurs at very low rates, occurring preferentially during rainfall-runoff events along the major creeks and other areas of surface water concentration / inundation (AQ2 2021). The main iron-bearing formation within the Hamersley Group, the Brockman Iron Formation, comprises generally low permeability BIF and shales. However, where mineralised, the BIF has enhanced permeability and storage and can be considered an aquifer.

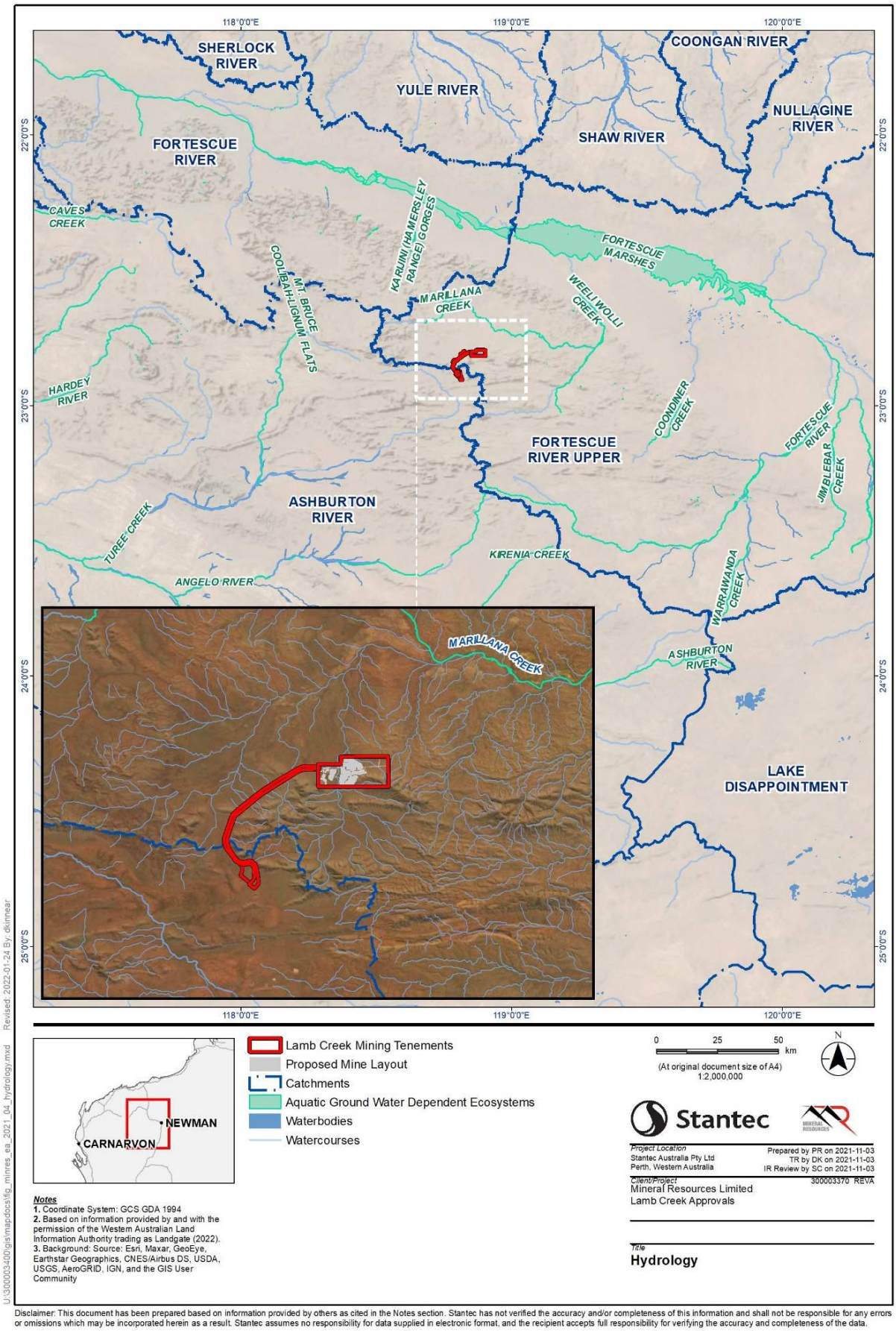

Figure 5: Surface Hydrology in the Vicinity of the Clearing Area

4.7 Flora and Vegetation

4.7.1 Flora and Vegetation Surveys

A search of the NatureMap database within a 40 km buffer of the proposed Clearing Permit Area is shown in **Appendix D**. In addition to the database search, the proposed Clearing Permit Area has been subject to several in-field surveys since 2012. In addition to surveys completed within the Flora and Vegetation Survey Area, regional surveys undertaken in the vicinity of the proposed Clearing Permit Area, were used to provide contextual information and to inform the baseline desktop assessment. There have been three detailed field surveys, one two-phase targeted survey and one desktop vegetation mapping exercise undertaken within, and for, the Flora and Vegetation Survey Area (**Figure 6** and **Appendix B, Appendix C**).

4.7.2 Vegetation

4.7.2.1 Pre-European Vegetation

Pre-European vegetation mapping was originally undertaken by Beard (1975) at various scales across WA and has since been updated to be consistent with the National Vegetation Information System (NVIS) descriptions at a scale of 1:250,000 (Department of Primary Industry and Regional Development 2019). Two vegetation associations have been mapped within the Flora and Vegetation Survey Area; Hamersley 18 and Hamersley 82 (**Table 6**) described as follows:

- Hamersley 18: Low woodland; continuous Mulga woodland communities over spinifex *Triodia basedowii* and *Triodia epactia* hummock grasslands on stony undulating plains; and
- Hamersley 82: Low scattered tree steppe; Snappy Gum *Eucalyptus leucophloia* over spinifex *Triodia wiseana* hummock grassland on stony undulating plains.

Vegetation association retaining less than 30% of their pre-European extent generally experience accelerated species loss at an ecosystem level and are regarded as being ‘vulnerable’, while vegetation types retaining less than 10% of their original extent are regarded as being ‘endangered’ (Authority 2000). The two vegetation associations found to intersect the Clearing Permit Area have close to 100% of their original extent remaining and are considered ‘least concern’. In addition, at a scale of 1:1,000,000, the vegetation units described by Beard (1975) within the Clearing Permit Area are well represented throughout the Pilbara bioregion.

Table 6: Vegetation System Associations within the Proposed Clearing Permit Area

Vegetation Association	Scale	Pre-European Extent (ha)	Current Extent Remaining (ha)	Pre-European Extent Remaining	Conservation Status	Extent In Clearing Permit Area (ha)	Extent in Clearing Footprint (ha)
Hamersley 18.11	State Wide	19,892,306	19,843,148	99.75%	Least Concern	588 (68.4%)	410 (64.3%)
	Pilbara Bioregion	676,556	671,843	99.30%	Least Concern		
Hamersley 82.3	State Wide	2,565,901	2,157,841	99.51%	Least Concern	272 (31.6%)	228 (35.7%)
	Pilbara Bioregion	2,563,583	2,550,888	99.50%	Least Concern		

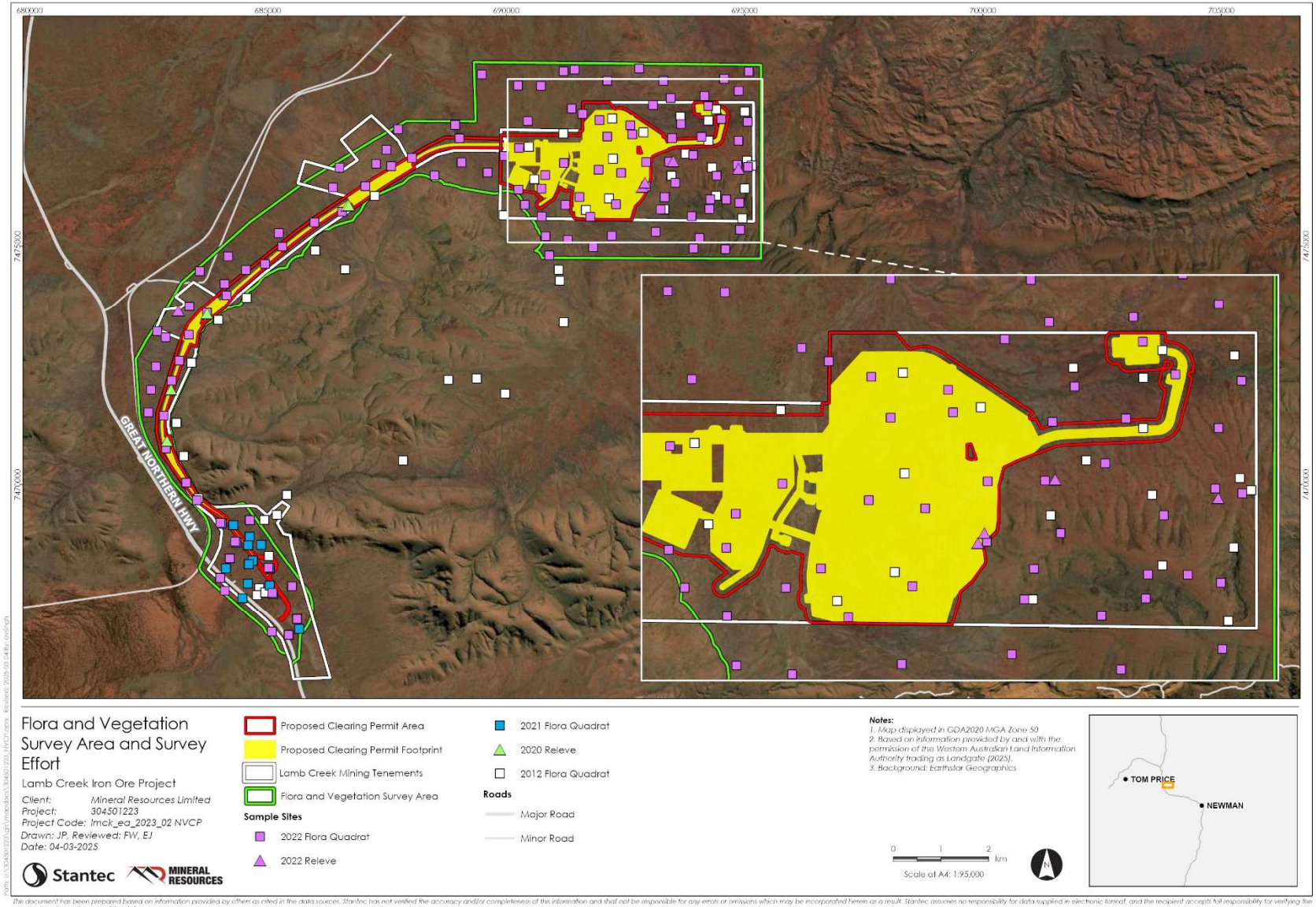

Figure 6: Flora and Vegetation Survey Area and Survey Effort

4.7.2.2 Vegetation Types

The most recent detailed flora and vegetation survey undertaken by Umwelt (2022a) found a total of 10 vegetation types within the study area with nine of these being within the Clearing Permit Area (**Table 7**, **Figure 7**, **Appendix B**). The vegetation types mapped belonged to three broad groups based on soil and topography. Group 1 is characterised by Woodlands over sparse shrublands and hummock grasslands on gentle lower to upperslopes on redbrown clay loams. Group 2 is charactered by Open Woodlands over sparse shrublands and tussock and hummock grasslands on steep slopes, crests, gullies and gorges with exposed ironstone and skeletal soils. Group 3 is characterised by Mulga Woodlands over tussock grasslands and open woodlands over sparse shrublands over hummock grasslands on red-brown clay-loam on plains; and open woodlands over shrublands over hummock grasslands on major and minor drainage lines. None of these communities were considered representative of any listed Priority Ecological Community (PEC) or Threatened Ecological Community (TEC), nor are they considered regionally significant vegetation for any other reason and are likely to be represented elsewhere.

4.7.2.3 Vegetation Condition

The condition of the vegetation in the Study Area was rated Good to Excellent (Umwelt 2022a). The majority of the vegetation (90.5 %) rated as Excellent, with no obvious signs of damage caused by human activities. The remainder of the vegetation was rated as Very Good and Good (8.2 % and 1.2 % respectively), with some historical mechanical disturbance but mostly low levels of introduced flora within the Study Area. Less than 1 % of the Study Area (5 ha) was mapped as cleared with no native vegetation remaining.

The vegetation of the Study Area has for the most part been subject to fire in the past 10 years however none of the Study Area has been burnt more recently than four and a half years prior to survey (Umwelt 2022). This has resulted in a mosaic of vegetation of different fire ages. Floristic data and site photos collected in 2020 and 2021 indicate that these fires have changed both vegetation structure and floristic composition since 2012 (Rapallo 2021b).

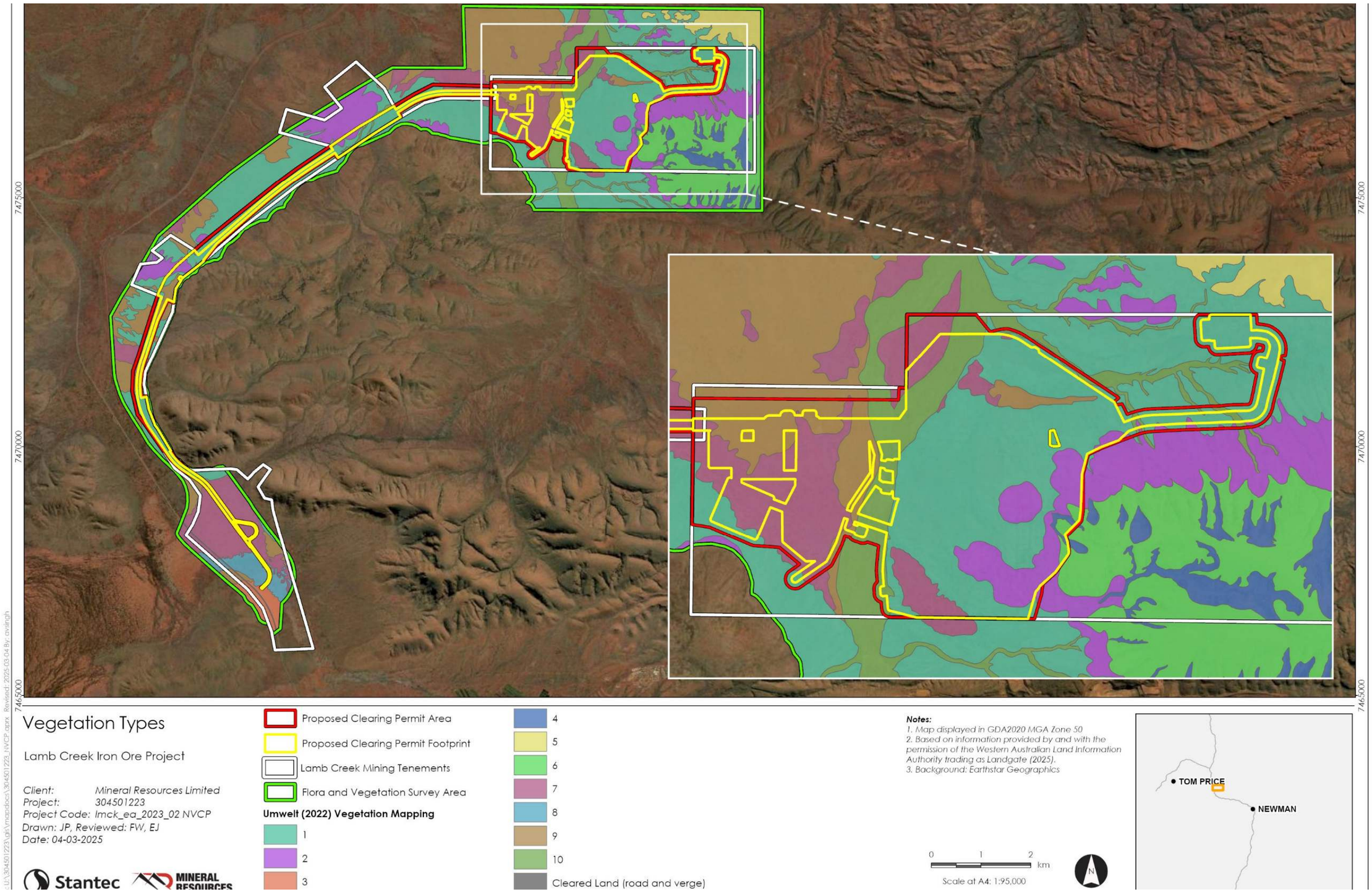

Figure 7: Vegetation Types mapped within the Flora and Vegetation Survey Area

Table 7: Vegetation Types Mapped Within the Proposed Clearing Permit Area

Vegetation Type	Description	Extent in Survey Area (ha)	Extent in Clearing Permit Area (ha)	Extent in the Clearing Footprint (ha)
Group 1: Woodlands over sparse shrublands and hummock grasslands on gentle lower to upperslopes on redbrown clay loams				
1	Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and/or *E. gamophylla* with isolated *Corymbia deserticola* subsp. *deserticola* over low to mid sparse to open shrubland dominated by species including *Acacia atkinsiana* and *A. ancistrocarpa* over low open hummock grassland of *Triodia pungens*, *T. vanleeuwenii* and *T. wiseana* and low open tussock grassland of *Themeda* sp. Mt Barricade and *Paraneurachne muelleri* on red-brown sandy clay loam to clay loam on gently inclined mid to lower slopes and associated drainage lines	1429.2 (37.75%)	445.79 (51.8%)	342.68 (53.7%)
2	Low open woodland of *Eucalyptus leucophloia* subsp. *leucophloia* with occasional *Corymbia deserticola* subsp. *deserticola* and *C. hamersleyana* over low sparse shrubland of *Acacia hilliana* and *Hakea chordophylla* over open hummock grassland of *Triodia vanleeuwenii* and *T. wi*seana on red-brown clay loam with ironstone pebbles on gently inclined lower to upper slopes	382.3 (10.1%)	66.36 (7.7 %)	62.37 (9.8%)
3	Isolated trees of *Corymbia hamersleyana*, *Eucalyptus leucophloia* subsp. *leucophloia* and *E. gamophylla* over low sparse shrubland of mixed Acacia species over low hummock grassland of *Triodia pungens* and *T. wiseana* on red-brown sandy clay loam on mid to lowerslopes with ironstone pebbles	48.2 (1.27 %)	0.21 (0.02%)	0.16 (0.03%)
Group 2: Open Woodlands over sparse shrublands and tussock and hummock grasslands on steep slopes, crests, gullies and gorges with exposed ironstone and skeletal soils.				
4	Low open woodland of *Corymbia ferriticola* or *Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* with *Ficus brachypoda* occurring on gorge and gully areas, over low sparse shrubland of mixed species dominated by *Corchorus laniflorus*, *Dodonaea viscosa* subsp. *mucronata* and *Gossypium robinsonii* over sparse hummock grassland dominated by *Triodia pungens* with *T. wiseana* and tussock grasses including *Cymbopogon ambiguus* and *Aristida burbidgeae* on red brown clay loam on steep upperslopes, gullies, breakaways and gorges with significant ironstone outcropping.	95.3 (2.52 %)	1.57 (0.2%)	1.46 (0.2%)
5	Occasional *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* over mixed isolated shrubs including *Acacia inaequilatera* and *Senna artemisioides* subsp. *glutinosa* over low hummock grassland of *Triodia wiseana* on steep upperslopes and associated drainage lines on red-brown clay loam with exposed ironstone and dolerite	100.9 (2.44 %)	0	0
6	Low woodland to open woodland of *Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* and occasional *E. kingsmillii* over mid isolated shrubs of *Acacia hamersleyensis* and *Grevillea wickhamii* ?subsp. *hispidula* over low hummock grassland of *Triodia wiseana* on red brown sandy clay loam on steep mid to upperslopes with exposed ironstone	316.6 (8.36 %)	3.98 (0.5%)	3.41 (0.5%)
Group 3: Mulga Woodlands over tussock grasslands and open woodlands over sparse shrublands over hummock grasslands on red-brown clay-loam on plains; and open woodlands over shrublands over hummock grasslands on major and minor drainage lines				
7	Isolated trees of *Corymbia hamersleyana*, *Eucalyptus leucophloia* subsp. *leucophloia* and *Eucalyptus xerothermica* over low open to sparse shrubland dominated by *Acacia aptaneura*, *A. aneura* and *A. pruinocarpa* over low tussock grassland to sparse tussock grassland dominated by *Themeda* sp. Mt Barricade (M.E. Trudgen 2471), *Enneapogon polyphyllus*, *Chrysopogon fallax* and *Aristida* spp. with occasional *Triodia pungens* on red brown clay loam with some ironstone pebbles on plains	523.4 (13.83%)	170.22 (19.8 %)	117.63 (18.4%)
8	Isolated trees of *Eucalyptus xerothermica* over tall open to sparse shrubland of *Hakea lorea* subsp. *Lorea* and *Acacia aptaneura* over low open tussock grassland of *Aristida contorta*, *A. inaequiglumis* and *Themeda triandra* on red-brown sandy clay to clay on plains	68.9 (1.82 %)	2.96 (0.3%)	2.22 (0.4%)
9	Low open woodland of *Corymbia hamersleyana*, *C. deserticola* subsp. *deserticola*, *Eucalyptus gamophylla* and *Eucalyptus leucophloia* subsp. *leucophloia* over tall sparse shrubland of *Acacia atkinsoniana* and occasional *A. ancistrocarpa* and *A. aptaneura* over low hummock grassland dominated by *Triodia pungens* and occasional *T. wiseana* with *Paraneurachne muelleri* also dominant on red-brown clay loam with ironstone pebbles on plains	600.8 (15.87 %)	102.64 (11.9%)	67.81 (10.6%)
10	Low open woodland of *Corymbia hamersleyana* with occasional *Eucalyptus gamophylla*, *E. leucophloia* subsp. *leucophloia* and *E. xerothermica* over tall open shrubland dominated by taxa including *Acacia cowleana*, *A. tumida* var. *pilbarensis*, *Gossypium robinsonii* and *A. pyrifolia* over low open hummock grassland of *Triodia pungens* and tussock grassland dominated by *Themeda* sp. Mt Barricade (M.E. Trudgen 2471) and *Aristida* spp. on red-brown clay loams on major and minor drainage lines	215.5 (4.6 %)	67.13 (7.8 %)	40.67 (6.4%)
Cleared, rehabilitated, existing roads and tracks (not a vegetation type.)				
	Cleared	4.6 (0.12%)	0	0
Total		**3785.7**	**860.9**	**638.4**

4.7.3 Flora

4.7.3.1 Floristic composition

The Umwelt (2022a) survey recorded 328 vascular flora taxa from 45 families and 137 genera, including 7 introduced taxa (**Appendix B**). The most well-represented families were Fabaceae (64 discrete taxa, three known hybrids), Poaceae (56 taxa), Malvaceae (45 taxa) and Amaranthaceae (16 taxa).

4.7.3.2 Conservation Significant Flora

Nine significant flora species were recorded within, and adjacent to, the Clearing Permit Area (Umwelt 2022b). This includes six DBCA-listed Priority flora taxa, one Commonwealth listed taxa and two taxa considered significant under the 'new species or species with anomalous features that indicate a potential new species' which are referred to as "potentially undescribed (Umwelt 2022a):

- *Aristida jerichoensis* var. *subspinulifera* (P3)
- *Aristida lazaridis* (P2)
- *Corchorus sp*. (Potentially undescribed)
- *Eremophila naaykensii* (P3)
- *Euphorbia ferdinandi* s. lat. (Potentially undescribed)
- *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
- *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- *Rostellularia adscendens* var. *latiflora* (P3)
- *Seringia exastia* (T – Commonwealth)

Three significant taxa were recorded in the Indicative Footprint. These were:

- *Rhagodia* sp. Hamersley (M. Trudgen 17794) was not recorded Umwelt (2022a) but 3 plants were previously recorded by Rapallo (2022c).
- *Aristida lazaridis* (P2) - Umwelt (2022a) recorded three records with a total of four individuals while Rapallo 2022c recorded 58 plants from 44 records; and
- *Seringia exastia* (T) - Umwelt (2022a) recorded 13 records with a total of 221 individuals while Rapallo 2022c recorded none).

A single plant of *Aristida jerichoensis* var. *subspinulifera* has been recorded in the Clearing Permit Area in the indirect impact assessment zone by Umwelt (2022a) but outside of the Indicative Footprint. The Umwelt (2022a) survey recorded locations of *Seringia exastia*, a taxon currently still listed as Threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) however it has been delisted under the BC Act. Locations of significant flora taxa recorded in the Study Area by the Umwelt 2022 survey are presented in **Table 8** and **Figure 8.** The Umwelt survey recorded *Goodenia nuda* during the survey however this species has now been delisted from a priority 4 to not threatened and therefore has been excluded from **Table 8.** All significant flora taxa recorded within the Flora and Vegetation Survey Area also occur within the broader Hamersley subregion.

Table 8: Significant Flora Recorded in the Rapallo (2022c) and Umwelt (2022a) Flora and Vegetation Survey Area

Species	Conservation Status	Habitat	Vegetation Types	No. of Individuals: Survey Area (both surveys)	No. of Individuals: Clearing Footprint (Umwelt 2022a)	Other previous records of species
Seringia exastia	T/Cr	Variety of Mulga woodlands, sometimes with *Eucalyptus* spp., over *Acacia* spp. shrublands over *Triodia pungens* hummock grassland. Gullies and washouts. Red sand/laterite over sandstone.	1~,˜ 2, 3, 6, 9, 10	783 in 37 locations	221 from 13 records	The species is currently listed as Critically Endangered under the EPBC Act, but this is due to a taxonomic revision where a threatened and a common species were merged, and the name of the former was adopted as the new name, with the conservation status still attached. The current distribution map published on FloraBase (Western Australian Herbarium 1998) incorporates this revision, showing *Seringia exastia* as widespread across northern Western Australia, ranging from the Coolgardie and Murchison IBRA regions in the south to the Dampierland IBRA region in the north. *Seringia exastia* is no longer listed as Threatened under State legislation and is expected to be de-listed under the EPBC Act in the future. The Rapallo (2022c) survey found 2 additional records in their targeted flora survey area of the Lamb Creek site.
Aristida lazaridis	P2	Plain, clay/loam, drainage, slope; often Mulga low open woodland with or without *Eucalyptus* spp., over variety of shrubs and herbs, often over tussock grassland but sometimes with *Triodia* spp. hummock grassland.	7~, 8~, 3, 9	7217 in 3094 locations	4 from 3 records (58 recorded by Rapallo (2022c)	Rapallo (2022c) recorded an estimated population of 12773 plants from 6757 point locations over the 2020 and 2021 surveys undertaken. Searches outside the survey area on foot and from helicopter recorded the species extending outside the project area. A significant population of *Aristida lazaridis* (2405 individuals) has been recorded in deep loam soil along an un-incised drainage line north and west of the BHP Packsaddle Village, approximately 7 km south-east of the Clearing Permit Area. The species has also been recorded from Lake Robinson on the eastern fringe of the Coondewanna Flats. The Western Australian Herbarium (WAH) has 20 specimen records within their database, with collections from locations across approximately 130 km extending from the Rangers Station at Karijini National Park to near Newman (DBCA 2021c). There are 43 records from the Rio Tinto Priority Flora database (Rio Tinto 2018) extending over 60 km. Additionally, this species occurs over a 2,500 km range across the Northern Territory and Queensland (Atlas of Living Australia 2021).
Aristida jerichoensis var. *subspinulifera*	P3	Plain or flat, clay/loam. Often Mulga woodlands or *Acacia* spp. shrublands over spinifex and/or tussock grassland.	8~	97 in 8 locations	0	Locally, there is a WAH record of *Aristida jerichoensis* var. *subspinulifera* from 800 m northwest of the Clearing Permit Area, from a level plain of orange light clay (DBCA 2021a). There are 39 specimen records within the WAH database, with collections from locations spread across 290 km extending between Nammuldi to Newman, with outliers in the Little Sandy Desert and Murchison, as well as collections from the Northern Territory and Queensland (DBCA 2021c; Atlas of Living Australia 2021).
Eremophila naaykensii previously *Eremophila* sp. Hamersley Range	P3	Rocky gullies and gorges. Steep rocky hill slopes and summits, high in the landscape.	4~	73 from 37 locations	0	This species has been recorded approximately 8 km south of the Clearing Permit Area (DBCA 2021a) and from Baby Hope Downs approximately 35 km southeast of Proposal from five locations in rocky gullies and gorges (Biota 2014). There are 15 specimen records within Western Australia, with WAH records from locations spread across 220 km from Paraburdoo to Newman (Western Australia Herbarium 1998) and 345 records, within the Rio Tinto database; recorded from Eastern Range, Channar, Turee Syncline, Karijini National Park, West Angelas, Angelo Central and Hope Downs 1 (Rio Tinto 2016).
Corchorus sp.	Potentially undescribed	The habitat of the recorded population was restricted to drainage lines of sandy loam soils, with no or very few stones, and an open lower stratum of tussock grasses and low shrubs	9~	35 from 23 locations	0	This species does not match reference specimens of any published species and has potential taxonomic significance. This entity is distinct in having elongated fruit. Fruiting specimens were collected in April and June 2022, indicating approximately a March-May flowering period. Flowering specimens were also collected in late June, though this could be considered a response to the unseasonably late rains of May 2022 rather than an indicator of usual flowering time. There are no other known populations of this entity, which may indicate that it is geographically restricted. A precautionary approach would see it regarded as a taxon of potential conservation significance, though this is not yet able to be formally assessed (Umwelt 2022a).
Rhagodia sp. Hamersley (M. Trudgen 17794)	P3	Mulga over mixed grassland. Emergent eucalypts and *Triodia* spp. grassland. Very open Mulga woodland over patchy mixed grasses. Floodplains, hardpan plains.	7~, 8, 9	53 from 49 locations	0 (3 recorded by Rapallo (2022c))	This species is widespread on Mulga plains. Locally, 13 populations of *Rhagodia* sp. Hamersley have been recorded within 3 km of the Proposal Area. There are 63 specimen records in the WAH database, with collection locations spread approximately 290 km extending between Tom Price and Newman (DBCA 2021). Fifty plants were recorded near the Great Northern Highway by Rapallo (2022c). The Rapallo (2022c) survey found 49 additional records in their targeted flora survey area of the Lamb Creek site with 3 plants been previously recorded in the Clearing Permit Area. Umwelt (2022a) however did not record any plants in their survey.
Hibiscus sp. Gurrinbiddy Range (M.E. Trudgen MET 15708)	P2	Rocky gullies, drainage lines and gorges with loamy skeletal soil	4~	17 from 2 locations	0	This taxon is known from 24 WA Herbarium records across 10 broad regional locations, two of which occur within DBCA-managed tenure within Karijini National Park, no records are within 10 km of the Study Area. This record of *Hibiscus* sp. Gurinbiddy Range (M.E. Trudge MET 15708) is a slight range extension of the known range of this taxon to the north.
Euphorbia aff. f*erdinandi*	Potentially undescribed	Often found in open woodland, *Acacia aneura* woodland, low shrublands, flats, in clay loam soil	8~, 7	60 individuals from 19 locations	0	This taxon was recorded from four locations near the Great Northern Highway. It was only recognised as a potentially undescribed species, and different from any known species, when the specimen was compared in detail with other Euphorbia specimens at the WAH. Further advice was sought from Steve Dillon at the WAH, who advised that the specimen differed from *Euphorbia ferdinandi* by having broader seeds and a stigma different from what has been described for this species (S. Dillon pers. comm., September 2021). All locations of this taxon were within the Flora and Vegetation Survey Area, but outside of the Development Envelope. The Rapallo (2022c) survey found 4 additional records in their targeted flora survey area of the Lamb Creek site.

˜ Designates preferred habitat based on proportional location representative and landforms/soils.

Species	Conservation Status	Habitat	Vegetation Types	No. of Individuals: Survey Area (both surveys)	No. of Individuals: Clearing Footprint (Umwelt 2022a)	Other previous records of species
Rostellularia adscendens var. latiflora	P3	Acacia shrubland, sometimes with Eucalypts and Corymbias, over shrublands and herblands, over tussock grassland, or *Triodia pungens* hummock grassland.	1	1	0	Local population has been assessed to be of low regional significance. The taxon has a distribution of approximately 450 km from west of Tom Price to north east of Meenthena Station. The species is known from 42 WA Herbarium records across more than 280 km from near Mt Farquhar (89 km north-west of Tom Price) to the Oakover River with at least six locations occur in the Karijini National Park. This taxon has been recorded approximately 20 km south-east of the Lamb Creek retention license on the MAC development Envelope (Umwelt 2022b). A single plant was recorded by Rapallo (2022c) within a minor flowline within the area of the proposed haul road. While the study area is within the known range of the taxon, Umwelt (2022a) however did not record any plants in their survey.

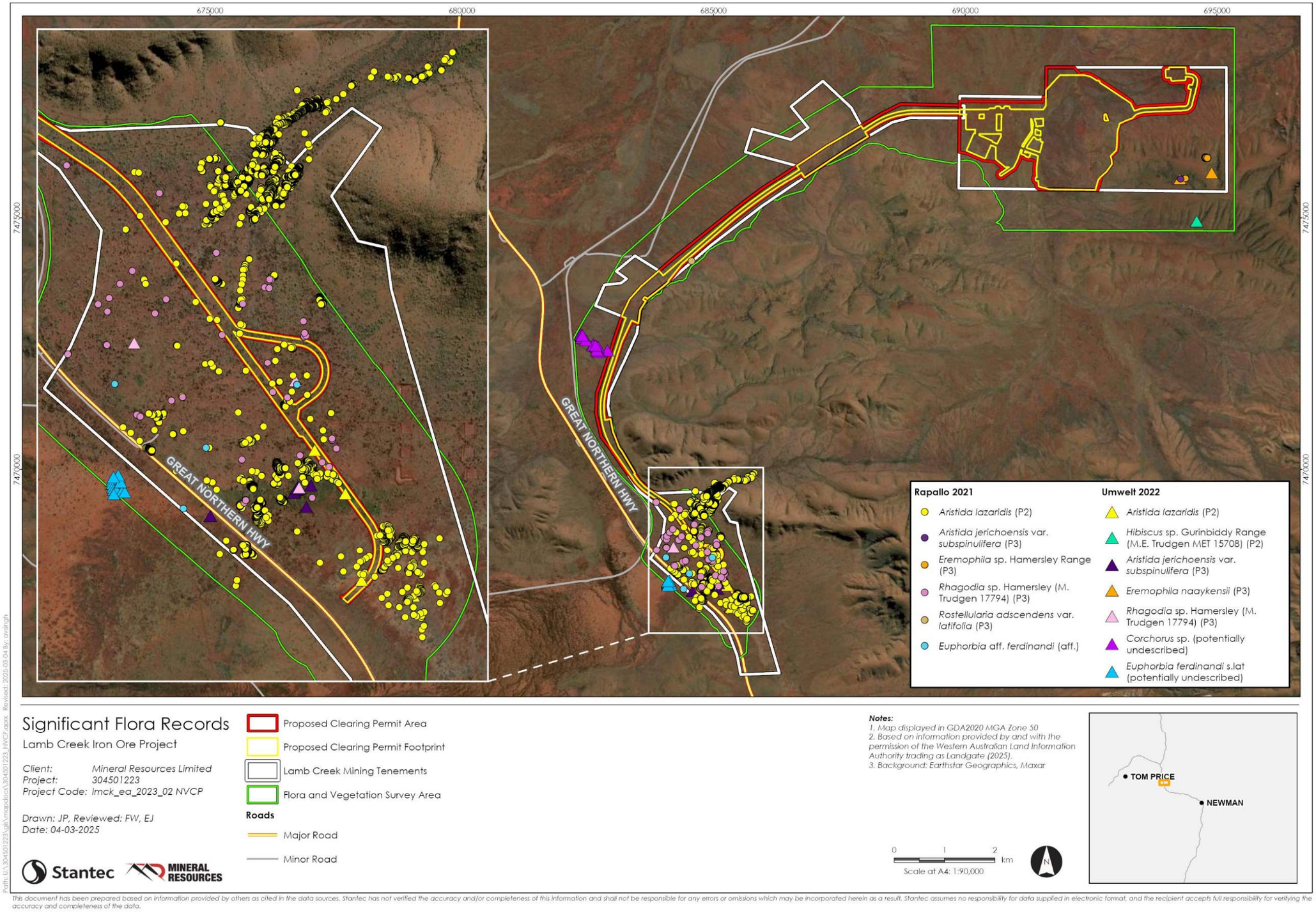

Figure 8: Conservation Significant Flora Records

4.7.3.3 Introduced Flora

In total, seven introduced flora species (weeds) have been recorded within the Study area (**Table 9**). None of these taxa were listed as Declared Pests (DPIRD 2020) or Weeds of National Significance (Commonwealth of Australia 2022). *Bidens bipinnata*, *Cenchrus ciliaris* and *C. setiger* were the most common introduced taxa in terms of numbers of locations and individuals recorded. Introduced flora were most commonly recorded in drainage areas (**Figure 9**). Whilst some of the introduced flora have a High/Rapid ecological impact and invasiveness ratings, no introduced taxa were widespread in the Study Area, and the vegetation was considered to be in mostly Excellent condition (Umwelt 2022a).

Table 9: Introduced Flora Recorded in the Umwelt (2022a) Flora and Vegetation Survey Area

Species	Common Name	Number of Locations	Number of individuals	Vegetation Type	Ecological Impact*	Invasiveness*
Bidens bipinnata	Bipinnate Begger's Tick	31	824	1, 2, 4, 6, 7, 9, 10	Unknown	Rapid
Cenchrus ciliaris	Buffel Grass	13	149	1, 4, 7, 10	High	Rapid
Cenchrus setiger	Birdwood Grass	17	2,654	1, 7, 10	High	Rapid
Malvastrum americanum	Spiked Malvastrum	11	70	1, 7, 10	High	Rapid
Portulaca pilosa	Pink Purslane	1	1	2	Not rated	Not rated
Setaria verticillata	Whorled Pigeon Grass	6	20	1, 7, 10	High	Rapid
Tribulus terrestris	Caltrop	3	5	7, 10	Unknown	Moderate

* Data from (Department of Biodiversity 2014)

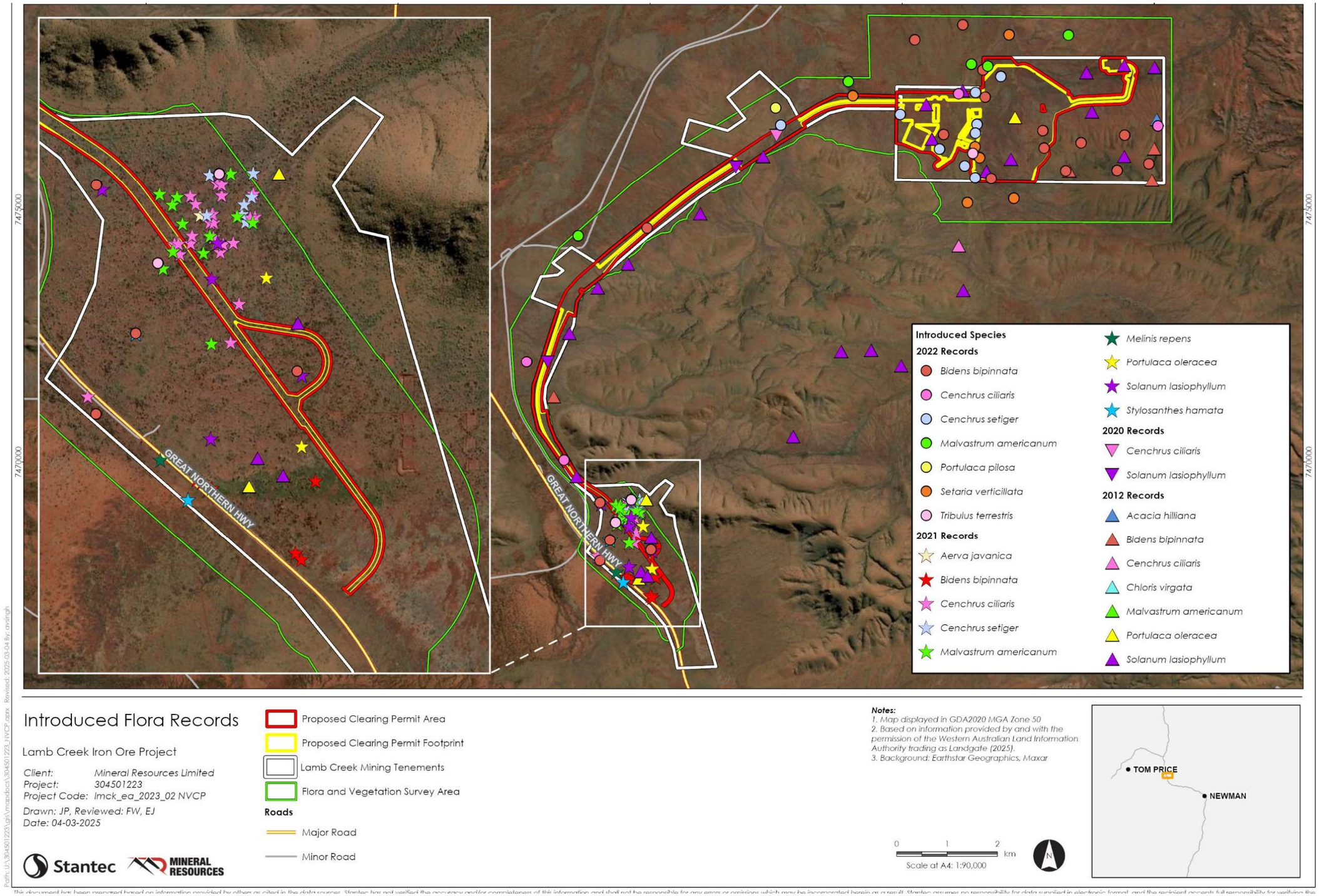

Figure 9: Introducted Flora Species Recorded in the Umwelt 2022 Flora and Vegetation Survey Area

4.8 Terrestrial Fauna

The proposed Clearing Permit Area has been subject to two detailed in-field surveys between 2012 and 2020 for terrestrial vertebrate fauna, and one detailed in-field survey in 2021 for Short Range Endemic (SRE) invertebrate fauna (**Appendix D**). In addition to this work, regional surveys undertaken in the vicinity of the Clearing Permit Footprint were collated to provide further contextual information. In total, two desktop assessments, two detailed terrestrial fauna surveys and one detailed SRE survey have been completed within the Clearing Permit Area.

4.8.1 Fauna Habitat

A total of 10 broad habitat types (excluding cleared areas) have been identified in the proposed clearing footprint (**Table 10**) (**Appendix D**) including:

• gorge, gully, and rocky breakaway;	• tussock grassland plain;
• hill crests and hill slopes;	• hummock grassland;
• stony plains;	• rocky ridge and gorge;
• drainage line (minor and medium);	• rocky hills and plateaus; and
• Mulga/*Corymbia* spp. plain;	• Mulga plain.

The following habitat features within the Terrestrial Fauna Survey Area are likely to be of importance to significant fauna and other fauna species in the region:

- gorges with surface water pools;
- caves (both deep and shallow for diurnal, nocturnal, and maternity roosts);
- rocky/pebble substrate;
- gullies;
- rocky outcrops;
- major watercourses; and
- open grassland and woodland.

Of the habitats recorded within the proposed Clearing Permit Area (**Table 10**), the rocky ridge and gorge habitat is considered to be important, however none of this occurs within the proposed Clearing Permit Area. The rocky ridge and gorge habitat may comprise caves and crevices for shelter, as well as breeding and roosting sites for several significant fauna species. This habitat is limited in its extent in the region, compared with other more widely occurring fauna habitats, such as stony plain. The drainage line habitat is also important habitat, although it is widespread in the region. The drainage line habitat is likely to support a greater abundance and diversity of fauna than surrounding habitats, and may provide a corridor for fauna movement. Any water present within drainage line habitats within the Clearing Permit Footprint would be ephemeral; therefore, is present only following major rainfall events.

Table 10: Broad habitat types within the Proposed Clearing Permit Area (Rapallo 2022b)

Habitat Type	Description	Value To Significant Fauna	Suitability for SRE Fauna	Extent In Terrestrial Fauna Survey Area (ha)(%)	Proposed Clearing Permit Area (ha)(%)	Indicative Clearing Footprint (ha)(%)
Gorge, gully, and rocky breakaway	Wide rocky gullies and gorges that bisect the hillcrest / hillslopes of the higher elevation areas containing caves, deep cracks, and crevices. Breakaways occur at the rugged edges of hillslopes. Spinifex hummock grassland with mixed shrubland patches or occasional *Ficus* spp. occurring in shaded locations or occasional *Eucalyptus leucophloia*.	**High value** • Potential foraging and dispersal habitat for Pilbara Olive Python, Northern Quoll, Ghost Bat and Peregrine Falcon. • Potential breeding habitat for Pilbara Olive Python, Northern Quoll and Peregrine Falcon. • Potential shelter habitat for Pilbara Olive Python and Northern Quoll. • Potential habitat for Pilbara Barking Gecko (*Underwoodisaurus seorsus*) and Gane's Blind Snake (*Anilios ganei*).	moderate to high	54.68 (3.32%)	0.0 (0.0%)	0.0 (0.0%)
Hillcrests / hillslope	Slopes and hill crests of higher elevation areas. Spinifex hummock grassland dominated with scattered *Eucalyptus leucophloia* trees and mallee, and *Acacia* spp. and *Grevillea* spp. shrubs on rocky, red skeletal soils (loams to clay/loam).	**Moderate value:** • Possible foraging and dispersal habitat for Ghost Bat, Western Pebble-mound Mouse and Northern Quoll. • Possible breeding habitat for Western Pebble-mound Mouse.	low	319.01 (19.39%)	61.63 (7.2%)	52.49 (8.2%)
Mulga / *Corymbia* spp. plain	Open Mulga shrubland patches over spinifex hummock or tussock grassland on loam to sandy clay loam occurring in areas of sheet flow drainage. The Mulga patches are surrounded by run-off zones of stonier plain with open spinifex / tussock grassland under very open Mulga / *Corymbia deserticola* shrubland.	**Moderate value:** • Possible foraging and dispersal habitat for Ghost Bat and Grey Falcon. • Possible habitat for Gane's Blind Snake.	medium	291.15 (17.70%)	252.65 (29.3%)	180.77 (28.3%)
Minor drainage	Smaller narrow drainage channels and shallow gullies that bisect the stony plain habitat and hill slopes, forming flow zones on the valley floor. Mixed open shrubland, to shrubland often over tussock grass and herbs with occasional fringing trees (scattered *Eucalyptus leucophloia*, *Corymbia* spp. or *Eucalyptus gamophylla*).	**Moderate value:** • Possible foraging and dispersal habitat for Ghost Bat, Grey Falcon, Peregrine Falcon, Pilbara Olive Python and Northern Quoll.	low	210.61 (12.80%)	92.21 (10.7%)	75.25 (11.8%)
Tussock grassland plain	Tussock grass (*Aristida inaequiglumis*, *Aristida contorta, Themeda triandra*) dominated, largely undefined drainage plain. Contains occasional open Mulga woodland stands or scattered Mulga individuals on brown sandy clay loam to loams. Contains patches of spinifex.	**Moderate value:** • Potential foraging and dispersal habitat for Ghost Bat, Grey Falcon and Peregrine Falcon. • Potential habitat for Gane's Blind Snake.	medium	137.93 (8.38%)	6.80 (0.8%)	5.34 (0.8%)
Medium drainage	Wide loamy drainage channels to undefined drainage (gravelly) containing occasional emergent *Corymbia hamersleyana* over patches of low mixed shrubs over Buffel Grass and tussock grass dominated understory on low relief. Contains very occasional Mulga stands in loamier soils.	**Moderate value:** • Potential foraging and dispersal habitat for Ghost Bat, Grey Falcon, Pilbara Olive Python, Northern Quoll and Peregrine Falcon. • Potential breeding and nesting habitat for Grey Falcon. • Potential habitat for Gane's Blind Snake.	moderate to low	113.06 (6.87%)	69.06 (8.0%)	43.41 (6.8%)
Stony plain	Plains and lower slopes of spinifex hummock grasslands (or in small patches, tussock grass) on red sandy clay loam to loam soil. Typically, with a mantle of gravel (less so on the valley floor adjacent to drainage, where soils are loamier). Little to no overstory aside from scattered trees or patches of mixed shrubs often regenerating from fire. Generally, *Eucalyptus leucophloia* occurs on the slopes and *Eucalyptus gamophylla* on lower slopes, with *Corymbia hamersleyana* typically associated with drainage.	**Low value:** • Foraging and dispersal habitat for Ghost Bat, Grey Falcon, Western Pebble-mound Mouse and Pilbara Olive Python. • Possible breeding and shelter habitat for Western Pebble-mound Mouse.	Moderate to low	517.94 (31.48%)	360.45 (41.9%)	266.35 (41.7%)
Road/ Bitumen	NA	**NA**	NA	n/a	0	0

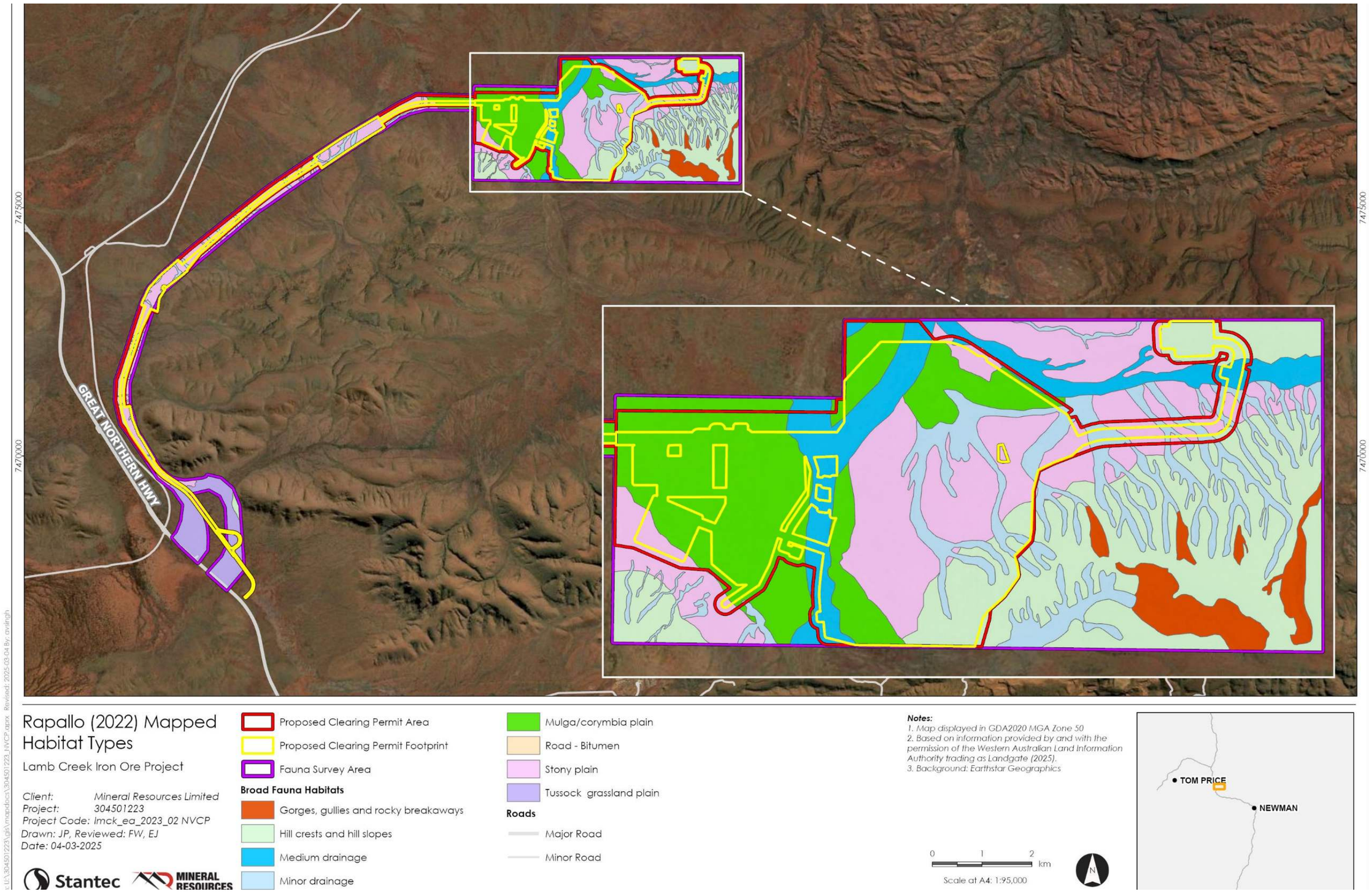

Figure 10: Fauna Habitats in the Clearing Permit Area

4.8.2 Fauna assemblage

There are 29 conservation significant fauna species listed under the WA BC Act and the Commonwealth's EPBC Act that have been identified as potentially occurring within the proposed Clearing Permit Area (Rapallo 2012a;2021b). Of these 29 species, one mammal and one bird species have been confirmed to occur (**Figure 11**).

4.8.3 Conservation Significant Fauna recorded in Clearing Permit Area

Two fauna species of significance were confirmed as occurring within the Clearing Permit Area based on the fauna identified in the field surveys (Rapallo 2012a;2021b):

- Western Pebble-mound Mouse (*Pseudomys chapmani*); and
- Fork-tailed Swift (*Apus pacificus*).

4.8.3.1 Western Pebble-mound Mouse

The Western Pebble-mound Mouse is listed as P4 under the BC Act. The species is currently restricted to the non-coastal central, eastern and southern parts of the Pilbara bioregion, occurring in ranges containing gentle stony slopes, often associated with *Acacia* spp. lined minor drainage areas (van Dyck and Strahan 2008). The tussock grasslands and stony plains habitats are most likely to support this species. This habitat is considered common within the proposed Clearing Permit Area, and there is widespread occurrence of suitable habitat for the species within the region (Woinarski *et al.* 2014).(Mitchell *et al.* 2002).

The Western Pebble-mound mouse was recorded during both Rapallo (Rapallo 2012a;2021b) in-field surveys, with 40 mounds recorded across the broader proposed Clearing Permit Area from within stony plains habitat (**Figure 11**). This species is widespread in the broader region and has also been recorded numerous times at Mining Area C (Biologic 2017) situated approximately 15 km from the proposed Clearing Permit Area (**Figure 1**).

4.8.3.2 Fork-tailed Swift

The Fork-tailed Swift is listed as Migratory under the BC Act and the EPBC Act. The species has been recorded within the proposed Clearing Permit Area and it is likely to forage above the proposed Clearing Area during summer (Johnstone and Storr 1998). As the species is entirely aerial, the Project is not expected to impact the species; therefore, the Fork-tailed Swift has not been considered further.

4.8.4 Conservation Significant Fauna likely to occur in Clearing Permit Area

In addition to the two species of significance recorded from the detailed in-field surveys, another eight fauna species of significance are considered likely to occur within the Clearing Permit Area, namely:

- Ghost Bat (*Macroderma gigas*) – Vulnerable (BC Act and EPBC Act);
- Northern Quoll (Dasyurus hallucatus) – Endangered (BC Act and EPBC Act);
- Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*) – Vulnerable (BC Act and EPBC Act);
- Pilbara Olive Python (*Liasis olivaceus barroni*) – Vulnerable (BC Act and EPBC Act);
- Gane's Blind Snake (*Anilios ganei*) – Priority 1 (BC Act);
- Pilbara Barking Gecko (*Underwoodisaurus seorsus*) – Priority 2 (BC Act);
- Grey Falcon (*Falco hypoleucos*) – Vulnerable (BC Act and EPBC Act); and
- Peregrine Falcon (*Falco peregrinus*) – Other Specially Protected (BC Act).

Fauna habitats are not restricted to the Clearing Permit Area and all habitats recorded in the broader Terrestrial Fauna Survey Area extend the Survey Area boundary. Suitable habitat for the Gane's Blind Snake Pilbara Barking Gecko, Grey Falcon and Peregrine Falcon occur in the Clearing Permit Area. The habitat within the proposed clearing area is not likely to be significant habitat or necessary for the maintenance of a significant habitat for these species and they are therefore not considered further.

4.8.4.1 Ghost Bat

The Ghost Bat is listed as Vulnerable under the BC Act and the EPBC Act. The Pilbara population of the Ghost Bat is considered an important population as it is genetically distinct and divergent (TSSC 2016). No Ghost Bat roosts were identified within the Clearing Permit Area during the in-field fauna surveys although five caves were being utilised by the Ghost bat outside of the Clearing Permit Area, but within the Terrestrial Fauna Survey Area (Rapallo 2012a;2022b). Bat Call WA in Rapallo (2022b) assigned the five Ghost Bat caves as the following cave type and habitat classification (Phoenix Environmental Services 2022):

- Ghost Bat roost cave recorded within the Terrestrial Fauna Survey Area:
  - Cave 1 (LC002) – Category 2 (situated approximately 730 m from the proposed pit); and
  - Cave 3 (LC001) – Category 3 (situated >1 km from proposed pit).
- Ghost Bat roost cave recorded outside of the Terrestrial Fauna Survey Area:
  - Cave 2 – Category 3;
  - Cave 4 – Category 3 (apartment block); and
  - Cave 5 – Category 2.

The closest distance from the proposed pit to a Ghost Bat cave is 729 m (Cave 1; Category 2). The same cave is located 350 m from a WRL and diversion bund. The remaining caves in proximity to the proposed pit are greater than 1 km away. Cave 4 and Cave 5 are located 202 m and 237 m, respectively, from the haul road (**Figure 11**). All caves will be retained.

Although the Ghost Bat has not been recorded within the Clearing Permit Area, the Ghost Bat will likely forage over all habitats present within the area. All areas of broad fauna habitats within the Clearing Permit Area are considered supporting habitat for Ghost Bat (of which 638.4 ha occurs in the Clearing Footprint.).

4.8.4.2 Northern Quoll

The Northern Quoll is listed as Endangered under the EPBC Act and BC Act. It is currently moderately common within the Pilbara and is found within 150 km of the coast where suitable rocky habitat occurs. The Pilbara population of Northern Quoll is genetically distinct from the nearest Kimberley population and is considered as important population as these are outside of the predicted range of cane toads (Hill and Ward 2010).

The Northern Quoll was recorded within the Terrestrial Fauna Survey Area during 2012 (Rapallo 2012a); however, no evidence of the species was found during the 2020 survey (Rapallo 2022b). The Northern Quoll has not been recorded within the Clearing Permit Area despite systematic trapping and active searches for Northern Quoll in 2012 and 2022 (Rapallo 2012a;2022b). However, Northern Quoll has been recorded on a motion camera approximately 5 km southwest of the proposed pit, and has been recorded infrequently at Mining Area C (show in **Figure 1)**, with all records being from scats (Biologic 2017).

The paucity of records within the Clearing Permit Area, and adjacent areas, combined with the lack of confirmed records (i.e. observations of individuals), suggests that the species is likely to occur in low numbers, if a permanent population occurs, or that the records to date have been made by individuals dispersing from nearby populations. The Pilbara population of Northern Quolls is considered to be an important population based on the records occurring in habitat which is free from cane toads and is therefore considered important for the long-term survival of the Northern Quoll (Hill and Ward 2010).

4.8.4.3 Pilbara Leaf-nosed Bat

The Pilbara Leaf-nosed Bat is listed as Vulnerable under the BC Act and the EPBC Act. The Pilbara Leaf-nosed Bat population of the Pilbara and Gascoyne regions is considered an important population as it comprises multiple colonies that form one interbreeding population (Threatened Species Scientific Committee 2016). No Pilbara Leaf-nosed Bat individuals have been recorded in surveys of the Terrestrial Fauna Survey Area; however, the species is considered likely to occur as a foraging visitor throughout the Clearing Permit Area, particularly along major creeks.

The Clearing Permit Area is unlikely to contain important roost habitat for this species and no roosts for this species were recorded in the rocky ridge and gorge habitat in the Clearing Permit Area. Despite extensive survey effort completed at Mining Area C (15 km from the Proposed Action Area as shown in **Figure 1**) the species was only recorded twice as a foraging visitor (Biologic 2017). The nearest high concentration of records for this species

occurs at Gudai-Darri, approximately 29 km north of the Clearing Permit Area, which is thought to contain a potential roost site in an old mine adit.

4.8.4.4 Pilbara Olive Python

The Pilbara Olive Python is listed as Vulnerable under the BC Act and the EPBC Act. Suitable denning habitat for this species within the Terrestrial Fauna Survey Area comprises gorges, gullies and rocky breakaways, with drainage line habitat used for foraging and dispersal. The Pilbara Olive Python was not recorded in the Clearing Permit Area during field surveys but was recorded approximately 3 km south of the proposed pit (**Figure 11**). Biologic (2017) recorded Pilbara Olive Python from Mining Area C from four records (15 km from the Proposed Action Area as shown in **Figure 1**). This species favours areas with permanent water holes (which are absent from the Clearing Permit Area) in rocky ranges or along rivers and is considered likely to occur in the Proposed Action Area at least as a foraging visitor (Rapallo 2022b).

4.8.5 Short Range Endemics

The following seven broad habitat types were identified as having the potential to support SRE invertebrate fauna and were assessed during the SRE invertebrate fauna survey (**Appendix D**):

- gorges, gullies, and rocky breakaways;
- minor drainage lines:
- medium drainage lines
- hillcrests and hillslopes;
- stony plain;
- tussock grassland plain; and
- Mulga/Corymbia spp. plain.

Table 11 shows the breakdown of these habitats within the Terrestrial survey area. Of the SRE habitats assessed, the stony plain habitat type is the most extensive habitat within the proposed Clearing Permit Area, covering 360.5 ha (41.9%). Factors that contribute to the presence of suitable microhabitats for SREs include southeast facing slopes, moisture, rocky areas, habitat isolates, deep leaf litter, mountainous areas, deep gullies or gorges and riparian vegetation. Within the proposed Clearing Permit Area, suitable microhabitats with a high probability of supporting SRE species include gorges, gullies, and rocky breakaways (**Figure 11**). Some habitats assessed within the proposed Clearing Permit Area have also experienced disturbance through selective clearing for tracks, drill pads, and laydown areas associated with exploration activities (Rapallo 2022a). No SRE habitats identified are confined or restricted to the proposed Clearing Permit Area.

Table 11: SRE Habitat Suitability within the Terrestrial Fauna Survey Area

SRE Habitat Type	Extent in Terrestrial Fauna Survey Area (ha)(%)	SRE Habitat Suitability
Gorges, gullies, and rocky breakaways	54.68 (3.32%)	• The deepest gullies in the Terrestrial Fauna Survey Area occur on the south-eastern corner within a north-west and northern-facing slope. Within the Terrestrial Fauna Survey Area, this habitat type is not isolated with no gorges, terminal gorges or gullies. • Suitability for SRE is rated as moderate to high. This broad habitat type is not restricted to the Terrestrial Fauna Survey Area, and the habitat type contains at least two microhabitat factors.
Minor drainage lines	210.61 (12.80%)	• Despite some patchy shading from vegetation, the minor drainage lines assessed had low soil moisture levels, low accumulated litter, and generally gravelly soils. Connectivity of minor drainage is high as the drainage lines flow fast after significant rainfall into a network of drainage. • Suitability for SRE is low based on low protection and low isolation. This broad habitat type is not restricted to the survey area.

SRE Habitat Type	Extent in Terrestrial Fauna Survey Area (ha)(%)	SRE Habitat Suitability
Medium drainage lines	113.06 (6.87%)	• In the Terrestrial Fauna Survey Area, detritus and litter within this habitat was sparse or in piles without accumulated soil-indicating recent fast flow and little opportunity for soil and fine detritus to accumulate. • Suitability for SRE is moderate to low based on medium to low protection and low isolation. This broad habitat type is not restricted to the Terrestrial Fauna Survey Area.
Hillcrests and hillslopes	319.01 (19.39%)	• Steep, south-facing hill slopes can provide a degree of protection; however, within the Terrestrial Fauna Survey Area there are no areas of high elevation that are steep, south facing and constantly shaded. Within the Terrestrial Fauna Survey Area, this habitat type is continuous (not isolated). • Suitability for SRE is low based on low protection and low isolation and this broad habitat type is not restricted to the survey area.
Stony plain	517.94 (31.48%)	• In the Terrestrial Fauna Survey Area, there are no areas of continuous shade occurring within this habitat due to topography. Within the Terrestrial Fauna Survey Area, this habitat type is continuous not isolated. • Suitability for SRE is moderate to low suitability based on low - medium protection and low isolation. This broad habitat type is not restricted to the Terrestrial Fauna Survey Area.
Tussock grassland plain	137.93 (8.38%)	• Mulga stands within the Terrestrial Fauna Survey Area provide shade; however, the stands are not extensive or thick, therefore the shade is patchy as is the accumulated litter. The soils are loamier than the surrounding habitats, so there are areas of higher soil moisture under the bigger mulga stands. • Suitability for SRE is medium based on low isolation and medium protection. This broad habitat type is unlikely to be restricted to the Terrestrial Fauna Survey Area.
Mulga/*Corymbia* spp. plain	291.15 (17.70%)	• Mulga stands within the Terrestrial Fauna Survey Area provide shade; however, the stands are not extensive or thick, therefore the shade is patchy as is the accumulated litter. • Suitability for SRE is medium based on low isolation and medium protection. This broad habitat type is unlikely to be restricted to the Terrestrial Fauna Survey Area.

A total of 25 possible SRE taxa were collected from within the Terrestrial Fauna Survey Area during field surveys and 16 possible SRE taxa were recorded in the Clearing Permit Area (Rapallo 2012a; 2022a). These potential SRE taxa are presented in **Appendix E**. The Mulga shrubland patches within the Mulga / Corymbia spp. plain habitat yielded the highest abundance and taxa richness of SREs, followed by stony plain, although survey effort was not uniform across habitats (Rapallo, 2022a).

No confirmed SRE invertebrate taxa were collected from the Terrestrial Fauna Survey Area or the Clearing Permit Area (Rapallo 2022a). Despite 16 possible SRE taxa being recorded in the Clearing Permit Area (**Appendix E**), habitat connectivity across the landscape suggests that the potential SRE taxa found in these habitats are likely to have their distributions extending outside the Clearing Permit Area (Rapallo 2022a).

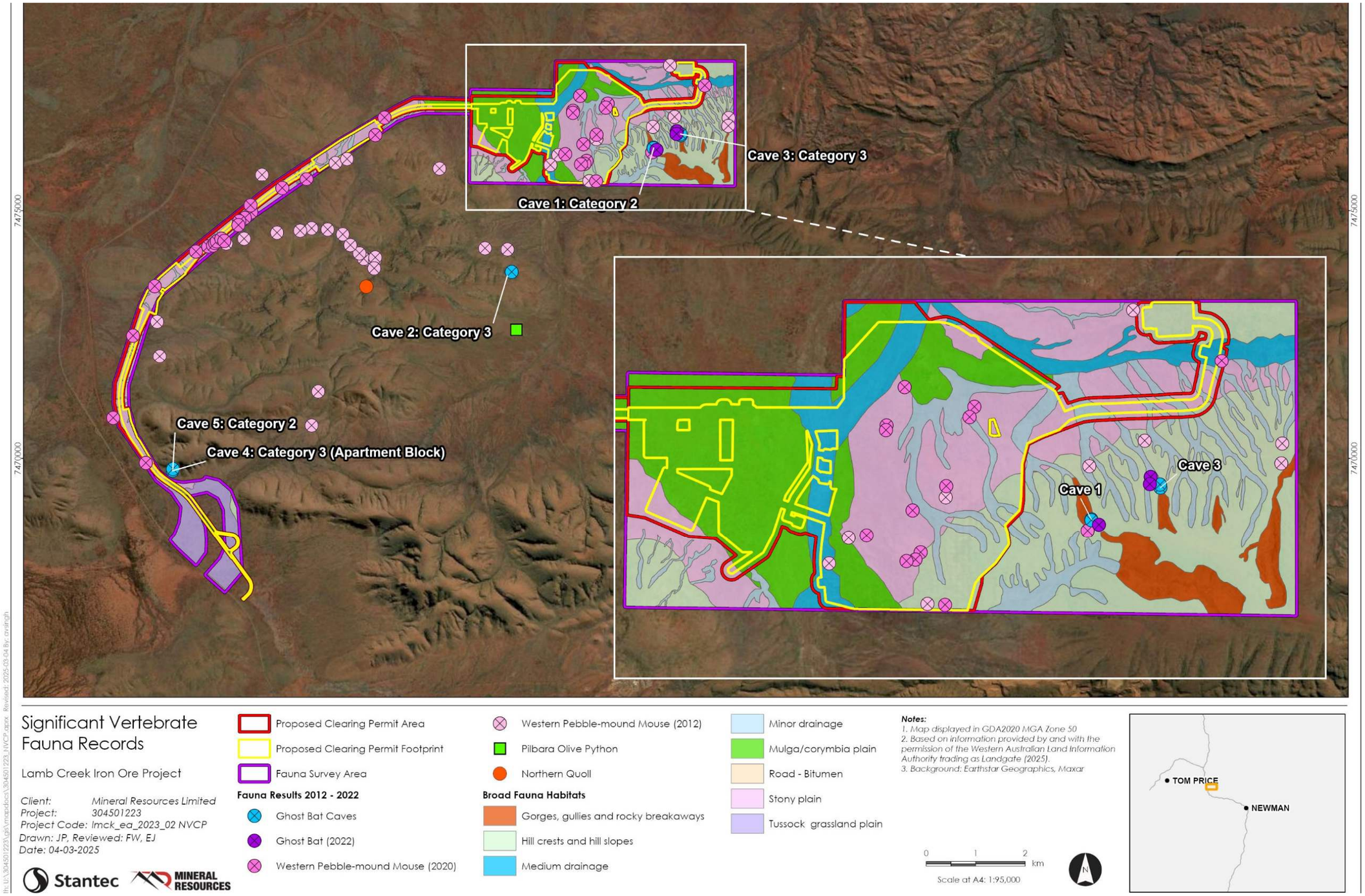

Figure 11: Significant Vertebrate Fauna Records within the Proposed Clearing Permit Area and Surrounds

5. ENVIRONMENTAL MANGEMENT MEASURES AND REHABILITATION

5.1 Approved Policies and Planning Instruments

The clearing of native vegetation in Western Australia is regulated under Part V of the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).
In addition to the matters considered in accordance with section 51O of the EP Act, MinRes has also had regard for the below statutes, polices and guidelines:

Other Legislation of relevance for assessment of native vegetation clearing includes:

- *Biodiversity Conservation Act 2016* (WA) (BC Act);
- *Conservation and Land Management Act 1984* (WA) (CALM Act);
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act);
- *Soil and Land Conservation Act 1945*;
- *Rights in Water and Irrigation Act 1914*; and
- *Aboriginal Heritage Act 1972.*

Other Relevant policies and guidance documents to this Project include:

- Environmental Offsets Policy (Government of Western Australia 2011);
- A guide to the assessment of applications to clear native vegetation (Department of Environment Regulation 2014);
- Procedure: Native vegetation clearing permits (Department of Water and Environmental Regulation 2021);
- Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (Environmental Protection Authority 2016b);
- Technical guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (Environmental Protection Authority 2020); and
- Approved Recovery Plans for threatened species.

5.2 Mitigation

MinRes has applied the EPA's mitigation hierarchy (avoid, minimise, rehabilitate, offset) during the design, planned construction and operation of the Project to reduce the potential impact to key environmental factors including Flora and Vegetation, Terrestrial Fauna, Inland Waters and Social surrounds. These management measures are detailed in subsequent sections.

5.2.1 Land Clearing and Flora Management

MinRes will ensure all clearing and ground disturbance is carried out in accordance with the LAP and Clearing Procedures. Vegetation clearing will be implemented in accordance with the Construction Environmental Management Plan (CEMP) during the construction phase of the Proposal. Clearing and ongoing operations for the Lamb Creek Project will also be undertaken in accordance with the Flora and Vegetation Management Plan (FVMP, **Appendix F**) developed for the site. The following actions will be implemented to minimise and manage impacts to native vegetation as a result of clearing (further detail provided in FVMP):

Avoid:

- Proposed clearing has been minimised as far as practicable to reduce the extent of disturbance required; the Proponent has reduced the Clearing Permit Area from 1,386 ha to 861 ha.
- A LAP and Land Clearing Procedure will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary.

- The area to be cleared shall be clearly demarcated and machinery operators made aware of the operational boundary, following confirmation with the relevant manager. Some heavy equipment used may have in-cab GPS mapping and alarm functions however in the absence of this functionality, other control measures such as the use of spotters and/or restricting clearing to the daylight hours will be undertaken.

Minimise:

- Spatially restricted footprint and short life of mine.
- Implement Flora and Vegetation Management Plan (FVMP)
- Follow management measures within the CEMP and Operations Environmental Management Plan (OEMP) with respect to clearing native vegetation.
- Clearing awareness training undertaken by all personnel involved in clearing activities.
- Vegetation clearing shall be kept to the minimum amount required, as far as practicable.
- Where significant flora taxa populations cannot be avoided, as may be the case with *Aristida lazaridis (*P2), infrastructure should be placed to avoid the highest densities, ensuring surface water flow is maintained.
- Significant flora populations and the area to be cleared shall be clearly demarcated and machinery operators made aware of the operational boundary, following confirmation with the relevant manager.

Rehabilitate:

- Implement an appropriate rehabilitation plan (surface treatments; seed selection, collection, storage and management) in accordance with the approved Mine Closure Plan (MCP).
- Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable.
- Salvage and stockpile soil and/or habitat features (e.g. vegetation, stumps, logs, boulders) for use in rehabilitation programs.

5.2.2 Weed Management

MinRes will aim to prevent the introduction of weeds and limit the spread of weeds in the proposed Clearing Permit Area as far as practicable. The following management actions will be implemented to minimise the risk of introduced flora resulting from the Project (further detail provided in FVMP):

Avoid:

- A LAP and Land Clearing Procedure will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary.

Minimise:

- Implement FVMP.
- A Weed Management Plan shall be prepared and implemented as part of the FVMP, prior to construction and operation, to control access and movement of vehicles and construction personnel to prevent the introduction and spread of weeds into the proposed Clearing Permit Area, weed free areas, and between work areas.
- Vehicles with ground engaging equipment to be cleaned, inspected and issued with a Weed Hygiene Certificate prior to entry to site or moving between areas on-site.
- Vehicles and equipment shall be restricted to designated roads and tracks.
- Weed awareness and weed hygiene training shall be delivered to all personnel as part of the induction process.
- Regular inspection and maintenance of vehicles and equipment shall be undertaken.
- Restrict movement of topsoil at known weed locations.
- Ensure timely response for the management of any declared weed occurrences or other weed infestations occurs.

Rehabilitation:

- Seasonal weed control programs shall be implemented, including herbicide spraying or physical removal, as required.
- Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable.

5.2.3 Management for Terrestrial Fauna

MinRes will aim to ensure fauna species are not adversely affected, via either direct impacts or impacts to habitat as far as practicable. Clearing and ongoing operations for the Lamb Creek Project will also be undertaken in accordance with the Significant Fauna Management Plan (SFMP, **Appendix G**) developed for the site. The following management actions will be implemented to minimise the potential impacts on fauna:

Avoid:

- The proposed Clearing Permit Area has been minimised as far as practicable to reduce the extent of disturbance required; the Proponent has revised the Clearing Permit Area from 1,386 ha to 861 ha.
- Implement a 100 m radius exclusion zone around recorded Category 2 and Category 3 Ghost Bat roosts.
- Temporary closure of Cave 1 during construction and operation – a geotechnical assessment (peak particle velocity-PPV) of Cave 1 indicating that the conservative limit of 25 mm/sec PPV (Bat Call WA 2023) to maintain structural integrity of the cave will be met. This is considered to be an acceptable method (i.e. exclusion from using cave) to avoid impacts to nesting Ghost Bats (Bat Call WA 2023). This indicates that once the cave is reopened, the Ghost Bats are likely to return.
- Avoid placement of infrastructure in any habitat of high significance, where practicable.
- A LAP and Land Clearing Procedures will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary.
- The area to be cleared shall be clearly demarcated and machinery operators made aware of the operational boundary, following confirmation with the relevant manager. Some heavy equipment used may have in-cab GPS mapping and alarm functions however in the absence of this functionality, pegging of clearing boundaries, supplemented with other control measures such as the use of spotters and/or restricting clearing to the daylight hours will be used to prevent unauthorised clearing.
- Habitat and fauna surveys have been undertaken to identify key areas and species to avoid.

Minimise:

- Implement Significant Fauna Management Plan (SFMP).
- Closure of Cave 1 is likely to be closed by using a lightweight steel frame fitted to the entrance and bird avery steel netting or any heavier style with apertures not exceeding 100 mm. This would exclude Ghost bats but smaller species up to 10 g such as Pilbara leaf-nosed bats (*Rhinonicteris aurantia*) or Finlayson's cave bat (*Vespadelus finlaysoni*) would be able to pass through unharmed. Other small fauna of a similar size including reptiles, frogs and snakes would also be able to access the cave. With regard to larger fauna such as Quolls, Dingoes and/or Macropod species that will be excluded by the closures, Lamb Creek Cave 1 is situated in an area with numerous alternative deep overhangs and shallow caves that are suitable for their foraging and/or resting activities. Each of these species is known to travel significant distances on a daily basis (Bat Call WA 2023).
- Clearing awareness training is to be undertaken by all personnel involved in clearing activities, including specific information on significant flora within the Clearing Permit Area, the requirements for clearing, and the LAP and Land Clearing Procedure processes.
- Vegetation clearing shall be kept to the minimum amount required, as far as practicable.
- Clearing extents and approved ground disturbance areas shall be pegged by qualified surveyors in the field prior to ground disturbance commencing.

- In unpegged areas, the use of GPS guided machinery or other control measures such as the use of spotters and/or restricting clearing to the daylight hours will be used, provided the appropriate LAP and Land Clearing Procedure processes have been followed.
- Vehicles and equipment shall be restricted to designated roads and tracks.
- Machinery and vehicle movements should be restricted during construction to minimise the potential for vehicle strikes, where practicable.
- Machinery and vehicle movements that must be undertaken between dusk and dawn should be limited to low speeds on access tracks.
- Excavations and trenches will be kept open only as long as needed to undertake the work and egress points will be provided dependant on depth / morphology of the excavation.

Rehabilitate:

- Implement an appropriate rehabilitation plan (surface treatments; seed selection, collection, storage and management) in accordance with the approved MCP.
- Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable.
- All bores shall be capped.

5.2.4 Dust Deposition on Vegetation Management

MinRes will minimise degradation of vegetation through dust deposition as far as practicable through the implementation of the following measures:

Avoid:

- Intersection of the haul road with the Great Northern Highway, and the remainder of the access road up to the operational area within M47/1592 will be sealed to reduce the generation of dust.
- Road haulage iron ore loads will be covered.
- Ground clearing (including topsoil stripping) shall not be undertaken during periods of high wind.
- A LAP and Land Clearing Procedure will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary.

Minimise:

- Spatially restricted footprint and short life of mine.
- Implement the FVMP.
- Vehicles and equipment shall be restricted to designated roads and tracks.
- Dust suppression shall be implemented to manage dust emission on cleared areas, unsealed roads and iron ore handling areas.
- Speed limits shall apply on unsealed roads.

Rehabilitate:

- Implement an appropriate rehabilitation plan (surface treatments; seed selection, collection, storage and management) in accordance with the approved MCP.
- Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable.

5.2.5 Soil and Topsoil Management

The following soil management will be implemented as recommended by (MBS Environmental 2021):

- Soil from all disturbance areas can be stripped and used as a plant growth medium for rehabilitation purposes. Subsoils from the pit and WRD areas are physically, chemically, and structurally very similar to the topsoils and thus can also be harvested for rehabilitation purposes.
- If shallow loams present in the northern part of the proposed Clearing Permit Area are to be harvested, these could be co-mingled with stony soils from elsewhere as both soil types are physically and chemically similar in nature. However, it would be advisable to separately stockpile these should a need for less stony soil be identified.
- Within the pit area, excavation was typically possible up to a depth of around 900 mm. Excavation depths indicate that soils should be harvestable to a depth of at least 1,000 mm within the footprint of the WRL 1. Excavation of up to 2,000 mm is considered possible within the WRL 2 footprint.
- Volumes harvested from the pit shell may be sufficient for rehabilitation and closure commitments. In this circumstance, excavation of 200 mm within the WRD footprints is considered sufficient to meet regulatory expectation of good practise in soil resource management.

5.2.6 Water Management

The proposed Clearing Permit Area is not located within any major drainage lines or watercourses; therefore, clearing is not expected to impact surface water flows. Additionally, the proposed clearing is not located in proximity to any Public Drinking water Source Areas.

As impacts to Inland Waters associated with the Project are expected to be negligible, with a spatially restricted clearing area and a short life of mine, the key mitigation measures are mostly associated with management strategies. Operational impacts will be managed through a licence issued under Part V of the EP Act.

5.2.6.1 Groundwater:

The following management measures will be implemented to minimise potential impacts associated with groundwater drawdown.

Avoid:

- Groundwater drawdown is unavoidable.
- No groundwater dependent vegetation was identified from the proposed Clearing Footprint, avoiding impacts to this GDE type.

Minimise:

- Short life of mine.
- Implement groundwater management strategies in accordance with the Groundwater Operating Strategy (GWOS).
- Groundwater abstraction for pit dewatering will be managed in accordance with a *Rights in Water and Irrigation Act 1914* (RIWI Act) groundwater licence and associated GWOS.
- Hydrogeological assessments will continue to be undertaken to inform progressive dewatering requirements.

Rehabilitate:

- Groundwater is expected to recover to a substantial extent within 3 years of cessation of dewatering, and to recover back to original Standing Water Level (SWL) within five to 30 years.
- The open pit will be backfilled to a minimum of 5 m above the baseline groundwater level, to manage residual drawdown following groundwater recovery.
- Implement an appropriate rehabilitation plan in accordance with the approved MCP. Rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable.

5.2.6.2 Surface Water

The design and implementation of the Project will incorporate management actions to minimise or mitigate any adverse changes in existing flow regime, flood characteristics, scour, siltation and erosion of the drainage channels, inundation of areas upstream and water starvation of areas downstream of the Project, as well as minimise impacts to groundwater as follows:

Avoid:

- Access road crossing of Mine Creek designed so as not to impede normal surface water flow.

Minimise:

- Culverts and floodways along access roads will maintain existing flood characteristics and maintain natural flow volumes.
- There is not anticipated to be any excess groundwater requiring discharge to the environment, minimising impacts to natural hydrological regimes, as well as impacts to any temporary aquatic biota (e.g. sediment loading), where present.
- Any runoff or rainfall required to be discharged to the environment (e.g. during a 10% AEP flood event) will be captured by bunding and diverted to settling ponds and sediment traps, located downstream of the mine disturbance area (outside of the 1% AEP floodplain of major drainage lines), prior to being released to the environment to reduce impacts to any temporary aquatic biota (e.g. sediment loading), where present.
- Any runoff or rainfall that accumulates in the pit will be used for dust suppression and/or as process water in the first instance. However, during rare rainfall events, there may be a requirement for short-term discharge to a local drainage line after passing through settling ponds and sediment traps, so as to limit impacts to natural hydrological regimes, as well as impacts to any temporary aquatic biota (e.g. sediment loading), where present.
- Sediment traps will be designed to remove particles greater than, or equal to, 75 µm from surface water prior to release to the environment.

Rehabilitate:

- Rehabilitate surfaces to align with original topography, as far as practicable.
- Implement an appropriate rehabilitation plan in accordance with the approved MCP.
- Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable.
- A MCP will be implemented to ensure that closure design aligns with regulatory expectations, including partial backfilling of the pit to avoid the development of a pit lake.

5.2.7 Hydrocarbon Management

There are no anticipated impacts from the Proposal on surface or groundwater quality as a result of contamination. Hydrocarbons will be managed to avoid leaks and spills through the use of bunds, location of bunded areas either outside floodplains or appropriately elevated to avoid the risk of inundation. Fuel / chemical storage and transfer will occur within designated bunded areas. Off road driving will be avoided. In addition, waste rock is not anticipated to contain potentially acid forming PAF or acid sulphate soil (ASS) material and seepage is not expected to occur due to the presence of drainage bunds to direct water away from the mining area as soon as practicable.

5.2.8 Rehabilitation

Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable. Rehabilitation will be undertaken in accordance with the approved MCP through the implementation of an appropriate rehabilitation plan including (surface treatments; seed selection, collection, storage and management). Rehabilitation activities will aim to meet post closure land use objectives. MinRes will:

- continue to consult with key stakeholders throughout the life of the Project and at closure;
- ensure the rehabilitated land surfaces are safe and stable; and

- undertaken rehabilitation tasks detailed in the MCP.

6. TEN CLEARING PRINCIPLES

The detailed assessment of the Ten Clearing Principles is presented in **Table 12**. The proposed clearing **may be at variance** with Principle (b) related to significant fauna habitat.

The proposed clearing was **unlikely to be at variance** with Principle (a) relating to biodiversity values and Principle (c) clearing of rare flora.

The proposed clearing was **not at variance** with remaining clearing principles related to TECs, remnant vegetation, watercourses or wetlands, land degradation, nearby conservation areas, surface and groundwater quality, and flooding incidence or intensity.

Table 12: Assessment against the Ten Clearing Principles

Clearing Principle	Assessment of variance to Clearing Principle	Outcome - Assessment of variance with clearing principle
Principle (a) *Native vegetation should not be cleared if it comprises a high level of biological diversity*	The Pilbara region is known to have very high biodiversity value, possessing high species richness and many endemic flora and fauna species. The native vegetation in the proposed Clearing Permit Area is considered to possess a moderate level of biological diversity due to the presence of conservation significant fauna and flora species and their habitats (Umwelt 2022). Therefore, the proposed clearing will be impacting the biological diversity in the area. The Project will result in clearing of up to 638.4 ha of native vegetation in a 'Good to Excellent' condition within the Pilbara bioregion with 9 of the 10 mapped vegetation types being impacted (Umwelt 2022a). Proposed clearing of native vegetation also impacts on two of the Beard (1975) vegetation associations. At a regional and subregional scale, the impact to the pre-European extent of these vegetation associations as a result of the Project is equivalent to, or less than, 0.06% and 0.01% of the Hamersley 18.11 and Hamersley 82.3 associations within the Pilbara bioregion, respectively (**Table 6**). Therefore, implementation of the Project will not result in a significant impact on the vegetation associations of the Pilbara bioregion. Of the nine significant flora taxa recorded, one Federally listed as Critically endangered, six being listed as DBCA priority flora and two being potentially undescribed recorded in the Flora and Vegetation Umwelt 2022 Survey Area, only two were located within the Clearing Footprint: • Four individuals of *Aristida lazaridis* (P2), and • 221 individuals of *Seringia exastia* (T) Rapallo (2022c) previously recorded 3 individuals of *Rhagodia sp. Hamersley* (M. Trudgen 17794) (P3*)* in the Indicative Clearing Footprint, however none were recorded more recently by Umwelt (2022a) (**Table 8**). The vegetation associations, fauna habitats and landform types present within the proposed Clearing Area, are well represented in surrounding area and are not considered restricted to the proposed Clearing Permit Area. Umwelt (2022b) assessed direct impacts and edge effects to all nine significant flora taxa and their preferred habitats as unlikely to be significant at both the local and regional scale, due to the low percentage of plants and habitat impacted, the range of populations and the common and widespread nature of their preferred habitats. Likewise, direct impacts to vegetation are assessed as unlikely to be significant at both the local and regional scale, due to the relatively low percentage of each vegetation type potentially impacted and the common and widespread nature of the vegetation system associations. The proposed Clearing Footprint is unlikely to represent an area of higher biodiversity than surrounding areas, in either a local or regional context.	The proposed clearing is **unlikely to be at variance** with this principle.
Principle (b) Native vegetation should not be cleared if it comprises the whole, or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to WA.	Two fauna species of significance were confirmed as occurring within the Clearing Permit Area based on the fauna detailed in-field surveys (Rapallo 2012a;2021b) within the Terrestrial Fauna Survey Area. These species comprise: • Western Pebble-mound Mouse (*Pseudomys chapmani*); and • Fork-tailed Swift (*Apus pacificus*). The Western Pebble-mound Mouse is listed as P4 under the BC Act. It is widespread in the broader region and has also been recorded numerous times at Mining Area C (Biologic 2017), situated approximately 15 km from the Clearing Permit Area (**Figure 1**). The Fork-tailed Swift is listed as Migratory under the BC Act and the EPBC Act. The species has been recorded within the broader Terrestrial Fauna Survey Area and it is likely to forage above the Clearing Permit Area during summer (Johnstone and Storr 1998). As the species is entirely aerial, the Project is not expected to impact the species. In addition to the two species of significance recorded from the detailed in-field surveys, another eight fauna species of significance are considered likely to occur within the Clearing Permit Area comprising the: • Ghost Bat (*Macroderma gigas*) – Vulnerable (BC Act and EPBC Act); • Northern Quoll (*Dasyurus hallucatus*) – Endangered (BC Act and EPBC Act); • Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*) – Vulnerable (BC Act and EPBC Act); • Pilbara Olive Python (*Liasis olivaceus barroni*) – Vulnerable (BC Act and EPBC Act); • Gane's Blind Snake (*Anilios ganei*) – Priority 1 (BC Act); • Pilbara Barking Gecko (*Underwoodisaurus seorsus*) – Priority 2 (BC Act); • Grey Falcon (*Falco hypoleucos*) – Vulnerable (BC Act and EPBC Act); and • Peregrine Falcon (*Falco peregrinus*) – Other Specially Protected (BC Act). Fauna habitats are not restricted to the Clearing Permit Area and all habitats recorded in the broader Terrestrial Fauna Survey Area extend beyond the Survey Area boundary. Suitable habitat for the Gane's Blind Snake, Pilbara Barking Gecko, Grey Falcon and Peregrine Falcon occur in the Clearing Permit Area however the habitat within the Proposed Clearing Area is not likely to be significant habitat or necessary for the maintenance of a significant habitat for these species. However, the Proposed Clearing Footprint is likely to significantly impact the habitat of four conservation significant species: • Northern Quoll (*Dasyurus hallucatus*): The Proposed Action will remove 44.2 ha of critical habitat and 125.6 ha of supporting habitat for Northern Quoll and will therefore have a significant impact on the species (as defined by DCCEEW). The removal of critical and supporting habitat for Northern Quoll is proposed to be offset via the EPBC approval. • Ghost Bat (*Macroderma gigas*): The Pilbara population of the Ghost Bat is considered an important population as it is genetically distinct and divergent (TSSC 2016). The Proposed Action will remove 624.4 ha of supporting habitat for Ghost Bat, which is considered to be a significant impact (as defined by DCCEEW) and is proposed to be offset via the EPBC approval.	The proposed clearing **is at variance** with this principle.

<table>
<tr><th>Clearing Principle</th><th>Assessment of variance to Clearing Principle</th><th>Outcome - Assessment of variance with clearing principle</th></tr>
<tr><td></td><td>

Pilbara Leaf-nosed Bat (Rhinonicteris aurantia): The Pilbara Leaf-nosed Bat population of the Pilbara and Gascoyne regions is considered an important population as it comprises multiple colonies that form one interbreeding population (TSSC 2016). The proposed Clearing Permit Area does not support critical habitat and they have not been observed in the area. It is considered unlikely the proposed Action will have a significant impact (as defined by DCCEEW).
Pilbara Olive Python (Liasis olivaceus barroni): No potential denning habitat is to be cleared by the proposed Clearing Permit Area. However, clearing of up to 118.7 ha of supporting habitat for Pilbara Olive Python is considered to be a significant impact (as defined by DCCEEW) and is proposed to be offset via the EPBC approval.

It is unlikely that important habitat for SRE's occurs within the Clearing Permit Area. No short-range endemic species were recorded within the proposed Clearing Permit Area. Despite 16 possible SRE taxa being recorded in the Clearing Permit Footprint (Appendix E), habitat connectivity across the landscape suggests that the potential SRE taxa found in these habitats are likely to have their distributions extending outside the Clearing Permit Footprint (Rapallo 2022a).
</td><td></td></tr>
<tr><td>Principle (c)
Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora</td><td>Seringia exastia, was recorded in the Clearing Footprint and broader Flora and Vegetation Survey Area. This species has been delisted under State legislation but is still listed under the EPBC Act as Critically Endangered; however, this is due to a taxonomic revision where a Threatened and a common species were merged, and the name of the former was adopted as the new name, with the conservation status still attached. The current distribution map incorporates this revision, showing Seringia exastia as widespread across northern Western Australia (Western Australian Herbarium 2022).</td><td>The proposed clearing is unlikely to be at variance with this principle.</td></tr>
<tr><td>Principle (d)
Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of, a Threatened Ecological Community</td><td>No PECs or TECs were identified within the Clearing Permit Footprint or the broader Flora and Vegetation Survey Area.
The nearest PEC to the Flora and Vegetation Survey Area is a subtype of the "Coolibah-lignum flats: Eucalyptus victrix over lignum community in the Pilbara". The edge of the PEC's buffer zone is located approximately 5 km south of the Flora and Vegetation Survey Area.
None of the vegetation types identified and described within the broader study area correspond with Commonwealth or State-listed TECs (Umwelt 2022b).</td><td>The proposed clearing is not at variance with this principle.</td></tr>
<tr><td>Principle (e)
Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared</td><td>At a regional and subregional scale, the impact to the pre-European extent of these vegetation associations as a result of the Project is equivalent to, or less than, 0.01% Therefore, implementation of the Project will not result in a significant impact on the vegetation associations of the Pilbara bioregion. Similarly, the regional impact of the Clearing Permit Area to soil-landscape units is unlikely to be significant (Umwelt 2022b).
<table>
<tr><th>Vegetation Association</th><th>Scale</th><th>Pre-European Extent (Ha)</th><th>Current Extent Remaining (Ha)</th><th>Pre-European Extent Remaining</th><th>Cons. Status</th><th>Extent In Clearing Permit Area (Ha)</th></tr>
<tr><td>Hamersley 18.11</td><td>State Wide</td><td>19,892,306</td><td>19,843,148</td><td>99.75%</td><td>Least Concern</td><td>588</td></tr>
<tr><td></td><td>Pilbara Bio-region</td><td>676,556</td><td>671,843</td><td>99.30%</td><td>Least Concern</td><td></td></tr>
<tr><td>Hamersley 82.3</td><td>State Wide</td><td>2,565,901</td><td>2,157,841</td><td>99.51%</td><td>Least Concern</td><td>272</td></tr>
<tr><td></td><td>Pilbara Bio-region</td><td>2,563,583</td><td>2,550,888</td><td>99.50%</td><td>Least Concern</td><td></td></tr>
</table>
Umwelt (2022b) identified that potential fragmentation impacts to significant flora through separation (or increasing existing separation) are likely to be negligible and not significant. The local impact of the Clearing Permit Area on all Vegetation Types is relatively low in terms of the percentage of impact, and not likely to be significant at the local scale. Considering that none of the Vegetation Types within the proposed Clearing Permit Area are significant, the potential regional impact is unlikely to be significant.</td><td>The proposed clearing is not at variance with this principle.</td></tr>
<tr><td>Principle (f)
Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland</td><td>There are no permanent watercourses or wetlands within the area proposed to clear therefore there is no vegetation growing in association with a watercourse or wetland.
The main surface water feature in the broader region is Weeli Wolli Creek – Marillana Creek flows into Weeli Wolli Creek located more than 30 km to the east of the Clearing Permit Area. The Weeli Wolli spring is located upstream of the confluence of Weeli Wolli Creek with Marillana Creek. Weeli Wolli Creek is unlikely to be impacted by the proposed clearing.
The risk of clearing causing surface hydrology issues is considered low. The main surface water features in proximity to the Clearing Permit Area include:

Mine Creek – bisects the central western side of the proposed Clearing Permit Area from south to north. Mine Creek is an ephemeral creek and/or floodplain that likely only flows for a short duration following intense rainfall, is unlikely to support permanent or semi-permanent surface water pools and does not appear to support a substantial riparian vegetation community.
Marillana Creek – the confluence with Mine Creek is located approximately 7 km downstream of the proposed Clearing Permit Area and supports riparian vegetation and seasonal surface water pools in the Flat Rocks area (approximately 24 km downstream of the Clearing Permit Footprint). Marillana Creek is currently impacted by BHP and Rio Tinto mining operations. Marillana Creek is unlikely to be impacted by the proposed clearing.

Umwelt (2022b) stated there is a potential for indirect impacts via interruption of surface water flows (including sheet flow) or changes in water quality to the following areas, where they occur downstream:

The population of Corchorus sp. (potentially undescribed, and an assessed conservation significance rating of high;
Riparian vegetation;
Mulga grove vegetation (VT7);
Populations of significant flora in the GNH intersection area, downstream of interrupted sheet flows.

</td><td>The proposed clearing is not at variance with this principle.</td></tr>
</table>

Clearing Principle	Assessment of variance to Clearing Principle	Outcome - Assessment of variance with clearing principle
	• Any further significant taxa which have been assessed as 'possibly' occurring in the Study Area - Appendix A in Umwelt (2022b), which are dependent or partially dependent on surface water flows. Culverts and other drainage structures at creek crossings sufficient to minimise operational impacts will be installed with the design of drainage structures considering potential impacts to downstream flora and vegetation through interruption of surface water flow and the aim to re-establish both the volume and spread of water flows to avoid these potential impacts. Surface water flow diversion structures will be relatively small in size, any impacts on flooding potential from these diversion structures would be limited to within a few hundred metres of the Clearing Permit Footprint, and are not expected to impact surface water flow downstream. The discharge of excess water into the environment will only occur during significant rainfall events, with this water being managed to remove sediment and contaminants, prior to discharge. Negligible indirect impacts area anticipated from the proposed clearing, with mitigation proposed to manage surface water flow on-site and to maintain hydrological regimes in the broader region through implementation of a Surface Water Management Plan (SWMP).	
Principle (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation	Land degradation includes any alteration to land capabilities, soil erosion, salinity, nutrient export, acidification, waterlogging and flooding that affects the present or future use of land. Based on the characteristics of soil and subsoil within the proposed Clearing Permit Area it is unlikely that any of the proposed disturbances will increase the chances that the area would be subject to waterlogging, acidification, salinization, subsoil compaction and/or erosion (MBS Environmental 2021). Drainage through the proposed Clearing Permit Area is ephemeral, part of the area is characterised as a floodplain, there is an apparent lack of permanent or semi-permanented surface water, and a lack of broad incised channels. No groundwater-dependent vegetation was recorded within the Flora and Vegetation Survey Area (Rapallo 2022c). Clearing of native vegetation for the construction of the Project may alter the natural hydrological regime and influence native vegetation health, as well as downstream receptors. Construction largely associated with linear infrastructure, such as the haul road, is of particular note for this indirect impact. However, the Project has been designed to maintain surface water flow so that impacts due to alteration of surface flow are unlikely to occur. The risk to native vegetation as a result of the altered hydrological regime is considered to be **low**; therefore, there is not expected to be significant impacts to native vegetation as a result of Project implementation.	The proposed clearing is **not at variance** with this principle.
Principle (h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area	The proposed Clearing Permit Area does not contain any environmental features of significance. It is located within the Hamersley subregion which hosts the Karijini Gorges and a Wetland of National Significance, located within the Karijini National Park. Wetlands of subregional significance within the Hamersley subregion include Weeli Wolli Spring, Palm Spring, Duck Creek, Mount Bruce Coolibah claypan, and springs and surface water pools of the Robe River. The nearest of these features is Weeli Wolli Spring at approximately 31 km to the northeast, with most others being over 100 km away.	The proposed clearing is **not at variance** with this principle.
Principle (i) Native vegetation should not be cleared if the clearing is likely to cause deterioration in the quality of surface or underground water	Given the location of several surface water features within the Proposed Clearing Area, the clearing of vegetation has the potential to impact the quality of surface water, directly and indirectly. However, the proposed management measures are designed to control surface water runoff and sediment loads. Risks related to groundwater quality were considered negligible in the hydrogeological assessment (PSM 2021). Thus, the proposed clearing is unlikely to cause deterioration in the quality of surface water or groundwater.	The proposed clearing is **not at variance** with this principle.
Principle (j) Native vegetation should not be cleared if the clearing is likely to cause, or exacerbate, the incidence or intensity of flooding	The topography and major drainage features within the Proposed Clearing Footprint indicate a significant flood risk is possible. There are no permanent watercourses or wetlands within the area proposed to clear. However, suitable drainage features incorporated into site design would appropriately direct surface run-off and avoid any flooding in adjacent natural areas. The proposed clearing is therefore unlikely to cause or increase the frequency or intensity of flooding.	The proposed clearing is **not at variance** with this principle.

7. STAKEHOLDER CONSULTATION

MinRes recognises the value of building positive relationships with key stakeholders and the communities in which we are active. We seek to engage early, openly, honestly and regularly with the communities impacted by our operations and consider their views in our decision-making with respect to key planning, operational and closure aspects.

A wide variety of stakeholders have been identified within the proposed Clearing Permit Area and include:

- Pastoral Lease Holders
- Native Title Groups
- Other Mining Tenement Holders
- Other Stakeholders (surface rights)
- Statutory Authorities, Government, Business and Community Bodies

A summary of the subject and objectives for stakeholder engagement is included in **Table 13**. Obtaining advice from the following groups will be ongoing.

Table 13: Ongoing Stakeholder Engagement Summary

Stakeholder	Key Interests
Local Government Authorities	
Shire of East Pilbara	Community improvement, including local infrastructure, recreational facilities, health services, community care, building services, planning and development approval, cultural facilities etc.
State Government Agencies	
DMIRS	Mining activities, port operations and tenure (including approvals).
DWER	Environmental impacts including prescribed activities including approvals.
DBCA	Impact to surrounding ecological communities.
DPLH	Crown land, Reserves and Aboriginal heritage management.
DPIRD	Regional Development opportunities
EPA	Assessment of significant proposals under Environmental Protection Act 1986
MRWA	Intersections with haul road / bridges ensuring appropriate design.
Federal Government Agencies	
DCCEEW	Matters of National Environmental Significance (MNES), EPBC referrals
Indigenous Groups	
Banjima People Banjima Native Title Aboriginal Corporation (Prescribed Body	Consultation, management and protection of Aboriginal cultural heritage and involvement with activities on their country. Employment and contracting opportunities. Heritage agreement.

Stakeholder	Key Interests
Corporate for the Banjima People)	
Land Users	
Hamersley Iron Pty Ltd	Mineral activities - will want to ensure that our proposed activities do not interfere with theirs. May want the ability to seek relocation of the road if it impacts areas that are to be mined.
BHP Billiton Minerals Pty Ltd	Mineral activities - will want to ensure that our proposed activities do not interfere with theirs. May want the ability to seek relocation of the road if it impacts areas that are to be mined.
Hamersley iron – Yandi Pty Ltd	Mineral activities - will want to ensure that our proposed activities do not interfere with theirs. May want the ability to seek relocation of the road if it impacts areas that are to be mined.
FMG Pilbara Pty Ltd	Mineral activities - will want to ensure that our proposed activities do not interfere with theirs. May want the ability to seek relocation of the road if it impacts areas that are to be mined.
Pastoralists	
Juna Downs Pastoral Lease	Ensure proposed activities do not impact their pastoral interests.
Non-Government Organisations	
Bird Life Western Australia	Environmental Impacts in relation to birds associated with the Project.
Conservation Council of WA	Environmental Impacts and sustainability of the Project.
Wilderness Society	
Wildflower Society of WA	Protection and preservation of wildflowers and native flora.

8. OTHER PLANNING MATTERS, NATIVE TITLE, ABORIGINAL HERITAGE

The Project lies wholly within the Banjima People's Native Title determination (WCD2014/001, WAD6096/1998). Initially recognised by the Federal Court in 2014 and varied by appeal in 2015, this determination area encompasses more than 8,000 km² of the Central Pilbara region. The Banjima People were recognised as having a range of exclusive and non-exclusive Native Title rights across the determination area.

The Banjima Native Title Aboriginal Corporation (BNTAC) is the Prescribed Body Corporate holding native title rights and interests on trust for the Banjima People.

Engagement with Traditional Owners in relation to the Project commenced in 2012 through the heritage survey processes and the negotiation of a native title agreement that was concluded in 2017 (since expired). Extensive further engagement and consultation has been undertaken with BNTAC, nominated heritage professionals and the MinRes Heritage Environment Reference Committee (MHERC) in relation to the Proposal.

The Proponent has been engaged with BNTAC and the relevant Banjima People throughout the history of the Project and continues to work together to strengthen this relationship through regular meetings. Collaborative consultation with BNTAC, their appointed consultants, and the MHERC has addressed:

- Proposal overview and progress updates, including amendment of Proposal elements following feedback.
- Key referral and approvals documents.
- The Proponent's commitment to its relationship with the Banjima People.

Heritage surveys, identifying Aboriginal sites to be avoided and managed on ground

- Business and employment opportunities that may arise during project development.

The MHERC ensures that the Banjima People have a direct role in decision-making processes. Through these ongoing engagements, the Proponent has been able to identify key Social Surrounds values that may exist within the disturbance envelope, such as general amenity and water availability. These values, important to the Banjima People and the cultural landscape, have been thoroughly examined to determine if and how they could be affected by the proposed Project. With guidance from the Banjima People, the Proponent has worked to develop strategies that aim to avoid, minimise, or offset any potential negative impacts on these values.

Together, the Proponent and the MHERC have carefully evaluated the potential consequences of the proposal on significant heritage values, ensuring that all relevant cultural, environmental, and social aspects are considered. This collaborative approach not only facilitates better-informed decision-making but also reflects a commitment to preserving the heritage and well-being of the Banjima People throughout the life of the Project.

As a result of the detailed engagement and consultation, in November 2024 BNTAC provided MinRes with a letter of support for the Lamb Creek Project. The letter acknowledges that MinRes has conducted thorough engagement with the Banjima People regarding the proposal and made adjustments to the Projects design and management plans based on feedback from the MHERC. As a result, both BNTAC and the MHERC are satisfied with the level of consultation so far and have expressed their support for the proposal, contingent upon certain conditions outlined in the letter. These conditions include, among others: no on-site landfills, pit backfilled to minimum of 5 m above the pre-mining water table, no permanent ex-pit storage of mineralised waste, various amendments which have been made to Proposal elements to minimise impacts to visual amenity and access road to be paved with asphalt to reduce impacts from dust.

The Proponent confirms that extensive heritage investigations have been conducted across the full extent of the area subject to this approval. The surveys have been done in close collaboration with the Banjima People and there nominated heritage professionals to ensure that all significant cultural and heritage values are identified and properly addressed and managed during construction and operations. Through this work, 28 heritage places were identified within, and adjacent to, the Proposal Area. A number of the sites recorded have been lodged (not registered) under the *Aboriginal Heritage Act 1972*. No registered sites recorded in the Aboriginal Cultural Heritage Inquiry System (AHIS) (DPLH 2018) under the *Aboriginal Heritage Act 1972* occur within the Indicative Footprint or Development Envelope.

The most significant site identified during heritage investigations is a large ethnographic site, known by the Banjima People as Gaguna. The 27 other places are archaeological in nature and consist of artefact scatters and scarred trees. **The Proposal's Indicative Footprint and Development Envelope avoid Gaguna and the 27 other identified heritage places to ensure that their cultural values are protected**. Due to the sensitive and confidential nature of the cultural significance of this place, no further details are provided in this NVCP submission.

MinRes confirms that no AHA (1972) approvals are required to support the activities undertaken, which are subject to the approval of the NVCP.

9. SUMMARY AND CONCLUSIONS

The proposed clearing **is at variance** with Principle (b) related to significant fauna habitat and the entire clearing footprint (638.4 ha) is proposed to be offset via the EPBC approval.

The proposed clearing was **unlikely to be at variance** with Principle (a) relating to biodiversity values and Principle (c) clearing of rare flora.

The proposed clearing was **not at variance** with remaining clearing principles related to TECs, remnant vegetation, watercourses or wetlands, land degradation, nearby conservation areas, surface and groundwater quality, and flooding incidence or intensity (Principles d, e, f, g, h, I, and j).

Impacts from the Project are expected to be negligible and will not result in any significant or long term impacts on key environmental factors within the proposed Clearing Permit Area or adjacent areas. Vegetation types and terrestrial fauna habitats are typically widespread, and significant flora and fauna species all occur outside of the proposed Clearing Permit Area.

The environmental impacts associated with the Project can be effectively managed by applying the EPA's mitigation hierarchy (avoid, minimise, rehabilitate, offset) for the Project.

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APPENDIX A
DATABASE SEARCH RESULTS

NatureMap
Mapping Western Australia's biodiversity

NatureMap Species Report

Created By Guest user on 24/03/2020

Kingdom Plantae
Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 118° 49' 57" E,22° 50' 02" S
Buffer 40km

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1.	4886	*Abutilon amplum*			
2.	4889	*Abutilon cryptopetalum*			
3.	9080	*Abutilon cunninghamii*			
4.	4891	*Abutilon fraseri (Lantern Bush)*			
5.	18120	*Abutilon fraseri subsp. fraseri*			
6.	4895	*Abutilon lepidum*			
7.	4896	*Abutilon leucopetalum (Desert Chinese Lantern)*			
8.	4898	*Abutilon macrum*			
9.	4899	*Abutilon malvifolium (Bastard Marshmallow)*			
10.	4901	*Abutilon otocarpum (Desert Chinese Lantern)*			
11.	43020	*Abutilon oxycarpum subsp. Prostrate (A.A. Mitchell PRP 1266)*			
12.		*Abutilon sp.*			
13.	42920	*Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)*			
14.	14113	*Abutilon sp. Pilbara (W.R. Barker 2025)*			
15.	11215	*Acacia adoxa var. adoxa*			
16.	3205	*Acacia adsurgens*			
17.	44579	*Acacia adsurgens x rhodophloia*			
18.	3209	*Acacia ampliceps*			
19.	3214	*Acacia ancistrocarpa (Fitzroy Wattle)*			
20.	3217	*Acacia aneura (Mulga, Wanari)*			
21.	37260	*Acacia aptaneura*			
22.	3223	*Acacia arida*			
23.	3228	*Acacia atkinsiana*			
24.	3232	*Acacia ayersiana*			
25.	3241	*Acacia bivenosa*			
26.	29571	*Acacia bromilowiana*		P4	
27.	19571	*Acacia catenulata*			
28.	23524	*Acacia catenulata subsp. occidentalis*			
29.	3260	*Acacia citrinoviridis*			
30.	17013	*Acacia colei var. colei*			
31.	3270	*Acacia coriacea (Wirewood)*			
32.	13502	*Acacia coriacea subsp. pendens*			
33.	3272	*Acacia cowleana (Halls Creek Wattle)*			
34.	3300	*Acacia dictyophleba (Sandhill Wattle, Ngarkalya)*			
35.	3316	*Acacia effusa*		P3	
36.	16174	*Acacia elachantha*			
37.	3326	*Acacia eriopoda (Broome Pindan Wattle)*			
38.	45337	*Acacia exigua*			
39.	3360	*Acacia hamersleyensis*			
40.	3370	*Acacia hilliana*			
41.	3377	*Acacia inaequilatera (Baderi)*			
42.	36418	*Acacia incurvaneura*			
43.	3399	*Acacia kempeana (Witchetty Bush, Ilykuwara)*			
44.	37240	*Acacia macraneura*			
45.	3434	*Acacia maitlandii (Maitland's Wattle)*			
46.	3435	*Acacia marramamba*			
47.	12952	*Acacia minyura*			
48.	3447	*Acacia monticola (Gawar, Lilwardi)*			
49.	36416	*Acacia mulganeura*			
50.	3475	*Acacia pachyacra*			
51.	15724	*Acacia paraneura*			
52.	3500	*Acacia pruinocarpa (Gidgee)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
53.	36800	*Acacia pteraneura*			
54.	3506	*Acacia pyrifolia (Ranji Bush, Kandji)*			
55.	29016	*Acacia pyrifolia var. morrisonii*			
56.	29015	*Acacia pyrifolia var. pyrifolia*			
57.	15215	*Acacia retivenea subsp. clandestina*			
58.	3519	*Acacia rhodophloia*			
59.	44584	*Acacia rhodophloia x sibirica*			
60.	13078	*Acacia sclerosperma subsp. sclerosperma*			
61.	29135	*Acacia sericophylla*			
62.	8949	*Acacia sibirica (Bastard Mulga)*			
63.	3553	*Acacia spondylophylla*			
64.	23526	*Acacia steedmanii subsp. borealis*			
65.	23528	*Acacia subtiliformis*		P3	
66.	13070	*Acacia synchronicia*			
67.	3573	*Acacia tenuissima*			
68.	3577	*Acacia tetragonophylla (Kurara, Wakalpuka)*			
69.	3579	*Acacia trachycarpa (Minni Ritchi, Balgali)*			
70.	23521	*Acacia trudgeniana*			
71.	20319	*Acacia tumida var. pilbarensis*			
72.	31511	*Acacia victoriae subsp. victoriae*			
73.	172	*Acrachne racemosa*			
74.	17422	*Adriana tomentosa var. tomentosa*			
75.	2646	*Aerva javanica (Kapok Bush)*	Y		
76.	4739	*Alectryon oleifolius*			
77.	2648	*Alternanthera denticulata (Lesser Joyweed)*			
78.	2651	*Alternanthera nana (Hairy Joyweed)*			
79.	2652	*Alternanthera nodiflora (Common Joyweed)*			
80.	34810	*Amaranthus centralis*		P3	
81.	31076	*Amaranthus cochleitepalus*			
82.	2660	*Amaranthus cuspidifolius*			
83.	2663	*Amaranthus interruptus (Native Amaranth)*			
84.	20018	*Amaranthus undulatus*			
85.	5277	*Ammannia baccifera*			
86.	19835	*Amphipogon sericeus*			
87.	13700	*Amyema bifurcata*			
88.	2372	*Amyema fitzgeraldii (Pincushion Mistletoe)*			
89.	11614	*Amyema gibberula var. gibberula*			
90.	2374	*Amyema hilliana*			
91.	2380	*Amyema miquelii (Stalked Mistletoe)*			
92.	2383	*Amyema preissii (Wireleaf Mistletoe)*			
93.	29080	*Amyema sanguinea var. pulchra*			
94.	11874	*Amyema sanguinea var. sanguinea*			
95.	40910	*Androcalva luteiflora (Yellow-flowered Rulingia)*			
96.	2333	*Anthobolus leptomerioides*			
97.	43104	*Apowollastonia hamersleyensis*			
98.	2961	*Argemone ochroleuca (Mexican Poppy)*	Y		
99.	204	*Aristida burbidgeae*			
100.	207	*Aristida contorta (Bunched Kerosene Grass)*			
101.	12063	*Aristida holathera var. holathera*			
102.	212	*Aristida inaequiglumis (Feathertop Threeawn)*			
103.	213	*Aristida ingrata*			
104.	17918	*Aristida jerichoensis var. subspinulifera*		P3	
105.	215	*Aristida latifolia (Feathertop Wiregrass)*			
106.	216	*Aristida lazaridis*		P2	
107.	217	*Aristida nitidula (Flat-awned Threeawn)*			
108.	218	*Aristida obscura (Brush Threeawn)*			
109.	221	*Aristida pruinosa (Gulf Feathertop Wiregrass)*			
110.	48669	*Arthropodium sp. Ironstone (J. Bull & J. Waters ONS PJ 36.01)*		P2	Y
111.	227	*Astrebla elymoides (Weeping Mitchell Grass)*			
112.	229	*Astrebla pectinata (Barley Mitchell Grass)*			
113.	6202	*Astrotricha hamptonii (Ironplant)*			
114.	4740	*Atalaya hemiglauca (Whitewood)*			
115.	33030	*Austrobryonia pilbarensis*			
116.	5186	*Bergia trimera*			
117.	7854	*Bidens bipinnata (Bipinnate Beggartick)*	Y		
118.	46338	*Bidens subalternans var. simulans*	Y		
119.	7866	*Blumea tenella*			
120.	2770	*Boerhavia coccinea (Tar Vine, Wituka)*			
121.	2773	*Boerhavia paludosa*			
122.	2774	*Boerhavia repleta*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
123.		*Boerhavia sp.*			
124.	11167	*Bonamia erecta*			
125.	6606	*Bonamia media*			
126.	44782	*Bonamia pilbarensis*			
127.	239	*Bothriochloa bladhii (Forest Bluegrass)*			
128.	16329	*Bothriochloa bladhii subsp. bladhii*			
129.	240	*Bothriochloa ewartiana (Desert Bluegrass)*			
130.	12716	*Brachychiton acuminatus*			
131.	4999	*Brachychiton gregorii (Desert Kurrajong, Ngalta)*			
132.	7413	*Brunonia australis (Native Cornflower)*			
133.	15885	*Brunonia australis var. A Kimberley Flora (K.F. Kenneally 5452)*			
134.	19070	*Brunonia sp. Long hairs (D.E. Symon 2440)*			
135.	14312	*Bulbine pendula*			
136.	750	*Bulbostylis barbata*			
137.	752	*Bulbostylis turbinata*			
138.	2860	*Calandrinia polyandra (Parakeelya)*			
139.	2864	*Calandrinia ptychosperma*			
140.	2865	*Calandrinia pumila*			
141.	31073	*Calandrinia sp. The Pink Hills (F. Obbens FO 19/06)*			
142.	8466	*Callitris columellaris (White Cypress Pine)*			
143.	14090	*Calocephalus beardii*			
144.	7891	*Calocephalus francisii (Fine-leaf Beauty-heads)*			
145.	7893	*Calocephalus knappii*			
146.	7895	*Calocephalus multiflorus (Yellow-top)*			
147.	48223	*Calocephalus pilbarensis*			
148.	7903	*Calotis hispidula (Bindy Eye)*			
149.	7905	*Calotis multicaulis (Many-stemmed Burr-daisy)*			
150.	7906	*Calotis plumulifera*			
151.	5446	*Calytrix carinata*			
152.	2976	*Capparis lasiantha (Split Jack, Balqarda)*			
153.	2978	*Capparis mitchellii (Wild Orange)*			
154.	2981	*Capparis spinosa*			
155.	2982	*Capparis umbonata (Wild Orange, Nanggalu)*			
156.	2949	*Cassytha capillaris*			
157.	2950	*Cassytha filiformis (Love Vine, Jirawan)*			
158.	11242	*Cassytha racemosa forma pilosa*			
159.	258	*Cenchrus ciliaris (Buffel Grass)*	Y		
160.	259	*Cenchrus echinatus (Burrgrass)*	Y		
161.	19762	*Centipeda minima subsp. macrocephala*			
162.	7921	*Centipeda thespidioides (Desert Sneezewood)*			
163.	31	*Cheilanthes austrotenuifolia*			
164.	32	*Cheilanthes brownii*			
165.	37	*Cheilanthes lasiophylla (Woolly Cloak Fern)*			
166.	41	*Cheilanthes sieberi (Mulga Fern)*			
167.	12815	*Cheilanthes sieberi subsp. pseudovellea*			
168.	12818	*Cheilanthes sieberi subsp. sieberi*			
169.		*Cheilanthes sp.*			
170.	8462	*Cheilanthes tenuifolia (Rock Fern)*			
171.	2485	*Chenopodium auricomum (Queensland Bluebush)*			
172.	266	*Chloris barbata (Purpletop Chloris)*	Y		
173.	269	*Chloris pectinata (Comb Chloris)*			
174.	272	*Chloris virgata (Feathertop Rhodes Grass)*	Y		
175.	47174	*Chrysocephalum apiculatum subsp. pilbarense*			
176.	33516	*Chrysocephalum gilesii*			
177.	12614	*Chrysocephalum pterochaetum*			
178.	273	*Chrysopogon fallax (Golden Beard Grass)*			
179.	48838	*Citrullus amarus*	Y		
180.	766	*Cladium procerum*		P2	
181.	2985	*Cleome oxalidea*			
182.	2988	*Cleome viscosa (Tickweed, Tjinduwadhu)*			
183.	13692	*Clerodendrum floribundum var. angustifolium*			
184.	13689	*Clerodendrum tomentosum var. lanceolatum*			
185.	2778	*Codonocarpus cotinifolius (Native Poplar, Kundurangu)*			
186.	1165	*Commelina ensifolia (Wandering Jew, Buargu)*			
187.	6612	*Convolvulus clementii*			
188.	7939	*Conyza bonariensis (Flaxleaf Fleabane)*	Y		
189.	13560	*Corchorus crozophorifolius*			
190.	25838	*Corchorus incanus subsp. lithophilus*			
191.	17405	*Corchorus lasiocarpus*			
192.	18409	*Corchorus lasiocarpus subsp. lasiocarpus*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
193.	18408	*Corchorus lasiocarpus subsp. parvus*			
194.	4864	*Corchorus sidoides (Flannel Weed)*			
195.	18415	*Corchorus sidoides subsp. sidoides*			
196.		*Corchorus sp.*			
197.	20242	*Corchorus sp. Hamersley Range hilltops (S. van Leeuwen 3826)*			
198.	17661	*Corchorus tectus*			
199.	4865	*Corchorus tridens*			
200.	16783	*Corymbia candida*			
201.	17083	*Corymbia deserticola subsp. deserticola*			
202.	17077	*Corymbia ferriticola*			
203.	17093	*Corymbia hamersleyana*			
204.	17092	*Corymbia opaca*			
205.	3144	*Crassula peduncularis (Purple Stonecrop)*			
206.	19378	*Crotalaria dissitiflora subsp. benthamiana*			
207.	3783	*Crotalaria medicaginea*			
208.	20179	*Crotalaria medicaginea var. neglecta*			
209.	3785	*Crotalaria novae-hollandiae (New Holland Rattlepod)*			
210.	11231	*Crotalaria novae-hollandiae subsp. novae-hollandiae*			
211.	16189	*Cryptandra monticola*			
212.	7371	*Cucumis melo (Ulcardo Melon)*			
213.	48865	*Cucumis myriocarpus subsp. myriocarpus*	Y		
214.	41722	*Cucumis picrocarpus*			
215.	41721	*Cucumis variabilis*			
216.	17117	*Cullen cinereum*			
217.	17436	*Cullen graveolens*			
218.	17119	*Cullen leucochaites*			
219.	17116	*Cullen martinii*			
220.	17217	*Cullen pallidum*			
221.	17120	*Cullen pogonocarpum*			
222.	3010	*Cuphonotus andraeanus*			
223.	13733	*Cuscuta victoriana*			
224.	6216	*Cyclospermum leptophyllum*	Y		
225.	279	*Cymbopogon ambiguus (Scentgrass)*			
226.	281	*Cymbopogon obtectus (Silkyheads)*			
227.	6584	*Cynanchum floribundum (Dumara Bush, Tjipa)*			
228.	6585	*Cynanchum pedunculatum*			
229.	48279	*Cynanchum viminale*			
230.	46558	*Cynodon convergens*			
231.	46556	*Cynodon tenellus*			
232.	777	*Cyperus bulbosus (Bush Onion, Tjanmata)*			
233.	12811	*Cyperus cunninghamii subsp. cunninghamii*			
234.	789	*Cyperus difformis (Rice Sedge)*			
235.	12808	*Cyperus hesperius*			
236.	798	*Cyperus iria*			
237.	799	*Cyperus ixiocarpus*			
238.	818	*Cyperus vaginatus (Stiffleaf Sedge)*			
239.	290	*Dactyloctenium radulans (Button Grass)*			
240.	7424	*Dampiera candicans*			
241.	20378	*Dampiera metallorum*		P3	
242.	47241	*Datura leichhardtii subsp. leichhardtii*	Y		
243.	6218	*Daucus glochidiatus (Australian Carrot)*			
244.	17140	*Daviesia eremaea*			
245.	3852	*Desmodium campylocaulon*			
246.	3856	*Desmodium muelleri*			
247.	13741	*Dichanthium sericeum subsp. humilius*			
248.	13740	*Dichanthium sericeum subsp. polystachyum*			
249.	11964	*Dichanthium sericeum subsp. sericeum*			
250.	7959	*Dichromochlamys dentatifolia*			
251.	7164	*Dicladanthera forrestii*			
252.	6754	*Dicrastylis cordifolia*			
253.	308	*Digitaria ammophila (Silky Umbrella Grass)*			
254.	310	*Digitaria brownii (Cotton Panic Grass)*			
255.	311	*Digitaria ciliaris (Summer Grass)*	Y		
256.	312	*Digitaria coenicola*			
257.	313	*Digitaria ctenantha (Comb Finger Grass)*			
258.	48378	*Diplachne fusca subsp. fusca*			
259.	12023	*Diplopeltis stuartii var. stuartii (Desert Pepperflower)*			
260.	11320	*Dipteracanthus australasicus subsp. australasicus*			
261.	4759	*Dodonaea coriacea*			
262.	4767	*Dodonaea lanceolata (Pirrungu)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
263.	11406	*Dodonaea lanceolata var. lanceolata*			
264.	4772	*Dodonaea pachyneura*			
265.	4773	*Dodonaea petiolaris*			
266.	4782	*Dodonaea viscosa (Sticky Hopbush)*			
267.	11674	*Dodonaea viscosa subsp. mucronata*			
268.	44508	*Duma florulenta*			
269.	31274	*Duperreya commixta*			
270.	2500	*Dysphania glandulosa*			
271.	11632	*Dysphania glomulifera subsp. eremaea*			
272.	2502	*Dysphania kalpari (Rat's Tail, Kalpari)*			
273.	33479	*Dysphania melanocarpa (Black Crumbweed)*			
274.	33596	*Dysphania melanocarpa forma leucocarpa*			
275.	33597	*Dysphania melanocarpa forma melanocarpa (Black Goosefoot)*			
276.	2506	*Dysphania rhadinostachya*			
277.	11653	*Dysphania rhadinostachya subsp. inflata*			
278.	11890	*Dysphania rhadinostachya subsp. rhadinostachya*			
279.	328	*Echinochloa colona (Awnless Barnyard Grass)*	Y		
280.	7057	*Elacholoma hornii*			
281.	823	*Eleocharis atropurpurea*			
282.	827	*Eleocharis geniculata*			
283.	2511	*Enchylaena tomentosa (Barrier Saltbush)*			
284.	357	*Enneapogon caerulescens (Limestone Grass)*			
285.	360	*Enneapogon lindleyanus (Wiry Nineawn, Purple-head Nineawn)*			
286.	365	*Enneapogon polyphyllus (Leafy Nineawn)*			
287.	20377	*Enneapogon robustissimus*			
288.	368	*Enteropogon ramosus (Windmill Grass, Curly Windmill Grass)*			
289.	32356	*Entosthodon subnudus*			
290.	375	*Eragrostis cumingii (Cuming's Love Grass)*			
291.	377	*Eragrostis desertorum (Desert Lovegrass)*			
292.	378	*Eragrostis dielsii (Mallee Lovegrass)*			
293.	380	*Eragrostis eriopoda (Woollybutt Grass, Wangurnu)*			
294.	388	*Eragrostis leptocarpa (Drooping Lovegrass)*			
295.	17608	*Eragrostis olida*			
296.	392	*Eragrostis pergracilis*			
297.	393	*Eragrostis setifolia (Neverfail Grass)*			
298.	20243	*Eragrostis sp. Mt Robinson (S. van Leeuwen 4109)*		P1	Y
299.	398	*Eragrostis tenellula (Delicate Lovegrass)*			
300.	399	*Eragrostis xerophila (Knotty-butt Neverfail)*			
301.	14509	*Eremophila caespitosa*			
302.	15167	*Eremophila canaliculata*			
303.	7189	*Eremophila clarkei (Turpentine Bush)*			
304.	7190	*Eremophila compacta*			
305.	7192	*Eremophila cuneifolia (Pinyuru, T'iranju)*			
306.	17153	*Eremophila flaccida subsp. flaccida*			
307.	7208	*Eremophila forrestii (Wilcox Bush)*			
308.	15052	*Eremophila forrestii subsp. forrestii*			
309.	7209	*Eremophila fraseri (Burra)*			
310.	16696	*Eremophila fraseri subsp. fraseri*			
311.	17519	*Eremophila jucunda subsp. pulcherrima*			
312.	7228	*Eremophila lachnocalyx (Woolly-calyxed Eremophila)*			
313.	16940	*Eremophila lanceolata*			
314.	7230	*Eremophila latrobei (Warty Fuchsia Bush, Mintjingka)*			
315.	17597	*Eremophila latrobei subsp. filiformis*			
316.	17169	*Eremophila latrobei subsp. glabra*			
317.	17576	*Eremophila latrobei subsp. latrobei*			
318.	7234	*Eremophila longifolia (Berrigan, Tulypurpa)*			
319.	14893	*Eremophila magnifica subsp. magnifica*		P4	
320.	14894	*Eremophila magnifica subsp. velutina*		P3	
321.	18570	*Eremophila oppositifolia subsp. angustifolia*			
322.	15164	*Eremophila petrophila subsp. petrophila*			
323.	17283	*Eremophila phyllopoda subsp. obliqua*			
324.	48950	*Eremophila platycalyx subsp. Neds Creek (N.H. Speck 1228)*			
325.	15160	*Eremophila platycalyx subsp. pardalota*			
326.	48236	*Eremophila pusilliflora*		P2	
327.		*Eremophila sp.*			
328.	40643	*Eremophila sp. Hamersley Range (K. Walker KW 136)*		P3	
329.	20256	*Eremophila sp. West Angelas (S. van Leeuwen 4068)*		P1	
330.	400	*Eriachne aristidea*			
331.	403	*Eriachne benthamii (Swamp Wanderrie)*			
332.	408	*Eriachne flaccida (Claypan Grass)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
333.	411	*Eriachne helmsii (Buck Wanderrie Grass)*			
334.	13660	*Eriachne lanata*			
335.	413	*Eriachne mucronata (Mountain Wanderrie Grass)*			
336.	415	*Eriachne ovata*			
337.	417	*Eriachne pulchella (Pretty Wanderrie)*			
338.	16485	*Eriachne pulchella subsp. dominii*			
339.	16486	*Eriachne pulchella subsp. pulchella*			
340.	421	*Eriachne tenuiculmis*			
341.	4335	*Erodium cygnorum (Blue Heronsbill)*			
342.	41301	*Eucalyptus aridimontana*			
343.	5580	*Eucalyptus camaldulensis (River Gum, Yabalinyba)*			
344.	35345	*Eucalyptus camaldulensis subsp. obtusa (Blunt-budded River Red Gum)*			
345.	35343	*Eucalyptus camaldulensis subsp. refulgens*			
346.	5641	*Eucalyptus ewartiana (Ewart's Mallee)*			
347.	5655	*Eucalyptus gamophylla (Twin-leaf Mallee, Warilu)*			
348.	5684	*Eucalyptus kingsmillii (Kingsmill's Mallee)*			
349.	5698	*Eucalyptus leucophloia (Snappy Gum, Migum)*			
350.	18088	*Eucalyptus leucophloia subsp. leucophloia*			
351.	5744	*Eucalyptus pilbarensis*			
352.	18058	*Eucalyptus repullulans*			
353.	5773	*Eucalyptus socialis (Red Mallee, Altarpa)*			
354.	19576	*Eucalyptus socialis subsp. eucentrica*			
355.	18219	*Eucalyptus tephrodes*			
356.	29733	*Eucalyptus trivalva (Victoria Spring Mallee)*			
357.	14548	*Eucalyptus victrix*			
358.	15592	*Eucalyptus xerothermica*			
359.	11011	*Eulalia aurea*			
360.	4617	*Euphorbia australis (Namana)*			
361.	42843	*Euphorbia australis var. glabra*		P2	
362.	42844	*Euphorbia australis var. hispidula*			
363.	35303	*Euphorbia australis var. subtomentosa*			
364.	4619	*Euphorbia biconvexa*			
365.	4620	*Euphorbia boophthona (Gascoyne Spurge)*			
366.	9048	*Euphorbia careyi*			
367.	4622	*Euphorbia clementii*		P3	
368.	4623	*Euphorbia coghlanii (Namana)*			
369.	4626	*Euphorbia drummondii (Caustic Weed, Piwi)*			
370.	42846	*Euphorbia ferdinandi*			
371.	42847	*Euphorbia ferdinandi var. ferdinandi*			
372.	42861	*Euphorbia inappendiculata var. queenslandica*		P1	
373.	4635	*Euphorbia myrtoides*			
374.	4646	*Euphorbia stevenii (Caustic Bottletree)*		P3	
375.	12097	*Euphorbia tannensis subsp. eremophila (Desert Spurge)*			
376.	42879	*Euphorbia trigonosperma*			
377.	42876	*Euphorbia vaccaria var. vaccaria*			
378.	6617	*Evolvulus alsinoides (Tropical Speedwell)*			
379.	11200	*Evolvulus alsinoides var. villosicalyx*			
380.	10765	*Exocarpos sparteus (Broom Ballart, Djuk)*			
381.	19648	*Ficus brachypoda*			
382.	1753	*Ficus platypoda (Native Fig, Makartu)*			
383.	12096	*Ficus virens var. virens*			
384.	842	*Fimbristylis cardiocarpa*			
385.	850	*Fimbristylis depauperata*			
386.	851	*Fimbristylis dichotoma (Eight Day Grass)*			
387.	859	*Fimbristylis littoralis*			
388.	862	*Fimbristylis microcarya*			
389.	882	*Fimbristylis sieberiana*		P3	
390.	12159	*Fimbristylis simulans*			
391.	35558	*Flaveria trinervia (Speedy Weed)*	Y		
392.	3903	*Gastrolobium grandiflorum (Wallflower Poison)*			
393.	7060	*Glossostigma diandrum*			
394.	3938	*Glycine canescens (Silky Glycine)*			
395.	3940	*Glycine falcata*		P3	
396.	7988	*Gnephosis arachnoidea (Cobwebby-headed Gnephosis)*			
397.	41245	*Gompholobium oreophilum*			
398.	10995	*Gompholobium polyzygum*			
399.	2676	*Gomphrena canescens (Batchelors Buttons)*			
400.	2680	*Gomphrena cunninghamii*			
401.	12517	*Goodenia cusackiana*			
402.	12529	*Goodenia lyrata*		P3	

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
403.	7526	*Goodenia microptera*			
404.	12552	*Goodenia muelleriana*			
405.	7530	*Goodenia nuda*		P4	
406.	12571	*Goodenia pascua*			
407.	12574	*Goodenia prostrata*			
408.	29381	*Goodenia sp. East Pilbara (A.A. Mitchell PRP 727) (O'Meara's Goodenia)*		P3	
409.	7550	*Goodenia stellata*			
410.	10982	*Goodenia stobbsiana*			
411.	7556	*Goodenia tenuiloba*			
412.	7557	*Goodenia trichophylla*			
413.	7558	*Goodenia triodiophila*			
414.	4910	*Gossypium australe (Native Cotton)*			
415.	4918	*Gossypium robinsonii (Wild Cotton)*			
416.	4919	*Gossypium sturtianum (Sturt's Desert Rose)*			
417.	11559	*Gossypium sturtianum var. sturtianum*			
418.	1963	*Grevillea berryana*			
419.	2047	*Grevillea nematophylla*			
420.	2079	*Grevillea pyramidalis (Caustic Bush, Tjungu)*			
421.	19570	*Grevillea pyramidalis subsp. leucadendron*			
422.	44441	*Grevillea saxicola*		P3	
423.	2121	*Grevillea wickhamii (Wickham's Grevillea)*			
424.	19478	*Grevillea wickhamii subsp. hispidula*			
425.	12832	*Gymnanthera cunninghamii*		P3	
426.	2138	*Hakea chordophylla*			
427.	2177	*Hakea lorea (Witinti)*			
428.	19137	*Hakea lorea subsp. lorea*			
429.	2200	*Hakea rhombales*			
430.	29840	*Halgania cyanea var. Allambi Stn (B.W. Strong 676)*			
431.	6690	*Halgania gustafsenii*			
432.	30294	*Halgania gustafsenii var. Mid West (G. Perry 370)*			
433.	17493	*Halgania gustafsenii var. gustafsenii*			
434.	30258	*Halgania solanacea var. Mt Doreen (G.M. Chippendale 4206)*			
435.	6174	*Haloragis gossei*			
436.	23464	*Haloragis gossei var. inflata*			
437.	20669	*Haloragis maierae*			
438.	6180	*Haloragis trigonocarpa*			
439.	17722	*Hannafordia bissillii subsp. bissillii*			
440.	17325	*Harnieria kempeana subsp. muelleri*			
441.	17301	*Heliotropium chrysocarpum*			
442.	6705	*Heliotropium crispatum*			
443.	6706	*Heliotropium cunninghamii*			
444.	6712	*Heliotropium heteranthum*			
445.	17307	*Heliotropium inexplicitum*			
446.	17309	*Heliotropium pachyphyllum*			
447.	17313	*Heliotropium skeleton*			
448.	6720	*Heliotropium ventricosum*			
449.	5128	*Hibbertia glaberrima*			
450.	4922	*Hibiscus brachychlaenus*			
451.	4924	*Hibiscus burtonii*			
452.	4925	*Hibiscus coatesii*			
453.	4931	*Hibiscus haynaldii*			
454.	4933	*Hibiscus leptocladus*			
455.	43022	*Hibiscus sp. Gardneri (A.L. Payne PRP 1435)*			
456.	40560	*Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)*		P2	
457.	40640	*Hibiscus sp. Mt Robinson (G. Byrne 3537)*			
458.	4942	*Hibiscus sturtii (Sturt's Hibiscus)*			
459.	11651	*Hibiscus sturtii var. campylochlamys*			
460.	11385	*Hibiscus sturtii var. grandiflorus*			
461.	11477	*Hibiscus sturtii var. platychlamys*			
462.	43081	*Hibiscus verdcourtii*			
463.	5215	*Hybanthus aurantiacus*			
464.	453	*Imperata cylindrica (Kunai Grass)*			
465.	45473	*Indigofera fractiflexa subsp. fractiflexa*			
466.	3974	*Indigofera georgei (Bovine Indigo)*			
467.	17716	*Indigofera gilesii*		P3	
468.	3980	*Indigofera linifolia*			
469.	3981	*Indigofera linnaei (Birdsville Indigo)*			
470.	3982	*Indigofera monophylla*			
471.	3985	*Indigofera rugosa*			
472.	3987	*Indigofera trita*			

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473.	19594	*Iotasperma sessilifolium*		P3	
474.	6631	*Ipomoea lonchophylla (Cowvine)*			
475.	6633	*Ipomoea muelleri (Poison Morning Glory, Yumbu)*			
476.	6636	*Ipomoea plebeia (Bellvine)*			
477.	6639	*Ipomoea racemigera*		P2	
478.	12663	*Ischaemum albovillosum*			
479.	458	*Iseilema dolichotrichum*			
480.	461	*Iseilema fragile*			
481.	464	*Iseilema membranaceum (Small Flinders Grass)*			
482.	465	*Iseilema vaginiflorum (Red Flinders Grass)*			
483.	7397	*Isotoma petraea (Rock Isotome, Tundiwari)*			
484.	3989	*Isotropis atropurpurea (Poison Sage)*			
485.	17790	*Isotropis parviflora*		P2	
486.	48615	*Isotropis sp. Arid zone (G. Byrne 2775)*			
487.	8088	*Ixiochlamys cuneifolia*			
488.	6501	*Jasminum didymum*			
489.	12059	*Jasminum didymum subsp. lineare (Desert Jasmine)*			
490.	12794	*Kohautia australiensis*		P2	
491.	8095	*Lactuca saligna (Wild Lettuce, Willow-leaf Lettuce)*	Y		
492.	8096	*Lactuca serriola (Prickly Lettuce)*	Y		
493.	29046	*Lactuca serriola forma serriola*	Y		
494.	19726	*Leiocarpa semicalva*			
495.	19236	*Leiocarpa tomentosa*			
496.	3022	*Lepidium catapycnon (Hamersley Lepidium)*		P4	
497.	3025	*Lepidium echinatum*			
498.	3032	*Lepidium muelleri-ferdinandii*			
499.	3033	*Lepidium oxytrichum*			
500.	3035	*Lepidium pedicellosum*			
501.	3037	*Lepidium phlebopetalum (Veined Peppercress)*			
502.	3038	*Lepidium pholidogynum*			
503.	37480	*Lobelia arnhemiaca*			
504.	7403	*Lobelia heterophylla (Wing-seeded Lobelia)*			
505.	36863	*Lobelia heterophylla subsp. heterophylla*			
506.	36880	*Lobelia heterophylla subsp. pilbarensis*			
507.	4061	*Lotus cruentus (Redflower Lotus)*			
508.	2396	*Lysiana casuarinae*			
509.	2398	*Lysiana murrayi (Mistletoe, Parka-Parka)*			
510.	2544	*Maireana georgei (Satiny Bluebush)*			
511.	2556	*Maireana planifolia (Low Bluebush)*			
512.	2566	*Maireana thesioides (Lax Bluebush)*			
513.	2571	*Maireana villosa*			
514.	4962	*Malvastrum americanum (Spiked Malvastrum)*	Y		
515.	12949	*Marsdenia australis*			
516.	75	*Marsilea exarata*			
517.	76	*Marsilea hirsuta (Nardoo)*			
518.		*Marsilea sp.*			
519.	19500	*Maytenus sp. Mt Windell (S. van Leeuwen 846)*			
520.	5875	*Melaleuca argentea (Silver Cadjeput, Bandaran)*			
521.	5879	*Melaleuca bracteata (River Teatree)*			
522.	5915	*Melaleuca glomerata*			
523.	5051	*Melhania oblongifolia*			
524.	3054	*Menkea villosula*			
525.	7082	*Mimulus gracilis*			
526.	8110	*Minuria leptophylla (Minnie Daisy)*			
527.	4105	*Mirbelia viminalis*			
528.	17158	*Myoporum montanum (Native Myrtle)*			
529.	17925	*Myriocephalus oldfieldii*			
530.	3614	*Neptunia dimorphantha (Sensitive Plant)*			
531.	3615	*Neptunia gracilis (Native Sensitive Plant)*			
532.	17906	*Neptunia gracilis forma gracilis*			
533.	20252	*Newcastelia sp. Hamersley Range (S. van Leeuwen 4264)*			
534.	6971	*Nicotiana benthamiana (Tjuntiwari)*			
535.	6976	*Nicotiana occidentalis (Native Tobacco)*			
536.	11331	*Nicotiana occidentalis subsp. obliqua*			
537.	11856	*Nicotiana occidentalis subsp. occidentalis*			
538.	6977	*Nicotiana rosulata (Rosetted Tobacco)*			
539.	11410	*Nicotiana rosulata subsp. ingulba*			
540.	11734	*Nicotiana rosulata subsp. rosulata*			
541.	6979	*Nicotiana simulans*			
542.	7338	*Oldenlandia crouchiana*			

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543.	19640	*Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479)*		P3	
544.	12635	*Olearia fluvialis*			
545.	12638	*Olearia mucronata*		P3	
546.	8151	*Olearia stuartii*			
547.	8153	*Olearia xerophila*			
548.	17	*Ophioglossum lusitanicum (Adders Tongue)*			
549.	30374	*Oxalis sp. Pilbara (M.E. Trudgen 12725)*		P2	
550.	7117	*Pandorea pandorana*			
551.	503	*Panicum decompositum (Native Millet, Kaltu-kaltu)*			
552.	504	*Panicum effusum (Hairy Panic Grass)*			
553.	505	*Panicum laevinode*			
554.	43	*Paraceterach reynoldsii*			
555.	515	*Paraneurachne muelleri (Northern Mulga Grass)*			
556.	12670	*Parietaria cardiostegia*			
557.	10975	*Paspalidium basicladum*			
558.	518	*Paspalidium clementii (Clements Paspalidium)*			
559.	519	*Paspalidium constrictum (Knottybutt Grass)*			
560.	521	*Paspalidium gracile (Slender Panic)*			
561.	522	*Paspalidium jubiflorum (Warrego Grass)*			
562.	523	*Paspalidium rarum (Rare Paspalidium)*			
563.	524	*Paspalidium reflexum*			
564.	12486	*Peplidium aithocheilum*			
565.	7092	*Peplidium muelleri*			
566.	18462	*Peplidium sp. E Evol. Fl. Fauna Arid Aust. (A.S. Weston 12768)*			
567.	34997	*Peripleura arida*			
568.	34998	*Peripleura obovata*			
569.	35001	*Peripleura virgata*			
570.	546	*Perotis rara (Comet Grass)*			
571.	3675	*Petalostylis labicheoides (Slender Petalostylis)*			
572.	9056	*Phyllanthus baccatus*			
573.	17626	*Phyllanthus erwinii*			
574.	4680	*Phyllanthus maderaspatensis*			
575.	4687	*Phyllanthus virgatus*			
576.	20311	*Pilbara trudgenii*		P3	
577.	5245	*Pimelea forrestiana*			
578.	5250	*Pimelea holroydii*			
579.	11185	*Pimelea microcephala subsp. microcephala*			
580.	34760	*Plantago cunninghamii*			
581.	6910	*Plectranthus intraterraneus*			
582.	35276	*Plectranthus scutellarioides*			
583.	8167	*Pluchea dentex*			
584.	17816	*Pluchea ferdinandi-muelleri*			
585.	6491	*Plumbago zeylanica (Native Plumbago)*			
586.	45239	*Podolepis eremaea*			
587.	45242	*Podolepis remota*			
588.	2898	*Polycarpaea corymbosa*			
589.	2901	*Polycarpaea holtzei*			
590.	2903	*Polycarpaea longiflora*			
591.	41365	*Polygala glaucifolia*			
592.	4572	*Polygala isingii*			
593.	6653	*Polymeria ambigua (Morning Glory)*			
594.	6655	*Polymeria calycina*			
595.	17513	*Polymeria lanata*			
596.	13966	*Polymeria longifolia*			
597.	12964	*Pomax rupestris*			
598.	43981	*Portulaca decipiens*			
599.	2884	*Portulaca oleracea (Purslane, Wakati)*			
600.	2886	*Portulaca pilosa (Djanggara)*	Y		
601.	12707	*Prostanthera albiflora*			
602.	6912	*Prostanthera campbellii*			
603.	18154	*Psydrax latifolia*			
604.	18210	*Psydrax rigidula*			
605.	18155	*Psydrax suaveolens*			
606.	41221	*Pterocaulon serrulatum var. velutinum*			
607.	8192	*Pterocaulon sphacelatum (Apple Bush, Fruit Salad Plant)*			
608.	8193	*Pterocaulon sphaeranthoides*			
609.	2690	*Ptilotus aervoides*			
610.	2696	*Ptilotus astrolasius*			
611.	2698	*Ptilotus auriculifolius*			
612.	2704	*Ptilotus calostachyus (Weeping Mulla Mulla)*			

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613.	2706	*Ptilotus carinatus*			
614.	2711	*Ptilotus clementii (Tassel Top)*			
615.	2718	*Ptilotus drummondii (Narrowleaf Mulla Mulla)*			
616.	2721	*Ptilotus exaltatus (Tall Mulla Mulla)*			
617.	2725	*Ptilotus fusiformis*			
618.	2727	*Ptilotus gaudichaudii*			
619.	2728	*Ptilotus gomphrenoides*			
620.	2731	*Ptilotus helipteroides (Hairy Mulla Mulla)*			
621.	2734	*Ptilotus incanus*			
622.	2744	*Ptilotus mollis*		P4	
623.	2746	*Ptilotus nobilis (Tall Mulla Mulla)*			
624.	2747	*Ptilotus obovatus (Cotton Bush)*			
625.	2751	*Ptilotus polystachyus (Prince of Wales Feather)*			
626.	2754	*Ptilotus roei*			
627.	2755	*Ptilotus rotundifolius (Royal Mulla Mulla)*			
628.	15855	*Ptilotus schwartzii var. schwartzii*			
629.	2582	*Rhagodia eremaea (Thorny Saltbush)*			
630.	20168	*Rhagodia sp. Hamersley (M. Trudgen 17794)*		P3	
631.	13290	*Rhodanthe ascendens*		P1	
632.	13308	*Rhodanthe charsleyae*			
633.	13301	*Rhodanthe floribunda*			
634.	13246	*Rhodanthe humboldtiana*			
635.	13310	*Rhodanthe margarethae*			
636.	42011	*Rhodanthe polakii*			
637.	13251	*Rhodanthe propinqua*			
638.	4190	*Rhynchosia australis (Rhynchosia)*			
639.	20862	*Rhynchosia bungarensis*		P4	
640.	4191	*Rhynchosia minima (Rhynchosia)*			
641.		*Rhynchosia sp.*			
642.		*Riccia sorocarpa*			
643.		*Riccia sp.*			
644.	45178	*Roebuckiella similis*			
645.	48889	*Roepera eichleri*			
646.	7174	*Rostellularia adscendens*			
647.	11556	*Rostellularia adscendens var. latifolia*		P3	
648.	2443	*Rumex vesicarius (Ruby Dock)*	Y		
649.	8198	*Rutidosis helichrysoides (Grey Wrinklewort)*			
650.	30434	*Salsola australis*			
651.	2357	*Santalum lanceolatum (Northern Sandalwood, Yarnguli)*			
652.	12578	*Scaevola acacioides*			
653.	12723	*Scaevola amblyanthera*			
654.	13179	*Scaevola amblyanthera var. amblyanthera*			
655.	13178	*Scaevola amblyanthera var. centralis*			
656.	12579	*Scaevola browniana*			
657.	13150	*Scaevola browniana subsp. browniana*			
658.	7633	*Scaevola parvifolia (Camel Weed)*			
659.	13172	*Scaevola parvifolia subsp. pilbarae*			
660.	7644	*Scaevola spinescens (Currant Bush, Maroon)*			
661.	41660	*Schenkia australis*			
662.	599	*Schizachyrium fragile (Senale Redgrass)*			
663.	13285	*Schoenia ayersii*			
664.	48355	*Schoenoplectiella dissachantha*			
665.	16257	*Schoenoplectus subulatus*			
666.	2602	*Sclerolaena convexula*			
667.	2603	*Sclerolaena cornishiana (Cartwheel Burr)*			
668.	2608	*Sclerolaena deserticola*			
669.	2631	*Sclerolaena tetragona*			
670.	25880	*Senecio hamersleyensis*			
671.	8213	*Senecio magnificus (Showy Groundsel)*			
672.	17645	*Senna artemisioides*			
673.	12279	*Senna artemisioides subsp. helmsii*			
674.	12280	*Senna artemisioides subsp. oligophylla*			
675.	17558	*Senna artemisioides subsp. x artemisioides*			
676.	12283	*Senna artemisioides subsp. x sturtii*			
677.	18443	*Senna ferraria*			
678.	18449	*Senna glaucifolia*			
679.	18346	*Senna glutinosa*			
680.	12305	*Senna glutinosa subsp. chatelainiana*			
681.	12307	*Senna glutinosa subsp. glutinosa*			
682.	12309	*Senna glutinosa subsp. pruinosa*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
683.	12308	*Senna glutinosa subsp. x luerssenii*			
684.	18451	*Senna hamersleyensis*			
685.	12312	*Senna notabilis*			
686.	12315	*Senna pleurocarpa var. angustifolia*			
687.	19347	*Senna sericea*			
688.	18595	*Senna sp. Karijini (M.E. Trudgen 10392)*			
689.	18445	*Senna stricta*			
690.	18450	*Senna symonii*			
691.	12319	*Senna venusta*			
692.	46816	*Seringia elliptica (Showy fire-bush)*			
693.	46821	*Seringia nephrosperma (Free carpel fire-bush)*			
694.	4196	*Sesbania cannabina (Sesbania Pea)*			
695.	606	*Setaria dielsii (Diels' Pigeon Grass)*			
696.	613	*Setaria verticillata (Whorled Pigeon Grass)*	Y		
697.	4966	*Sida arenicola*			
698.	4970	*Sida calyxhymenia (Tall Sida)*			
699.	4971	*Sida cardiophylla*			
700.	4972	*Sida clementii*			
701.	4976	*Sida echinocarpa*			
702.	31759	*Sida ectogama*			
703.	4977	*Sida fibulifera (Silver Sida)*			
704.	4986	*Sida platycalyx (Lifesaver Burr)*			
705.	4988	*Sida rohlenae*			
706.	31859	*Sida sp. Articulation below (A.A. Mitchell PRP 1605)*			
707.	16616	*Sida sp. Barlee Range (S. van Leeuwen 1642)*		P3	
708.	31854	*Sida sp. Excedentifolia (J.L. Egan 1925)*			
709.	31857	*Sida sp. Golden calyces glabrous (H.N. Foote 32)*			
710.	48867	*Sida sp. L (A.M. Ashby 4202)*			
711.	33698	*Sida sp. Pilbara (A.A. Mitchell PRP 1543)*			
712.	20253	*Sida sp. Shovelanna Hill (S. van Leeuwen 3842)*			
713.	31852	*Sida sp. Supplejack Station (T.S. Henshall 2345)*			
714.	19712	*Sida sp. dark green fruits (S. van Leeuwen 2260)*			
715.	16617	*Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)*			
716.	4989	*Sida spinosa (Spiny Sida)*			
717.	16923	*Sida trichopoda*			
718.	8223	*Sigesbeckia orientalis (Indian Weed)*	Y		
719.	6995	*Solanum centrale (Desert Raisin, Kampurarpa)*			
720.	6998	*Solanum cleistogamum*			
721.	42544	*Solanum elatius*			
722.	7008	*Solanum ferocissimum*			
723.	7009	*Solanum gabrielae*			
724.	7014	*Solanum horridum*			
725.	42542	*Solanum kentrocaule*		P3	
726.	7018	*Solanum lasiophyllum (Flannel Bush, Mindjulu)*			
727.	9258	*Solanum morrisonii*			
728.	7022	*Solanum nigrum (Black Berry Nightshade)*	Y		
729.	7029	*Solanum phlomoides*			
730.	42546	*Solanum piceum*			
731.	7036	*Solanum sturtianum (Thargomindah Nightshade)*			
732.	13575	*Spermacoce brachystema*			
733.	629	*Sporobolus australasicus (Fairy Grass)*			
734.	4729	*Stackhousia clementii*		P3	
735.	4731	*Stackhousia intermedia*			
736.	4734	*Stackhousia muricata*			
737.	19555	*Stackhousia muricata subsp. annual (W.R. Barker 2172)*			
738.	18405	*Stackhousia sp. swollen gynophore (W.R. Barker 2041)*			
739.	7098	*Stemodia grossa (Marsh Stemodia, Mindjaara)*			
740.	16199	*Stenanthemum petraeum*			
741.	3074	*Stenopetalum anfractum*			
742.	3075	*Stenopetalum decipiens*			
743.	3078	*Stenopetalum nutans*			
744.	3079	*Stenopetalum pedicellare*			
745.	3082	*Stenopetalum velutinum (Velvet Thread Petal)*			
746.	8234	*Streptoglossa adscendens*			
747.	8235	*Streptoglossa bubakii*			
748.	8236	*Streptoglossa cylindriceps*			
749.	8237	*Streptoglossa decurrens*			
750.	12492	*Striga squamigera*			
751.	7729	*Stylidium fluminense*			
752.	18123	*Stylidium weeliwolli*		P3	

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
753.	3182	*Stylobasium spathulatum (Pebble Bush)*			
754.	12353	*Stylosanthes hamata (Verano Stylo)*	Y		
755.	4220	*Swainsona canescens (Grey Swainsona)*			
756.	13596	*Swainsona complanata*			
757.	4223	*Swainsona decurrens*			
758.	12356	*Swainsona formosa*			
759.	4231	*Swainsona kingii*			
760.	4233	*Swainsona leeana*			
761.	4234	*Swainsona maccullochiana (Ashburton Pea)*			
762.	4238	*Swainsona oroboides (Variable Swainsona)*			
763.	42142	*Swainsona thompsoniana*		P3	
764.	25902	*Symphyotrichum squamatum (Bushy Starwort)*	Y		
765.	44786	*Synostemon hamersleyensis*		P1	
766.	48206	*Synostemon rhytidospermus*			
767.	45613	*Taraxacum khatoonae*	Y		
768.	4252	*Templetonia egena (Round Templetonia)*			
769.	4259	*Tephrosia arenicola*			
770.	49016	*Tephrosia densa*			
771.	41986	*Tephrosia oxalidea*			
772.	41825	*Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)*			
773.	17768	*Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)*			
774.	42442	*Tephrosia sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)*			
775.	42225	*Tephrosia sp. Newman (A.A. Mitchell PRP 29)*			
776.	40060	*Tephrosia sp. clay soils (S. van Leeuwen et al. PBS 0273)*			
777.	4286	*Tephrosia uniovulata*			
778.	4287	*Tephrosia virens*			
779.	25768	*Tetratheca fordiana*		P2	
780.	48313	*Teucrium disjunctum*			
781.	19366	*Teucrium pilbaranum*		P2	
782.	48603	*Teucrium teucriiflorum*			
783.	672	*Themeda avenacea (Native Oatgrass)*			
784.	17820	*Themeda sp. Hamersley Station (M.E. Trudgen 11431)*		P3	
785.	17819	*Themeda sp. Mt Barricade (M.E. Trudgen 2471)*			
786.	673	*Themeda triandra*			
787.	6069	*Thryptomene wittweri*		T	
788.	1338	*Thysanotus manglesianus (Fringed Lily)*			
789.	29457	*Thysanotus sp. Eremaean (S. van Leeuwen 1067)*			
790.	2942	*Tinospora smilacina (Snakevine, Oondala)*			
791.	6278	*Trachymene oleracea*			
792.	19043	*Trachymene oleracea subsp. oleracea*			
793.	19053	*Trachymene pilbarensis*			
794.	678	*Tragus australianus (Small Burrgrass)*			
795.	44241	*Trianthema glossostigmum*			
796.	44305	*Trianthema pilosum*			
797.	4374	*Tribulus astrocarpus*			
798.	4376	*Tribulus forrestii*			
799.	4377	*Tribulus hirsutus*			
800.	4379	*Tribulus macrocarpus*			
801.	4381	*Tribulus platypterus (Cork Hopbush)*			
802.	18072	*Tribulus suberosus*			
803.	6727	*Trichodesma zeylanicum (Camel Bush, Kumbalin)*			
804.	47242	*Trichodesma zeylanicum var. latisepaleum*			
805.	29483	*Tricoryne sp. Hamersley Range (S. van Leeuwen 915)*			
806.	8252	*Tridax procumbens (Tridax, Tridax Daisy)*	Y		
807.	48201	*Trigastrotheca molluginea*			
808.	17886	*Triodia biflora*			
809.	681	*Triodia brizoides*			
810.	13131	*Triodia epactia*			
811.	690	*Triodia longiceps (Giant Grey Spinifex)*			
812.	17877	*Triodia melvillei*			
813.	696	*Triodia pungens (Soft Spinifex)*			
814.	17873	*Triodia schinzii*			
815.	41101	*Triodia sp. Karijini (S. van Leeuwen 4111)*		P1	
816.	19534	*Triodia sp. Mt Ella (M.E. Trudgen 12739)*		P3	
817.	48463	*Triodia vanleeuwenii*			
818.	704	*Triodia wiseana (Limestone Spinifex)*			
819.	48319	*Tripogonella loliiformis*			
820.	706	*Triraphis mollis (Needle Grass)*			
821.	4879	*Triumfetta leptacantha*			
822.	14942	*Triumfetta maconochieana*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
823.	29268	*Urochloa occidentalis*			
824.	29270	*Urochloa occidentalis var. ciliata*			
825.	29269	*Urochloa occidentalis var. occidentalis*			
826.	717	*Urochloa piligera*			
827.	718	*Urochloa pubigera*			
828.	30716	*Vachellia farnesiana (Mimosa Bush)*	Y		
829.	7654	*Velleia connata (Cup Velleia)*			
830.	4323	*Vigna lanceolata (Maloga Vigna, Wega)*			
831.	11576	*Vigna lanceolata var. lanceolata*			
832.		*Vigna sp.*			
833.	31391	*Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)*			
834.	48987	*Vincetoxicum flexuosum*			
835.	48986	*Vincetoxicum lineare*			
836.	11788	*Vittadinia dissecta var. hirta*			
837.	8265	*Vittadinia eremaea*			
838.	33026	*Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684)*		P1	
839.	7386	*Wahlenbergia gracilenta (Annual Bluebell)*			
840.	7393	*Wahlenbergia tumidifructa*			
841.	5106	*Waltheria indica*			
842.	48251	*Xerochrysum boreale*		P3	
843.	48250	*Xerochrysum interiore*			
844.	732	*Yakirra australiensis*			
845.	11894	*Yakirra australiensis var. australiensis*			

Conservation Codes
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

[1] For NatureMap's purposes, species flagged as endemic are those whose records are wholely contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

Appendix 5. EPBC Protected Matters Search Tool results.

Fauna species listed for the area 20km in radius from 22.803ºS, 118.902ºE on the EPBC Act Protected Matters Search Tool.

Australian Government
Department of the Environment and Energy

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

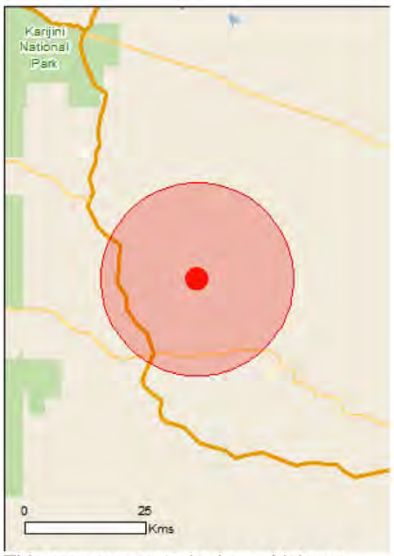
Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 06/03/20 20:00:29

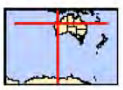
Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 20.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	8
Listed Migratory Species:	9

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	14
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	9
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Mammals		
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
Macrotis lagotis Greater Bilby [282]	Vulnerable	Species or species habitat likely to occur within area
Rhinonicteris aurantia (Pilbara form) Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat known to occur within area
Reptiles		
Liasis olivaceus barroni Olive Python (Pilbara subspecies) [66699]	Vulnerable	Species or species habitat likely to occur within area

Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Charadrius veredus		
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Charadrius veredus		
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area

Extra Information

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Mammals		
Camelus dromedarius Dromedary, Camel [7]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Equus asinus Donkey, Ass [4]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		

APPENDIX B
SUMMARY OF FLORA AND VEGETATION SURVEYS

Table B.1: Summary of Flora and Vegetation Studies and Surveys

Studies And Surveys	Area	Scope And Timing	Survey / Study Effort	Consistency With Guidance and Limitations
Lamb Creek Detailed and Targeted Flora and Vegetation Survey (Umwelt 2023)	3785.7 ha	The 2022 field survey was conducted within the most appropriate time to survey in the Pilbara Region (approximately six to eight weeks post wet season – March to June). Above-average precipitation was received during the wet-post wet season 2021/2022, with significant above-average precipitation received in February and May 2022. This significant rainfall in May 2022 combined with reasonably warm temperatures allowed for further follow-up targeted survey in late June-July 2022. The 2022 survey was conducted mid-to end of season and the flowering season was considered to be good, with a relatively high proportion of annual and ephemeral vascular taxa recorded and many perennial taxa in flower. All perennial taxa were at least in good condition.	Detailed survey was undertaken encompassing the entire Study Area. At least three quadrats were established in each vegetation pattern identified through initial aerial photography interpretation and on-ground field survey in the Study Area. Re-score of an appropriate sample of existing quadrats (Rapallo 2021a) was undertaken during the survey. Mapping of VT boundaries was undertaken using a combination of aerial photography (scale 1:10,000) and information collected during traverses between quadrats and relevés. Field verification of VT boundaries post-analysis was not undertaken. Targeted survey was undertaken using transects spaced approximately 50m apart, with finer scale transects employed where significant flora taxa were identified. Opportunistic targeted survey for significant flora taxa was also undertaken while traversing the Study Area to establish quadrats and relevés during the 2022 survey. Detailed and Targeted Survey was conducted over a total of 90 person days in 2022. No constraints prevented appropriate sampling techniques (quadrat/relevé establishment, foot transects) being employed. Access within the Study Area enabled detailed VT and condition mapping to be undertaken throughout the Study Area via foot, vehicle and helicopter. Mapping and data reliability is therefore considered to be relatively high.	The survey and reporting works comply with the following documents: • Environmental Factor Guideline – Flora and Vegetation (Environmental Protection Authority 2016a) • *Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment* (Environmental Protection Authority 2016b)
Detailed flora and vegetation survey of the Great Northern Highway intersection – Lamb Creek Project (Rapallo 2021a)	254 ha	Detailed flora and vegetation survey of the Great Northern Highway intersection. The survey period of 12-17 May 2021 aligned with the recommended timing for vegetation surveys in the Eremaean Botanical Province and occurred within the primary survey period	A total of 19 flora quadrats (50 m by 50 m) and 1 relevé were sampled during the field survey. Additional flora taxa were recorded opportunistically while traversing between quadrats. Survey also included: • opportunistic records and field notes; • specimen collection and identification; and	The flora survey was conducted in accordance with Environmental Protection Authority (2016b) and conformed to requirements for a single-season detailed flora survey.

Studies And Surveys	Area	Scope And Timing	Survey / Study Effort	Consistency With Guidance and Limitations
		(Environmental Protection Authority 2016b).	• vegetation health classification.	
Targeted conservation significant flora survey of the Lamb Creek project area (Rapallo 2022c)	3,000 ha	A targeted significant flora survey was conducted over two phases: • Phase one: 15-29 April 2020, including the proposed mine site within R47/19 (271 ha), the haul road corridor (L47/736; 388 ha) and the Great Northern Highway intersection (57 ha). • Phase two: 12-17 May 2021, includes the targeted survey area at the Great Northern Highway intersection (156 ha).	Survey comprised: • a flora desktop assessment; • systematic parallel traverses spaced approximately 50 m apart; and • additional searches on foot and via helicopter, outside the survey area.	Survey undertaken in April 2020 and May 2021, which is within the appropriate time to survey for flora and vegetation in the Pilbara bioregion, in accordance with Environmental Protection Authority (2016b) and was undertaken by suitably experienced botanists. Key limitations included: • The interrogation area / methodology used for the desktop searches could have been more appropriate for the shape of the survey area. • A number of essential sources stipulated by guidance requirements were not reviewed prior to the survey as part of the desktop assessment. There is no clear summary of the review of previous local flora and vegetation surveys to indicate whether any significant flora taxa have been previously recorded in the vicinity of the survey area. • The full extent of significant flora populations outside the survey area were not surveyed; however, information from studies for other projects in the

Studies And Surveys	Area	Scope And Timing	Survey / Study Effort	Consistency With Guidance and Limitations
				region are available.
Lamb Creek and Wedge Deposits – Flora and Vegetation Desktop Assessment	3,110 ha	Desktop Assessment within a 40 km buffer of the defined Study Area to identify potential flora and vegetation factors that may occur within the Study Area and require surveys as part of the environmental approval process for the project.	Desktop Assessment to gather contextual information on the Study Area from existing surveys, literature, database searched and spatial information.	The Desktop Assessment addresses and/or complies with the following documents: • *Environmental Factor Guideline – Flora and Vegetation* (Environmental Protection Authority 2016a); • *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (Environmental Protection Authority 2016b); and • *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (Department of the Environment 2013). Key limitations include: • A number of surveys used in the desktop assessment (including Rapallo 2012) have been undertaken over five years ago, they were not subject to as stringent guidelines as are currently required under the EPA Technical Guidance (Environmental Protection Authority 2016b).
Lamb Creek flora mapping update and data review	233 ha (215 ha of L47/736 outside of the	An extension to the 2012 vegetation mapping to account for a change in alignment	This desktop report comprised: extrapolation of vegetation mapping into the new haul road corridor;	As this was an amendment to the 2012 mapping data, this update was in line with Environmental

Studies And Surveys	Area	Scope And Timing	Survey / Study Effort	Consistency With Guidance and Limitations
(Rapallo 2017)	previous area mapped in 2012)	of one of the proposed haul road options.	• a review of the 2012 flora survey data; • No field work was conducted within the portion of the new haul road located outside the area surveyed in 2012 • 2012 observations and drawings were utilised.	Protection Authority (2016b).
Level 2 Flora and Vegetation Survey of Lamb Creek project area for Process Minerals International (Rapallo 2012b)	2,068 ha	The flora and vegetation survey took place from 27 March to 1 April 2012 (6 days). Conducted at a suitable time for the Eremaean Botanical Province (Environmental Protection Authority 2016b). The survey encompassed the proposed mine site, two alternate haul road routes (nominal 120 m buffer either side), three alternate accommodation camp locations.	Desktop search and a single-phase level 2 comprehensive field survey. A total of 46 flora quadrats of 50 x 50 m were established within the area within each of the five land systems within the Flora and Vegetation Survey Area as well as opportunistic collections of species. The team comprised of three botanists. A total of 230 species, from 110 genera and 42 families, were recorded. Of those, 209 species were recorded within survey quadrats, and 21 species were recorded opportunistically.	The flora and vegetation survey was designed according to *Guidance Statement No. 51: Guidance for the Assessment of Environmental Factors: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia* (Environmental Protection Authority 2004) which has since been superseded by *Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment (Environmental Protection Authority 2016b)*; therefore, the field survey may not have met the existing requirements. There were very few access tracks, and all sites were accessed by helicopter.

APPENDIX C
FLORA AND VEGETATION SURVEY REPORTS

LAMB CREEK PROJECT

Detailed and Targeted
Flora and Vegetation Survey

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Mineral Resources Limited

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Report No.	22187/R03
Date:	November 2022

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Quality outcomes

MINERAL RESOURCES

LAMB CREEK PROJECT

Detailed and Targeted
Flora and Vegetation Survey

FINAL

November 2022

Acknowledgement of Country

Umwelt would like to acknowledge the traditional custodians of the country on which we work and pay respect to their cultural heritage, beliefs, and continuing relationship with the land. We pay our respect to the Elders – past, present, and future.

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Definitions

Term	Definition
BAM Act	Biosecurity and Agriculture Management Act 2007
BC Act	Biodiversity Conservation Act 2016
BC Regs	Biodiversity Conservation Regulations 2018
BIF	Banded Iron Formation
DAWE	Department of Agriculture, Water and the Environment
DBCA	Department of Biodiversity, Conservation and Attractions
DE	Development Envelope
DPIRD	Department of Primary Industries and Regional Development
EIA	Environmental Impact Assessment
EPA	Environmental Protection Authority
EPBC Act	Environment Protection Biodiversity Conservation Act 1999
GIS	Geographic Information System
GDA94	Geocentric Datum of Australia 1994
GDE	Groundwater Dependent Ecosystem
GNHI	Great Northern Highway Intersection
GPS	Global Positioning System
ha	Hectares
INDVAL	Indicator Taxon Analysis, a measure of taxon fidelity to a given VT
km	Kilometres
IBRA	Interim Biogeographic Regionalisation for Australia
listed	Pertaining to listed taxa or vegetation - those that are formally listed as conservation significant under the *Environment Protection and Biodiversity Conservation Act 1999*, or the *Biodiversity Conservation Act 2016*.
m	Metres
m2	Metres squared
mbgl	Metres below ground level
mm	Millimetres
MNES	Matters of National Environmental Significance
MINRES	Mineral Resources Limited
NT	Northern Territory
NVIS	National Vegetation Information System
P	Priority
PEC	Priority Ecological Community
Population	A discrete group of individuals of a taxon separated by more than 500 m from the nearest discrete group of individuals (as per DBCA (2017))
Qld	Queensland
Significant flora	As defined in **section 3.9.1**
Significant vegetation	As defined in **section 3.9.2**

Term	Definition
SPRAT	Species Profile and Threats database – a database produced by DAWE to enable identification of MNES listed under the EPBC Act within a given area
T	Threatened
TEC	Threatened Ecological Community
The Desktop Study Area	Area encompassing the Study Area with a 40 km buffer. Used for the purposes of elements of the desktop assessment, including interrogation of databases and searches for relevant literature
The Development Envelope	Proposed development envelope, approximately 890.5 ha in size
The Footprint	Proposed indicative footprint, approximately 656.7 ha.
The Project	Mining opportunities associated with the Lamb Creek Deposit
The Study Area	The Study Area is the extent to which detailed vegetation survey was conducted, encompassing all of the proposed development envelope and additional areas for context
TPFL	Threatened and Priority Flora Database
UCL	Unallocated Crown Land
Umwelt	Umwelt (Australia) Pty Ltd
VSA	Vegetation System Association
VT	Vegetation Type
WA	Western Australia
WA Herb	Western Australian Herbarium
WoNS	Weeds of National Significance
Woodman Environmental	Woodman Environmental Consulting Pty Ltd (now Umwelt (Australia) Pty Ltd)

Executive Summary

Mineral Resources Limited (MINRES) are exploring mining opportunities associated with the Lamb Creek Deposit (the Project), located approximately 120 kilometres (km) northwest of Newman. A number of flora and vegetation surveys have previously been undertaken for the Project, and a gap analysis and peer review of previous survey work recommended additional targeted survey and a detailed flora and vegetation survey. MINRES commissioned Umwelt (Australia) Pty Ltd to undertake a flora and vegetation survey of the Project to support the Environmental Impact Assessment (EIA) process for the Project.

The current survey comprised three field visits over March, April and June-July 2022. A total of 116 quadrats and five relevés were surveyed. Targeted searching for all significant flora previously recorded in the Study Area or considered to potentially occur within the Study Area, was undertaken over areas of the Development Envelope not previously surveyed in 2021. There were no survey limitations that are considered to have significantly influenced the results of the 2022 survey.

A total of 328 discrete vascular flora taxa representing 45 families and 137 genera were recorded in the Study Area, including seven introduced taxa. One Threatened taxon (*Seringia exastia*) was recorded within the Study Area however its status is currently under review and it will be delisted in the near future. A further seven significant flora taxa were recorded within the Study Area including five Department of Biodiversity, Conservation and Attractions (DBCA) listed Priority (P) taxa, and two potentially undescribed taxa, as listed below:

- *Aristida jerichoensis* var. *subspinulifera* (P3)
- *Aristida lazaridis* (P2)
- *Corchorus* sp. (Potentially undescribed)
- *Eremophila naaykensii* (P3)
- *Euphorbia ferdinandi* s. lat. (Potentially undescribed)
- *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
- *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)

An assessment of the likelihood of occurrence of further significant taxa within the Study Area and Targeted Survey Area identified a total of 42 taxa which could potentially occur within the Study Area, and no taxa which could potentially occur within the Targeted Survey Area.

Ten VTs were defined in the Study Area via floristic composition classification and subsequent examination of quadrat data. The VTs described and mapped within the Study Area are not considered to represent any listed Threatened or Priority Ecological Communities, nor are they considered to be significant for reasons other than formal listing. All VTs mapped in the Study Area are either known to, or considered likely to, extend outside the Study Area to some extent, and are not considered to be restricted in distribution. None of the vegetation within the Study Area is considered to represent Groundwater Dependant Vegetation. The majority of the vegetation within the Study Area (90.5 %) was rated as Excellent, with no obvious signs of damage caused by human activities. The remainder of the vegetation was rated as Very Good and Good, with some historical mechanical disturbance, introduced flora taxa dominating the lower stratum in some flowlines, and otherwise low levels of introduced flora taxa across the Study Area.

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1.0 Introduction

1.1 Project Overview

Mineral Resources Limited (MINRES) are actively exploring mining opportunities associated with the Lamb Creek Deposit (the Project), located approximately 120 kilometres (km) northwest of Newman in Western Australia (WA). The exploration area consists of a proposed mining area and associated infrastructure corridor linking the proposed mining area to Great Northern Highway.

Several flora and vegetation surveys conforming to different levels of survey under various Environmental Protection Authority (EPA) Guidance Statements (EPA, 2004, 2016b) have been conducted for the Project. A gap analysis and peer review of previous survey work, as undertaken by Umwelt (Australia) Pty Ltd (Umwelt) (2022), recommended additional targeted survey and a detailed flora and vegetation survey (as per Sections 4.2 and 4.3 of EPA (2016b)).

MINRES commissioned Umwelt to undertake a flora and vegetation survey of the Project to support the Environmental Impact Assessment (EIA) process for the Project.

1.2 Project and Study Area Definitions

The Lamb Creek Project is located in the Shire of East Pilbara, near the junction with the Shire of Ashburton, within the Pilbara region, approximately 120 km northwest of Newman and 270 km south of Port Hedland (**Figure 1.1**).

1.2.1 Development Envelope and Disturbance Footprint

MINRES have defined a Proposed Development Envelope and Proposed Disturbance Footprint for the Project (version October 2022). The Proposed Development Envelope is nominally defined by a 70 metre (m) buffer of the infrastructure design, from which avoidance areas (heritage places, known locations of priority flora taxa) have been excised. The Proposed Development Envelope is approximately 894 hectares (ha) in size and encompasses the Proposed Disturbance Footprint, which is approximately 661 ha in size (**Figure 1.1**).

The development envelope is composed of three parts: the Great Northern Highway Intersection Development Envelope (GNHI DE); the Access Road Development Envelope (Access Rd DE); and the Mine Development Envelope (Mine DE), containing the waste rock dumps, pit area, crushing and screening plant and other infrastructure relevant to the mining operations. These three areas are displayed on **Figure 1.2.**

1.2.2 Desktop Study Area

A Desktop Study Area has been defined for the purposes of interrogation of databases and searches for relevant literature. The Desktop Study Area was defined as a 40 km buffer around the Proposed Development Envelope as supplied by MINRES on 2nd September 2021. Although the previous version of the Proposed Development Envelope was used to define the Desktop Study Area (superseded by the version provided in October 2022 as discussed above (Section 1.2.1)), the change to this area is minor, and therefore it is not considered necessary to update the Desktop Study Area. The location of the Desktop

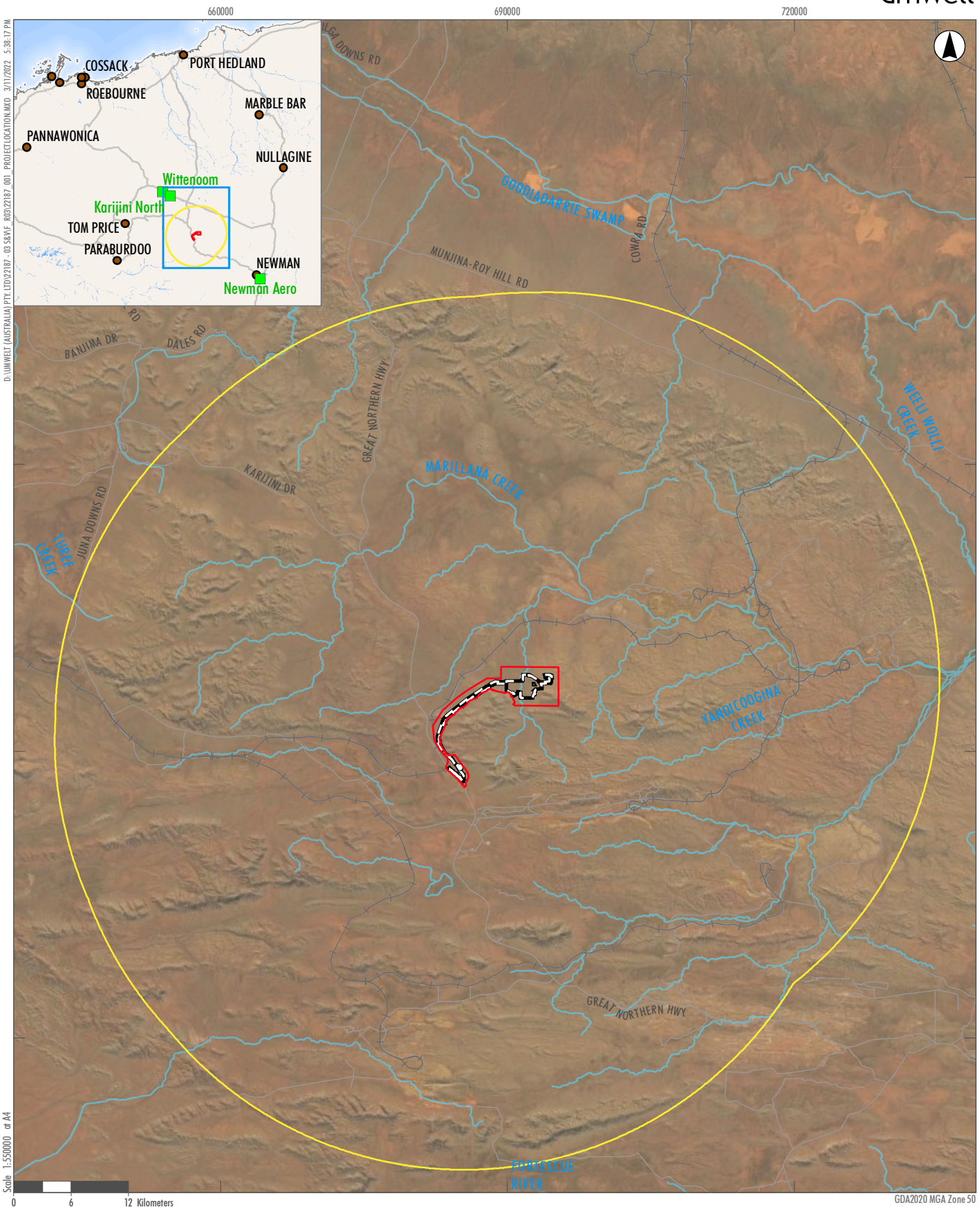
Study Area in relation to the Proposed Development Envelope and Proposed Disturbance Footprint is presented on **Figure 1.1**.

1.2.3 Study Area

A Study Area of 3,785 ha has been defined in consultation with MINRES and represents a buffered area on the Proposed Development Envelope and MINRES tenements, sufficient to provide contextual information relevant to interpreting impacts. Detailed vegetation survey was undertaken within the Study Area, as presented on **Figure 1.2**.

1.2.4 Targeted Survey Area

A targeted survey area of 355 ha has been defined as the Proposed Development Envelope, excluding areas over which targeted searching has been completed by Rapallo (2021b). The Targeted Survey Area is presented on **Figure 1.2**.



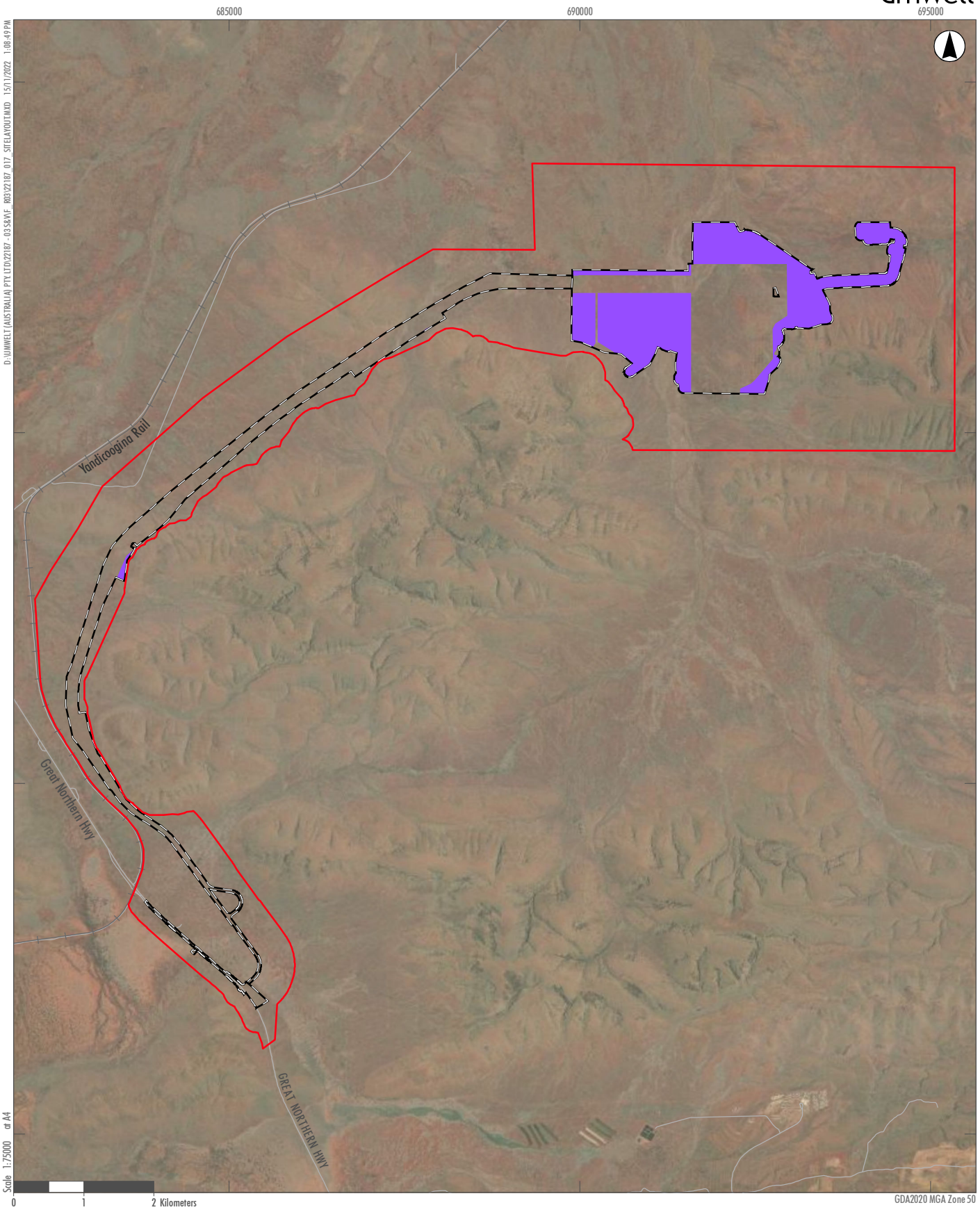
Legend

- Desktop Study Area
- Study Area
- Proposed Development Envelope
- Roads
- Rail
- Drainage Line
- Weather Stations

FIGURE 1.1

Project Location

Image Source: ESRI Basemap (2021) Data source: Landgate (2022)



Legend

- Study Area
- Proposed Development Envelope
- Targeted Survey Area
- Roads
- Rail

FIGURE 1.2

Study Area and Targeted Survey Area

Image Source: ESRI Basemap (2021) Data source: Landgate (2022), MRL (2022)

1.3 Aims and Objectives

The primary aim of this assessment was to characterise the flora and vegetation values of the Study Area to provide MINRES relevant and defendable data and documentation to support the Environmental Impact Assessment (EIA) process for the Project.

The overall objectives of the assessment were to:

- Compile an inventory of vascular flora taxa that occur in the Study Area.
- Search for and census populations of the following taxa (hereafter referred to as significant flora taxa) identified as occurring or potentially occurring within the Targeted Survey Area, as well as opportunistically within the wider Study Area.
    - Listed Threatened Species (T) under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (Commonwealth).
    - Threatened Flora (T) under the Biodiversity Conservation Act 2016 (BC Act) (WA).
    - Priority Flora taxa (P) as classified by the WA Department of Biodiversity, Conservation and Attractions (DBCA).
    - Other significant flora taxa as defined by the Environmental Protection Authority (EPA) (2016a, 2016b).
- Identify locations and determine the extent of introduced vascular flora taxa, with particular focus on those that are Weeds of National Significance (WoNS), or Declared Pests under the Biosecurity and Agriculture Management Act 2007 (BAM Act).
- Identify, map and describe Vegetation Types (VTs) that occur within the Study Area.
- Identify, map and describe vegetation that occurs within the Study Area that is one of the following (hereafter referred to as significant vegetation), to provide context for impact assessment:
    - Listed Threatened Ecological Communities (TECs) under the EPBC Act.
    - TECs as classified by DBCA and endorsed by the WA Minister for the Environment.
    - Priority Ecological Communities (PECs) as classified by DBCA.
    - Other significant vegetation as defined by EPA (2016a, 2016b).
- Map the condition of the vegetation in accordance with EPA (2016b).

The survey and reporting works comply with the following documents:

- *Environmental Factor Guideline – Flora and Vegetation* (EPA 2016a).
- *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016b).

1.4 Levels of Assessment

The flora and vegetation survey of the Study Area involved targeted survey and a detailed survey as defined in Sections 4.2 and 4.3 of the '*Technical Guidance for Flora and Vegetation Surveys for Environmental Impact Assessment*' (EPA 2016b). This level of survey is considered appropriate for the Project, based on the location of the Project (located within the Pilbara - known to support a moderate diversity of flora and vegetation relative to other areas of the state, including significant flora taxa and vegetation types (EPA 2016b)) and the level of previous survey effort undertaken within the area (as assessed within the gap analysis for the Project (Umwelt 2022)).

It should be noted that this survey builds on previous work conducted to inform the EIA process for the Project, as detailed in **Section 3.0**.

2.0 Background

2.1 Climate

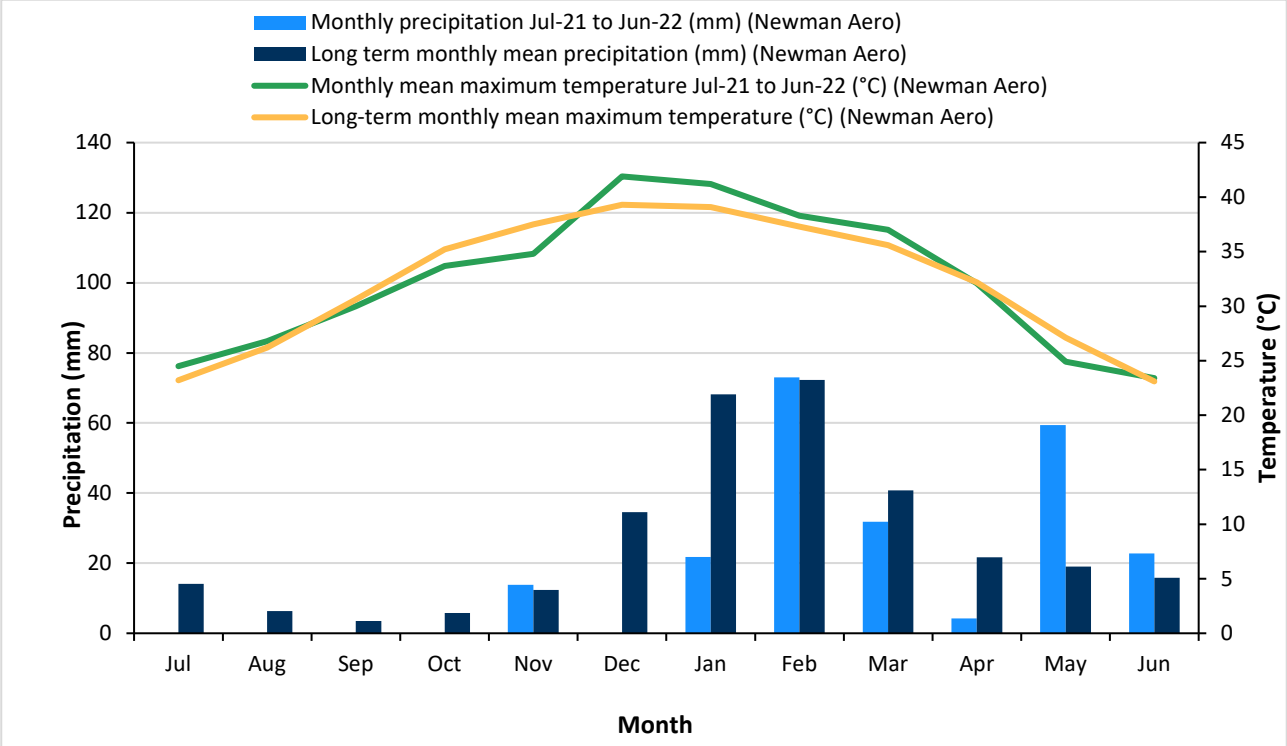
The Study Area is located in the Pilbara region (Fortescue Botanical District) as defined by Beard (1975, 2015). The climate of the Pilbara Bioregion is classified as arid tropical, with precipitation received primarily over the summer months. Average annual precipitation for the region is 250-300 millimetres (mm); this is generally slightly higher than most of the Eremaean Province of WA due to the influence of relatively frequent tropical cyclones that occur from November to April (Beard 2015; Bureau of Meteorology (BoM) 2018).

Graph 2.1 displays monthly precipitation and monthly maximum temperature statistics for the twelve months preceding the survey (July 2021 to June 2022), alongside long term averages for Newman Aero (Station number 007176). Graph 2.2 displays monthly data for the year preceding the survey for Karijini North (Station number 005098) alongside long term data for the now closed Wittenoom station (Station number 005026) which is 13 km from Karijini North station and at similar elevation (BoM, 2022a). These three stations provide the most relevant recent and long-term climate data. Karijini North and Wittenoom stations are located 68 and 79 km respectively northwest of the Study Area, while Newman Aero is located 113 km southeast of the Study Area, providing context for the Pilbara region.

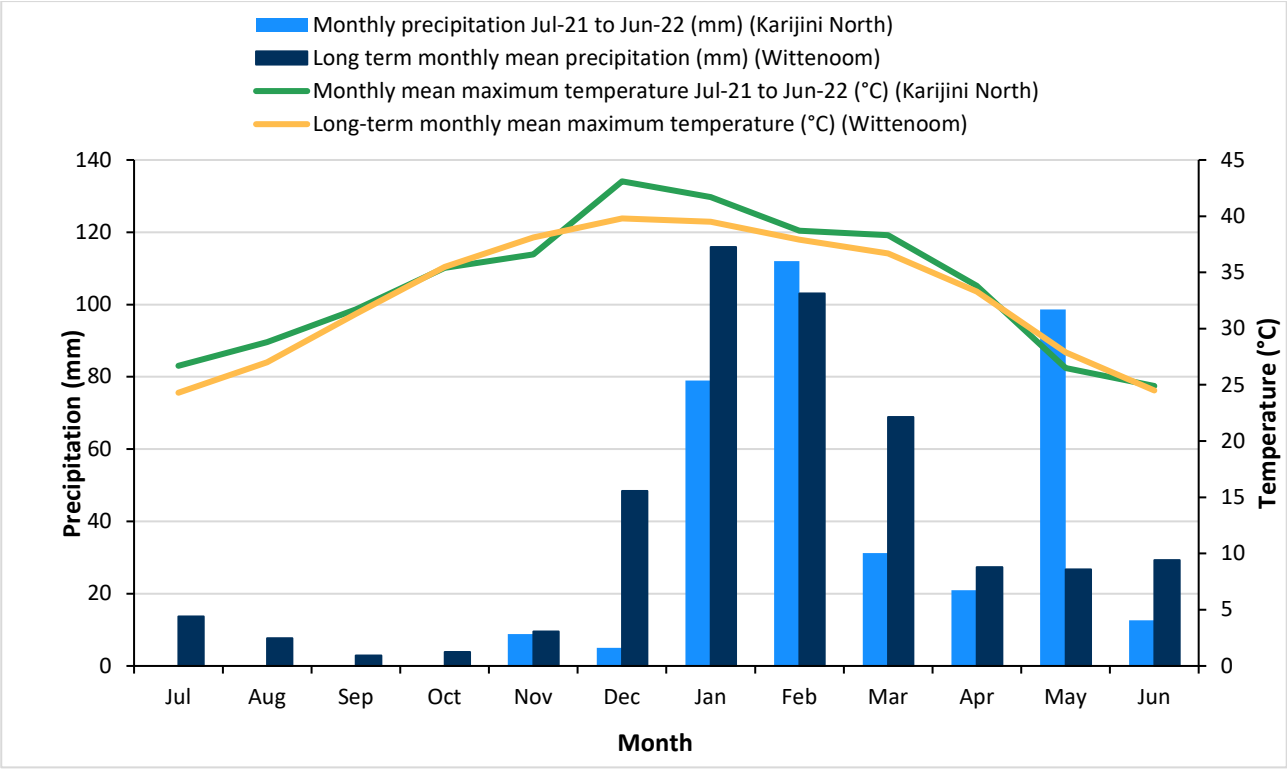
Long term averages indicate that the bulk of the annual rainfall occurs in January and February-68 and 72 mm respectively for Neman Aero, which receives 324 mm annually, and 116 and 103 mm respectively for Wittenoom, which receives 462 mm annually.

Although precipitation was below average in December 2021 and January 2022, precipitation was slightly above average for February 2022. Precipitation in March and April 2022 were again below-average, followed by above-average precipitation in May 2022 (three times the average for that month and similar to the volumes normally seen in February).

Mean maximum monthly temperatures were one to three degrees warmer than average in the five months leading up to and during Trips 1 and 2 (December 2021-April 2022), however were cooler than the average in May 2022.



Graph 2.1 Long term precipitation (1971 to 2022) and mean maximum temperature (1996 to 2022), and recent (Jul-21 to Jun-22) precipitation (mm) and mean maximum temperature (°C) for Newman Aero #007176 (BoM, 2022a).



Graph 2.2 Long term precipitation (1950 to 2019) and mean maximum temperature (1951 to 2019) for Wittenoom #005026, and recent (Jul-21 to Jun-22) precipitation (mm) and mean maximum temperature (°C) for Karijini North #005098 (BoM, 2022a).

2.2 Geology, Soils and Landscape

The Study Area is located in the Pilbara region as defined by Beard (1975; 2015). The Pilbara region is formed of a basement of Archaean granite and volcanics, overlain by massive deposits of Proterozoic sediments and volcanics (Beard 2015). This region is generally mountainous, rising to 1250 metres (m), with hard alkaline red soils on plains and pediments, and shallow and skeletal soils on ranges. The Study Area traverses one physiographic unit as defined by Beard (1975), being the Hamersley physiographic unit.

The Hamersley physiographic unit is a plateau bounded by a well-marked, abrupt escarpment on its northern, western and eastern flanks; on its southern edge the escarpment is more irregular (Beard 1975). It is composed of Lower Proterozoic rocks, which are predominantly jaspilite and dolomite with some shale, siltstone and volcanics. Above the escarpment, the plateau landscape is of rounded hills and ranges rising to around 900 m above sea level, and locally to 1250 m. There is often little soil on these hills, with cap rock abundant at the surface. Where the rock is mainly jaspilite and dolomite, there are ranges, steep hills and deeply dissected pediments with narrow, winding valley plains, however wider alluvial plains occur locally. The soils of the hills are predominantly stony and shallow, with non-coherent sands on the steeper slopes, and shallow brown loams. Neutral and hard alkaline red soils occur on the lower slopes, with deep coherent loams and clays in the valleys; in the wider alluvial valleys, deep, earthy loams with small areas of neutral red earths, and deep-cracking clays and earthy clays, both occur. Where the rock is basalt, there are valley plains and dissected stony pediments with steep, stony hills. Soils are predominantly hard alkaline red soils with significant areas of hard, neutral red soils and shallow brown loams (Beard 1975).

2.3 Groundwater and Surface Water Values

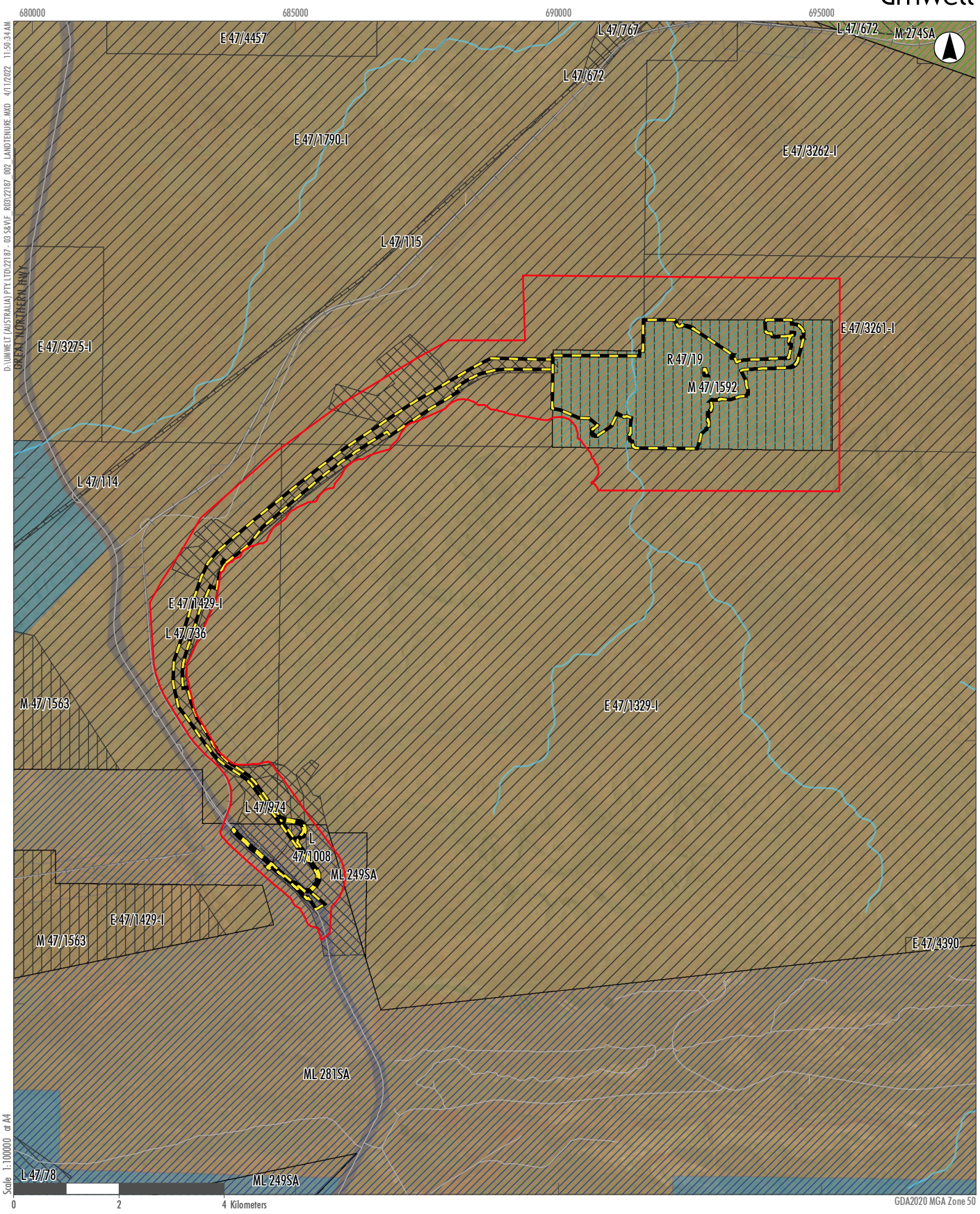
Broadscale mapping of potential Groundwater Dependent Ecosystems (GDEs) is available via the Groundwater Dependent Ecosystem Atlas which includes mapping of potential aquatic GDEs and terrestrial GDEs (BoM 2022b). A terrestrial GDE is a GDE which accesses subsurface groundwater to meet all or some of its water requirements, including terrestrial vegetation. An aquatic GDE refers to a GDE which interacts with rivers, springs, and wetland ecosystems and includes ecosystems that rely on groundwater that has been discharged to the surface, for example, as baseflow or spring flow.

The majority of the Study Area has been identified (BoM 2022b) as low potential terrestrial GDE, with minor areas of moderate potential terrestrial GDE also present. No aquatic GDEs have been mapped within the Study Area. There are no major rivers or creeks mapped within the Study Area. The nearest creeks include Marillana Creek to the north and Pebble Mouse Creek to the south-east which have been mapped as low to moderate aquatic GDEs (BoM 2022b).

The Mine DE is situated in the upper reaches of the Marillana Creek Catchment. PSM (2021) determined that the 'Mine creek' of the Study Area is characterised by sparse riparian vegetation, and that water table settings in the project area are comparatively deep (>10m), indicting unlikely groundwater dependency. Groundwater discharge zones, including shallow groundwater table environments, are expected to be present further downstream (northwards) at the confluence of 'Mine Creek' and Marillana Creek. Known GDE is present at Flat Rocks, approximately 24km downstream of the project. Known stands of *Melaleuca argentea*, *Eucalyptus camaldulensis*, *Eucalyptus victrix* are present further downstream in Marillana Creek, Yandicoogina and Weeli Wolli Creek systems, dependent to some extent on water stored in the alluvial aquifer (PSM 2021).

2.4 Land Tenure

The majority of the Study Area is within Juna Downs Pastoral Station (freehold tenure), with small areas of road (Great Northern Highway) also present (**Figure 2.1**)**.** There is one conservation reserve within the Desktop Study Area, being Karijini National Park (R 30082), which is located approximately 20 km west of the Study Area (DBCA, 2021a). Extensive areas of pastoral stations, including Juna Downs and Marillana Stations, as well as Unallocated Crown Land (UCL), also occur within the Desktop Study Area (Landgate, 2021).



Legend

- Study Area
- Proposed Development Envelope
- Roads
- Rail
- Drainage Line

Tenement

- Exploration Licence
- Mineral Lease S.A.
- Mining Lease
- Mining Lease S.A.
- Miscellaneous Licence
- Retention Licence

Land Tenure

- Freehold
- Leasehold
- Unallocated Crown Land
- Road

FIGURE 2.1

Land Tenure and Tenements relevant to the Lamb Creek Project

Image Source: ESRI Basemap (2021) Data source: Landgate (2022), DMIRS (2022)

2.5 Fire History

Fire is a regular and dynamic process in the Pilbara, either naturally caused by phenomena such as lightning strikes or otherwise by human intervention. Fire management of pastoral and rangeland areas is generally undertaken by land managers, to improve the palatability of grasslands or otherwise to avoid high intensity natural fires. As noted by van Vreeswyck (1994), hummock grasslands are particularly susceptible to fires (either by lightning strikes or prescribed burning); a range of herbaceous plants often emerges after rain in recently burnt areas but are usually succeeded by spinifex. Burbidge (1942) reported a succession of herbaceous annual and/or other short lived taxa in the first two seasons following fire, with regrowth being related to the amount of soil-water; after the third season, the competition in growth seemingly being between the perennial *Triodia pungens* individuals with the annual taxa forming a minor component of the lower stratum. Some species such as Mulga (*Acacia aneura*) are fire sensitive and too-frequent burns can affect the persistence of the species.

Figure 2.2 presents fire history of the Study Area and surrounding areas, as per publicly available data held by the DBCA (DBCA 2022e). Although the vegetation of the Study Area has for the most part been subject to fire in the past 10 years, areas in the north-west portion near the Mine Development Envelope, and smaller areas in the infrastructure corridor and Great Northern Highway intersection portions of the Study Area have not been burnt in the last 10 years. The eastern half of the Study Area surrounding the Mine Development Envelope was burnt in January 2014; portions of this area was then re-burnt in November 2017). The November 2017 burn also extended further west into this portion of the Study Area, also affecting portions of the infrastructure corridor. A separate burn in October 2015 (six and a half years since fire) affected portions of the Great Northern Highway intersection area and the infrastructure area (**Figure 2.2**).

None of the Study Area has been burnt more recently than four and a half years prior to survey (data as per DBCA 2022e), with no recent burns evident whilst undertaking survey.

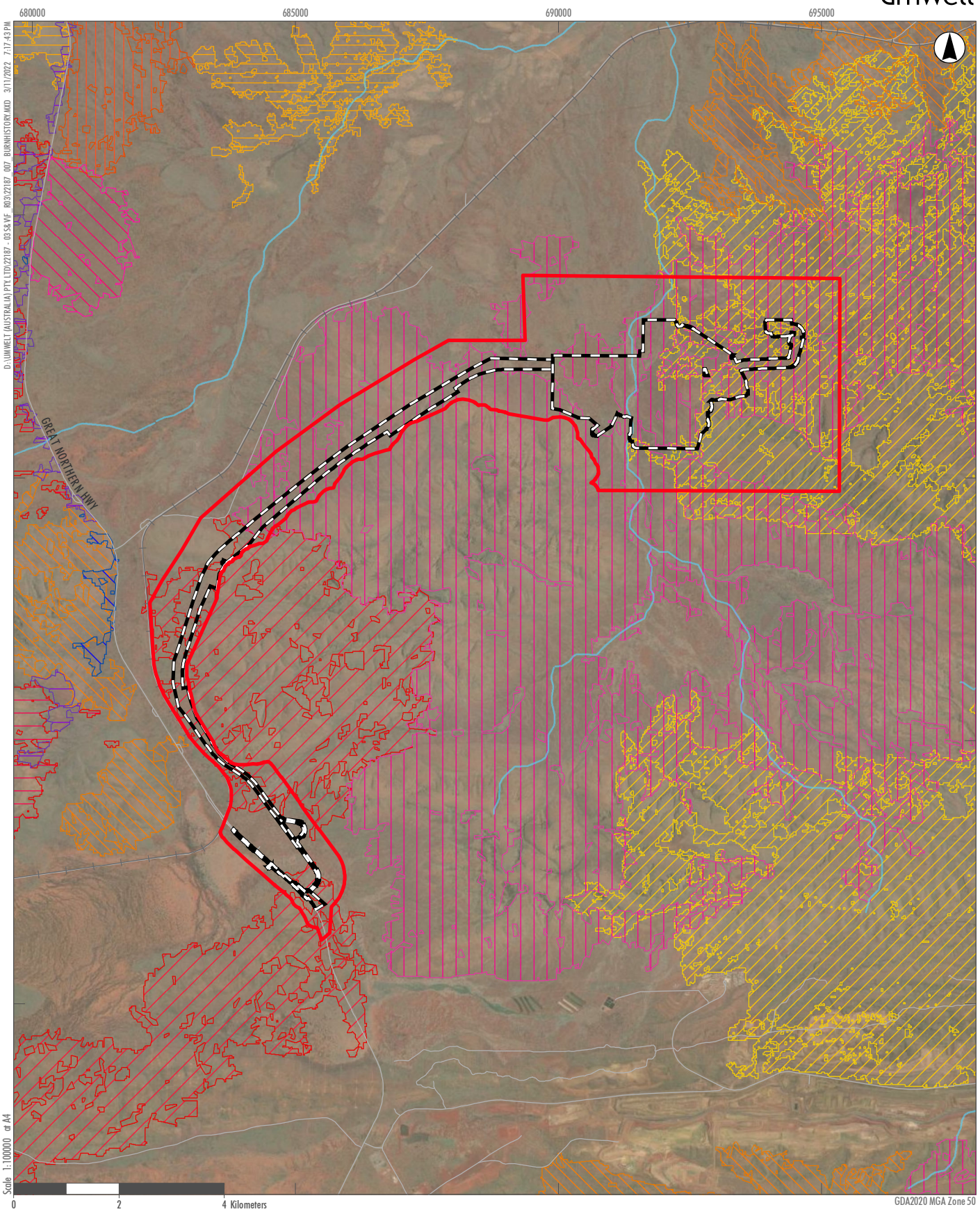


FIGURE 2.2

Burn History of the Study Area

Image Source: ESRI Basemap (2021) Data source: Landgate (2022), DBCA (2019)

3.0 Methods

3.1 Desktop Study

Prior to commencement of the 2022 field survey, a review of all publicly available flora and vegetation data relevant to the Study Area was undertaken. This included obtaining and reviewing copies of reports of previous biological surveys carried out within the vicinity of the Study Area (including studies assessed as part of the gap analysis for the Project (Umwelt 2022)) and interrogation of relevant databases and other sources as listed in **Table 3.1** within the Desktop Study Area (**Figure 1.1**). The results of the desktop assessment were updated prior to the 2022 field survey as per **Table 3.1**. Where TECs or PECs were identified by the desktop assessment, appropriate nomination / listing descriptions and recovery plans of the TEC or PEC were also reviewed prior to field survey.

Table 3.1 Searches undertaken for the Desktop Assessment of the Study Area

Source	Search Attributes	Search Purpose
Department of Agriculture, Water and the Environment (DAWE) Species Profile and Threats (SPRAT) Database (interrogated using the Protected Matters Search Tool) (DAWE 2021b)	Database interrogated using Desktop Study Area boundary. No additional buffer applied	Identify Matters of National Environmental Significance (MNES), including Threatened flora and TECs listed under the EPBC Act, that occur or have the potential to occur within the Desktop Study Area
DBCA Significant Flora Database (WA Herbarium Specimen Database and Threatened and Priority Flora (TPFL) Database) (DBCA 2022c)	Database interrogated using Desktop Study Area boundary. No additional buffer applied. Search conducted in 2020	Obtain records of DBCA-listed significant flora within the Desktop Study Area
DBCA NatureMap (WA Herbarium and TPFL records) (DBCA, 2007-2021)	Database interrogated using three points at the northern, centre and southern extents of the Desktop Study Area with a 40 km buffer (exact boundary cannot be used). Coordinates were: 22°48'10 S, 118°53'57 E 22°49'43 S, 118°47'39 E 22°53'39 S, 118°48'07 E	Obtain records of DBCA-listed significant flora within the Desktop Study Area
DBCA Threatened and Priority Ecological Communities Database (DBCA 2022d)	Database interrogated using Desktop Study Area boundary. No additional buffer applied.	Obtain records of DBCA-classified TECs and/or PECs within the Desktop Study Area
DBCA NatureMap (TEC and PEC records) (DBCA, 2007-2021)	Review of DBCA-classified TECs and PECs mapped in proximity to the Study Area	Identify whether there are any DBCA-classified TECs or PECs that could occur within the Desktop Study Area
DBCA TEC and PEC lists (DBCA 2018; 2022a)	Review of DBCA-classified TECs and PECs mapped in proximity to the Study Area	Identify whether there are any additional DBCA-classified TECs or PECs that could occur within the Desktop Study Area
Previous flora and vegetation surveys conducted within or in the vicinity of the Study Area (various sources)	Desktop Study Area	Identify records of significant flora and vegetation

Source	Search Attributes	Search Purpose
2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Government of Western Australia 2019)	Study Area	Identify extent of Vegetation System Associations (pre-European vegetation mapping) within the Study Area

3.2 Personnel and Licensing

Table 3.2 lists the personnel involved in both fieldwork and plant identifications for the flora and vegetation assessment. The Project Manager has previous experience in conducting flora and vegetation surveys in the Pilbara (> 3 years) and was supported in the role by the Project Director and Principal Botanist, both with in excess of 10 years experience in conducting field surveys, including in the Pilbara region. Remaining field team leaders have considerable previous experience in conducting flora and vegetation surveys in the Pilbara (> 10 years). Other personnel have previous experience in assisting with flora and vegetation surveys in the region. All plant material was collected under the relevant Flora Taking (Biological Assessment) Licence (under Regulation 62 of the Biodiversity Conservation Regulations 2018 (BC Regs)) and Authorisation to Take or Disturb Threatened Species (pursuant to Section 40 of the BC Act) as outlined in **Table 3.2**. Personnel managing plant identifications have had extensive previous experience (>10 years) in plant identifications of flora of the Pilbara.

Table 3.2 Personnel and Licensing Information

Personnel and Role	Qualifications	Field Trips*			Taxonomy	Reporting	Flora Collecting Permit (BC Act)
		1	2	3			
Greg Woodman (Project Director)	BSc (Biology) (Hons)					•	N/A
Catherine Godden	BSc (Biology) (Hons)					•	N/A
Cielito Marbus (Project Manager / Team Leader)	BSc (Biotechnology) (Hons), BComm (Management)	•	•	•	•	•	FB62000066-2 TFL90-2021
Kim Kershaw (Team Leader/Field Member)	Bsc (Science)	•		•			FB62000054-2 TFL133-2122
Kelli McCreery (Team Leader/Field Member)	Msc (Environmental Management)		•				FB62000185-2 TFL27-1920
Kyler Rowson (Field Member)	Bsc (Marine Biology and Biological Sciences)	•	•		•	•	FB62000399
Emalyn Loudon (Field Member)	BAgrib (Agriculture) (Hons)	•	•				N/A
David Coultas	BSc (Environmental Biology) (Hons)				•		N/A
Bethea Loudon	BSc (Biology)				•		N/A
Jaroslav Hruban	Mgr (MSc equiv.) (Botany) BSc (Botany) (Hons)				•		N/A
Leah Firth	Bsc (Conservation Biology)				•		N/A

* Field trip dates presented in **Section 3.4.1**

3.3 Aerial Photography Interpretation and Survey Design

Initial interpretation of ortho-rectified aerial photography (at a scale of 1:10,000) was conducted to determine preliminary vegetation patterns present within the Study Area (including areas of restricted or unusual landforms and types), with quadrats allocated based on these patterns. A minimum of three quadrats were allocated to each major discernible vegetation pattern where possible; for smaller patterns, fewer quadrats were allocated based on the size of the pattern, while for widespread vegetation patterns, quadrats were allocated across their geographic range.

Quadrats were allocated across the Study Area, excluding the GNHI DE area that was the focus of Rapallo's (2021a) field survey, as this area was already well sampled. A selection of quadrats sampled by Rapallo (2021a) were revisited during the current survey in order to determine compatibility of Rapallo (2021a) data for inclusion in floristic analyses.

3.4 Field Survey Methods

The survey design for the 2022 survey of the Study Area complies with the requirements of EPA (2016b) and is consistent with the methods used by other similar flora and vegetation assessments conducted within the vicinity of the Study Area (**Section 5.1.3**) and the wider Pilbara Bioregion.

3.4.1 Survey Timing

Flora and vegetation field surveys were undertaken over three survey periods in 2022, as outlined below (the 2022 field surveys):

- 14-23 March 2022: flora and vegetation quadrat assessment.
- 4-14 April 2022: flora and vegetation quadrat assessment, targeted significant flora searching.
- 29 June-1 July 2022: targeted flora searching.

The timing of the field surveys was selected to coincide with the most appropriate time to survey in the Pilbara Bioregion; approximately six to eight weeks post wet season (generally March to June) (EPA 2016) as most of the taxa in this region flowers at this time. This includes the majority of significant taxa that potentially occur in the Study Area (see **Section 5.1.4**). Above-average rainfall in May 2022, coupled with moderate temperatures lengthened the flowering season, allowing for further targeted survey in June 2022.

The Study Area was accessed by helicopter and vehicle using existing access tracks, and via foot transects. Appropriate landholder/manager permissions were obtained prior to undertaking the 2022 surveys.

3.4.2 Sample Sites

A total of 116 non-permanent flora and vegetation quadrats and five relevés were surveyed in the Study Area (**Figure 3.1**).

Of the 116 quadrats, 108 were new quadrats established by this survey and eight were re-scores of quadrats established by Rapallo (2021a). A further 11 quadrats established by Rapallo (2021a) in the Study Area were not re-scored during this survey.

The quadrat size utilised for the flora and vegetation survey of the Study Area is the indicative size for flora and vegetation surveys in the Pilbara IBRA Bioregion, as outlined in Table 1 of the Technical Guidance (EPA 2016b). All quadrats encompassed a total area of 2500 metres squared (m^2); most measured 50 m × 50 m squares; however, occasionally rectangular quadrats with different dimensions (e.g. 100 m × 25 m) were established in narrower vegetation patterns such as those along creek lines. Quadrat locations were selected to ensure that at least three quadrats were surveyed within each vegetation pattern initially identified from aerial photography interpretation, where possible (as per **Section 3.3**). The final quadrat locations were adjusted from the initial proposed locations if variations in floristic patterning were observed in the field, or if access or safety issues were encountered. Vegetation boundaries or transition zones were avoided. Additional quadrats were established in areas that were not identified by the initial aerial photography interpretation but were observed in the field to differ from pre-identified areas, or areas of unusual habitat. Quadrat boundaries were demarcated using handheld Global Positioning System (GPS) units and surveying tape measures.

All vascular flora taxa (native and introduced) that were visually identifiable within each quadrat were recorded. At least one reference specimen of most taxa encountered (excluding common, distinctive taxa) was collected for verification and identification purposes (see Section 3.5).

The following information was recorded at each quadrat:

- Unique quadrat number (Site Name).
- Survey date.
- Global Positioning System (GPS) coordinates at start corner of quadrat (recorded using handheld GPS units) (Geocentric Datum of Australia (GDA94), Zone 50).
- Size and dimensions of quadrat.
- Site photograph, taken diagonally from start corner.
- Compass bearing for two sides of quadrat that commence at start corner of quadrat.
- Topography (including landform type and slope class).
- Soil colour and type (including the presence of any rock outcropping and surface stones).
- Vegetation condition (EPA 2016b; scale presented in **Appendix A**) and a description of disturbances (where relevant).
- Approximate time since fire.
- Foliage cover (%) (for each taxon, native and introduced, including cover within the quadrat of individuals rooted outside of the quadrat).
- Height (m) (average for each taxon, native and introduced, excluding climbers/aerial shrubs).
- Additional flora taxa present immediately outside of the quadrat.

Flora and vegetation survey quadrats are not considered to be the most appropriate sampling method in all instances. Where areas of vegetation in relatively degraded condition are encountered, or if areas of vegetation are too narrow to allow for the establishment of quadrats (e.g. narrow road verges), the establishment and survey of relevés rather than quadrats is considered more appropriate. A total of five non-permanent flora and vegetation survey relevés were established and surveyed within the Study Area during the 2022 field surveys. Each relevé surveyed an area approximately within a radius of 20 m around a central point. All data recorded for quadrats (as listed above) was also recorded for the relevé; however, only dominant taxa of each stratum level were recorded, as well as any taxa not previously observed elsewhere.

3.4.3 Vegetation Notes

Notes on vegetation pattern boundaries and distribution were also taken while traversing the Study Area. These notes included a GPS location at the point where the notes were taken (GDA94, Zone 50), and a brief description of the vegetation, including dominant and characteristic taxa. The notes were used to aid in mapping polygons of vegetation patterns that were not allocated quadrats or relevés. Not all vegetation pattern polygons received quadrats or relevés due to the size of the Study Area in combination with reasonable time constraints; however, polygons could be confidently allocated to a final vegetation type (VT) using a combination of field mapping notes and aerial photograph interpretation. Additional flora taxa were also recorded opportunistically in the Study Area during traverses, with GPS locations of such taxa recorded (GDA94, Zone 50).

3.4.4 Targeted Survey for Significant Flora and Vegetation

Targeted survey for significant flora taxa was undertaken during 2022 over the Targeted Survey Area (**Section 1.2**). Targeted survey was undertaken via transects spaced approximately 50 m apart. Where plants of significant flora taxa were encountered, survey was undertaken between transects. Where the current Development Envelope boundary exceeded the previously searched (Rapallo 2021) Targeted Study Area by less than 25 m, these small areas were not traversed during the 2022 survey.

The majority of taxa identified by the desktop assessment as potentially occurring within the Study Area were considered to be identifiable during the survey, and therefore the majority of such taxa were targeted (Section 5.1.5). Limitations to the survey are provided in **Section 4.2**. Information relating to identifying characteristics, flowering period and habitat of these taxa was provided to all field team members prior to undertaking targeted survey.

The following information was recorded along traverses (where significant flora were encountered):

- Location.
- GPS coordinates (recorded using handheld GPS units) (GDA94, Zone 50).
- Taxon encountered.
- Detailed count of individuals of taxon at location.
- Comments on landform, aspect, soil type, vegetation condition, time since fire, and disturbance, where relevant.

Targeted significant flora searching was also undertaken opportunistically while traversing to quadrat and relevé locations. If new populations of significant flora taxa were identified, a representative collection of material was made (**Section 3.5**). Information recorded at such locations was the same as that recorded during targeted searching.

A potentially undescribed entity (*Euphorbia* aff. *ferdinandi*) recorded by Rapallo (2021b), represented a gap in previous survey coverage. To address this, targeted survey outside the Targeted Survey Area was conducted to determine the presence of this entity within the Development Envelope. Efforts across the current Targeted Survey Area included searching for this entity.

Targeted survey in the GNHI DE, and in the vicinity of, was undertaken in June for *Aristida jerichoensis* var. *subspinulifera* in response to identification of this taxon in the 2022 plant identification process from a Rapallo (2021a) rescored quadrat.

A second potentially undescribed entity (*Corchorus* sp). was identified from a quadrat during the 2022 survey, representing a gap in survey coverage. To address this, further targeted survey outside of the Targeted Survey Area, was undertaken in late June-early July 2021 to determine presence of this entity within the Development Envelope.

No targeted searching for significant vegetation was undertaken in 2022 as the desktop assessment did not identify any listed significant vegetation likely to be present in the Study Area (**Section 5.1.5**).

All traverses made during the 2022 field surveys are mapped as track logs on **Figure 3.1**.

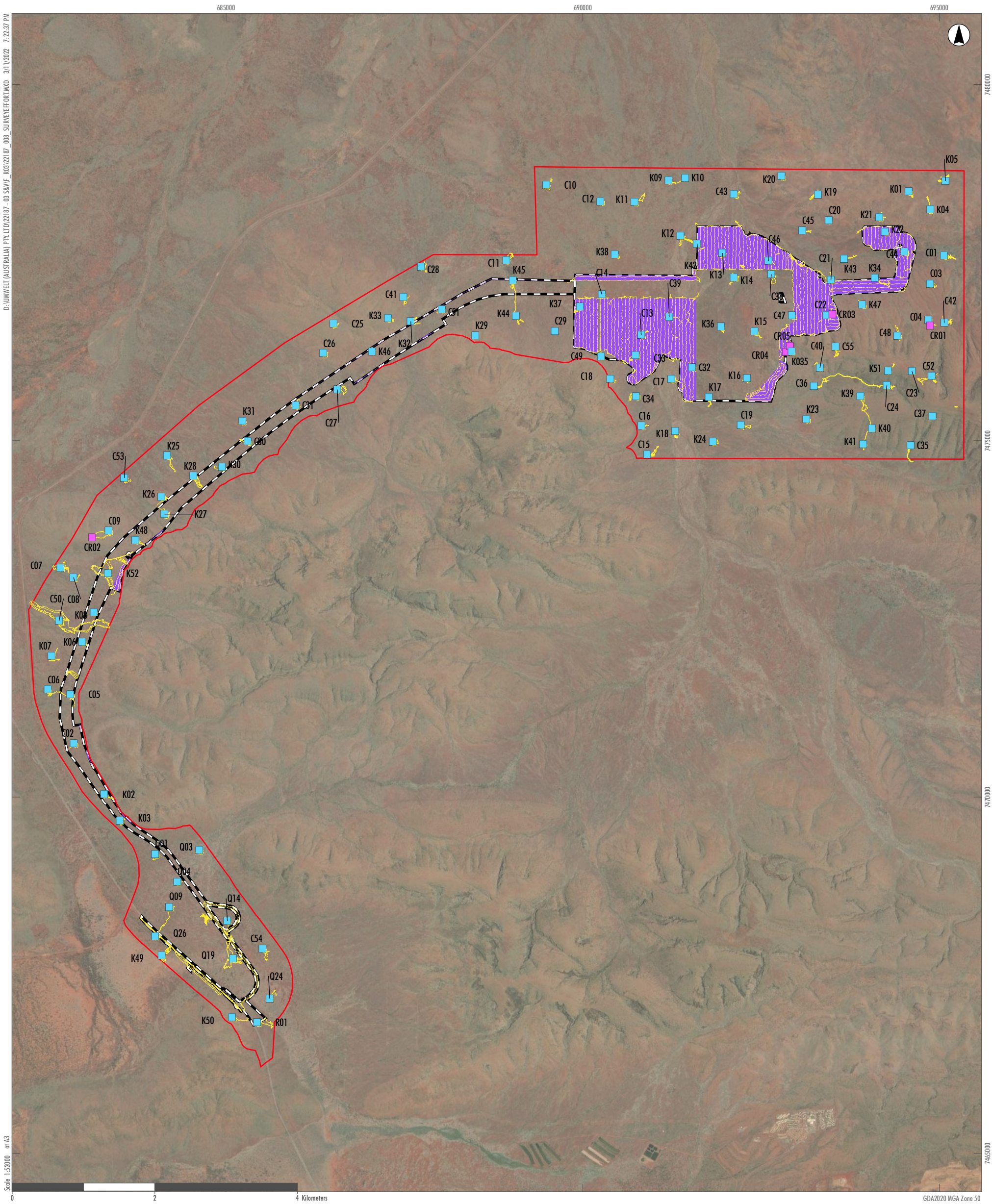


FIGURE 3.1

Survey effort: Track logs, Quadrats and Relevés from the 2022 Field Surveys

Image Source: ESRI Basemap (2022) Data source: Umwelt (2022)

3.4.5 Introduced Flora

Opportunistic locations of introduced flora taxa encountered while traversing between quadrats and relevés, and while conducting targeted searching for significant flora taxa, were recorded using the same method as for significant flora taxa, with particular emphasis given to WoNS and Declared Pests.

3.5 Plant Collection and Identification

Specimens of any unknown taxa encountered during the field survey were collected and pressed as per Western Australian Herbarium (WA Herbarium) guidelines. Plant identifications were undertaken at the WA Herbarium and were overseen by a Principal Botanist with extensive previous experience (> 10 years) in plant identifications for flora of the Pilbara (**Section 3.2**). The identification of all taxa (including significant taxa) used the most up to date information available (including taxonomic keys published in books, journals and online, comparison with herbarium specimens, and consultation with taxonomic experts). External experts of particular families or genera were consulted for any specimens considered to be difficult to identify or of taxonomic interest, including botanists at the WA Herbarium.

Taxon nomenclature generally follows *FloraBase* (WA Herbarium 1998-) with all names checked against the current DBCA Max database to ensure their validity. However, in cases where names of plant taxa have been published recently in scientific literature but have not yet been adopted on *FloraBase* due to time constraints, nomenclature in the published literature is followed. The conservation status of each taxon was checked against *FloraBase*, which provides the most up-to-date information regarding the conservation status of flora taxa in WA.

Specimens of interest, including significant flora taxa, taxa representing range extensions, potential new taxa, and key species in new occurrences of TECs and PECs will be sent to the WA Herbarium for consideration for vouchering as soon as practicable. However, this process is via donation, and the WA Herbarium may not voucher all specimens, in accordance with its own requirements. The specimen vouchering will be supported by completed Threatened and Priority Flora Report Forms submitted to DBCA (Species and Communities Branch) in the case of listed significant flora (i.e. Threatened and Priority flora taxa).

3.6 Floristic Classification Analysis

Floristic classification analysis of 127 quadrats established in 2021 and 2022 (Section 3.4.2) was performed to inform the final grouping of VTs in the Study Area. The floristic classification analysis was undertaken by a senior botanist with previous experience (> 3yrs) in undertaking and interpreting floristic analysis results, and was reviewed by a principal botanist with extensive previous experience (> 10 years) in Pilbara analyses. The taxa recorded in each of the 11 quadrats sampled by Rapallo (2021b) were reviewed and relevant changes to the data were made with regards to the field survey and plant identification process relevant to the quadrat re-score process undertaken during this survey (re-score of eight Rapallo (2021b) quadrats during 2022). These taxon changes are listed in **Appendix B.**

Taxa belonging to the below categories were removed prior to the classification analysis:

- Introduced taxa - introduced taxa were removed as their distributions are generally by the presence of disturbance (e.g. clearing, animal movement) rather than natural ecological drivers. Vegetation type must be determined independently of vegetation condition for the purposes of EIA; therefore,

including weeds in the classification analysis introduces the risk of VTs allocated by the analysis being based on condition (presence/absence of introduced species) rather than native taxon presence/absence.

- Hybrids – hybrids are usually the result of random reproductive events that produce small numbers (often only one) of sterile offspring and are often not associated with particular habitat types. As an exception, the hybrids *Senna glutinosa* subsp. x *luerssenii* and *Senna artemisioides* subsp. x *artemisioides* were retained due to their repetitive nature in the dataset.

- Taxa where identification was unclear – taxa were removed from the analysis where identification was unclear due to poor available material in the field. However, if such a taxon was known to be unique within the dataset (i.e. although not identifiable to species level, there was enough material to indicate it representing a unique taxon), and the taxon had multiple records in the dataset, it was included in the analysis.

- Singletons – taxa that occur only once in the dataset were removed, as published studies indicate that they provide little information in the dataset (e.g. Markey and Dillon 2008).

All taxa removed from the classification analysis (excluding taxa belonging to the abovementioned categories) are presented in **Appendix B**. Also presented in **Appendix B** are taxa that were amalgamated in the classification analysis; this was done, for example, where different infra-taxa could not be consistently positively identified at all quadrats due to inadequate material.

The final dataset contained 239 taxa following the removal and/or amalgamation of the above-noted taxa.

A single-layer data matrix using presence/absence species data was used in the classification analysis, with PATN (V4.0) (Belbin and Collins 2013) utilised to perform the classification and ordination analysis of the data matrix. The Bray-Curtis coefficient was used to generate an association matrix for the classification analysis. This association matrix consisted of pairwise coefficients of similarities between quadrats based on floristic data. Agglomerative hierarchical clustering, using flexible Unweighted Pair Group Method with Arithmetic Mean (UPGMA) (ß = - 0.1), was used to generate a quadrat classification dendrogram (Sneath and Sokal 1973).

3.7 Vegetation Type Definition, Mapping and Description

The classification analysis of the Study Area floristic data (**Section 3.6**) aggregated quadrats and taxa, with the number of groups equivalent to the square root of the number of quadrats/taxa (Belbin and Collins 2013). The resulting dendrogram and taxon group matrix were initially examined at this level to determine the plausibility of groups with regard to taxon groups, in combination with field observations. This process determined a final number of groups, which are considered to represent VTs.

Following this process, floristic and structural data recorded at relevés was examined to determine whether vegetation sampled by such relevés was analogous to any of the VTs defined by floristic composition classification.

VT descriptions have been adapted from the National Vegetation Information System (NVIS) Australian Vegetation Attribute Manual Version 6.0 (ESCAVI 2003), as stipulated by EPA (2016b). This model follows nationally-agreed guidelines to describe and represent VTs, so that comparable and consistent data are produced nation-wide. It should be noted that the NVIS system utilises vegetation descriptions derived

from structural characteristics of the individual community units, while VTs presented in this report are defined based on the results of a floristic classification analysis, excluding any structural data. Such VTs therefore may include multiple structural types. Considering the effect of disturbance factors such as fire on vegetation structure, this approach is designed to provide a map of VTs that reflect taxon composition and the influences of the physical and chemical environment rather than disturbance history.

The vegetation was described according to the stratum and dominant taxa present in each stratum upon review of the quadrat data for each VT. This report has described VTs at the NVIS Association level rather than the NVIS Sub-Association level, in accordance with the stratum present and consistently-dominant taxa recorded.

For each VT, indicator taxa were defined via Indicator Taxon Analysis (INDVAL). This was conducted using PC-Ord (V6.08) (McCune and Mefford 2011) via the method of Dufrêne and Legendre (1997). This generates INDVAL values (a measure of taxon fidelity to a given VT) that range from 0 to 100; an INDVAL value of 100 indicates that a taxon is present in all quadrats within a particular VT, and absent from all other quadrats included in the analysis. The INDVAL values were then tested for significance of the indicator taxa using a Monte Carlo permutation test. Indicator taxa were defined as taxa with a significance p value of either < 0.05, < 0.01 or < 0.001. The same taxa exclusions (i.e. introduced taxa, hybrids and singletons) and amalgamations (as per **Appendix B**) were employed for the indicator species analysis as per the floristic classification analysis (**Section 3.6**). Note that only VTs sampled with more than one quadrat were analysed for indicator species.

Locations of quadrats and/or relevés within each VT were used in conjunction with aerial photograph interpretation and field notes taken during the field survey to develop VT mapping polygon boundaries. VT mapping boundaries were developed using aerial photography on a scale of 1:10,000 and reflected changes in vegetation patterns visible at this scale. The VT mapping polygon boundaries were then digitised using Geographic Information System (GIS) software.

3.8 Vegetation Condition Mapping

Vegetation condition was described using the vegetation condition scale presented in EPA (2016b) for the Eremaean and Northern Botanical Provinces (**Appendix A)**. Notes on vegetation condition were taken via vehicle traverses along access tracks, and during foot traverses undertaken within the Study Area. Vegetation condition was also recorded at all quadrats and relevés. Vegetation condition category polygon boundaries were developed using this information and were digitised using GIS software as for VT polygon boundaries.

3.9 Significant Flora and Vegetation

3.9.1 Significant Flora

As per EPA (2016a, 2016b), flora taxa may be significant for a range of reasons, including, but not limited to the following:

- Being identified as a Threatened or Priority species (formally listed significant taxa – includes taxa listed under both State and Commonwealth legislation, and classified as Priority by DBCA).

- Being locally endemic or associated with a restricted habitat type (e.g. surface water or groundwater dependent ecosystems (GDEs)).
- Being a new species or having anomalous features that indicate a potential new species.
- Being representative of the range of a species (particularly at the extremes of range, recently discovered range extensions, or isolated outliers of the main range).
- Being an unusual species, including restricted subspecies, varieties or naturally occurring hybrids.
- Having a relictual status, being representative of taxonomic groups that no longer occur widely in the broader landscape.

Significant flora taxa recorded within the Study Area are discussed in **Sections 5.2.2**, with reference to the above categories. Numbers of point locations and individuals recorded of significant flora known from the Study Area are presented in **section 5.2.2.**

3.9.2 Significant Vegetation

As per EPA (2016a, 2016b), vegetation may be significant for a range of reasons, including, but not limited to the following:

- Being identified as a TEC or PEC (formally listed significant vegetation – includes vegetation listed under Commonwealth or State legislation, or classified as a PEC by DBCA).
- Having restricted distribution.
- Having a degree of historical impact from threatening processes.
- Playing a role as a refuge.
- Providing an important function required to maintain ecological integrity of a significant ecosystem.

To determine the presence of TECs and PECs defined from quadrat-derived data, EPA (2016b) requires comparison of the quadrat data with that of the survey in which the TEC or PEC was originally described. However, limited information is available for TECs and PECs of the Pilbara region. Generally, only broad descriptions are provided in the respective TEC and PEC lists to allow for diagnosis. The vegetation of the Study Area was therefore manually compared to such descriptions to determine whether any vegetation may represent a TEC or PEC; specifically, comparisons of dominant taxa, soils, topography and geographical distribution of VTs were made to those of any relevant TEC or PEC. A similar process was followed for TECs listed under the EPBC Act, with comparisons made to the appropriate listing and conservation advice for any TECs likely to occur in the Study Area.

The remaining significant vegetation criteria other than “being identified as a TEC and PEC” were applied to VTs mapped in the Study Area to determine whether a VT was significant in a local or regional context. In a regional context, limited information is available for comparison with VTs in the Study Area. This is discussed further in **Section 5.2.9**.

An assessment of the likelihood of groundwater dependent vegetation occurring in the Study Area was undertaken using a combination of known depth to groundwater (within 10m of the surface) taken from other studies prepared for the project (PSM 2021), combined with an assessment of the presence and extent of known phreatophytic taxa from the Pilbara region.

4.0 Adequacy and Limitations of Survey

4.1 Adequacy of Survey

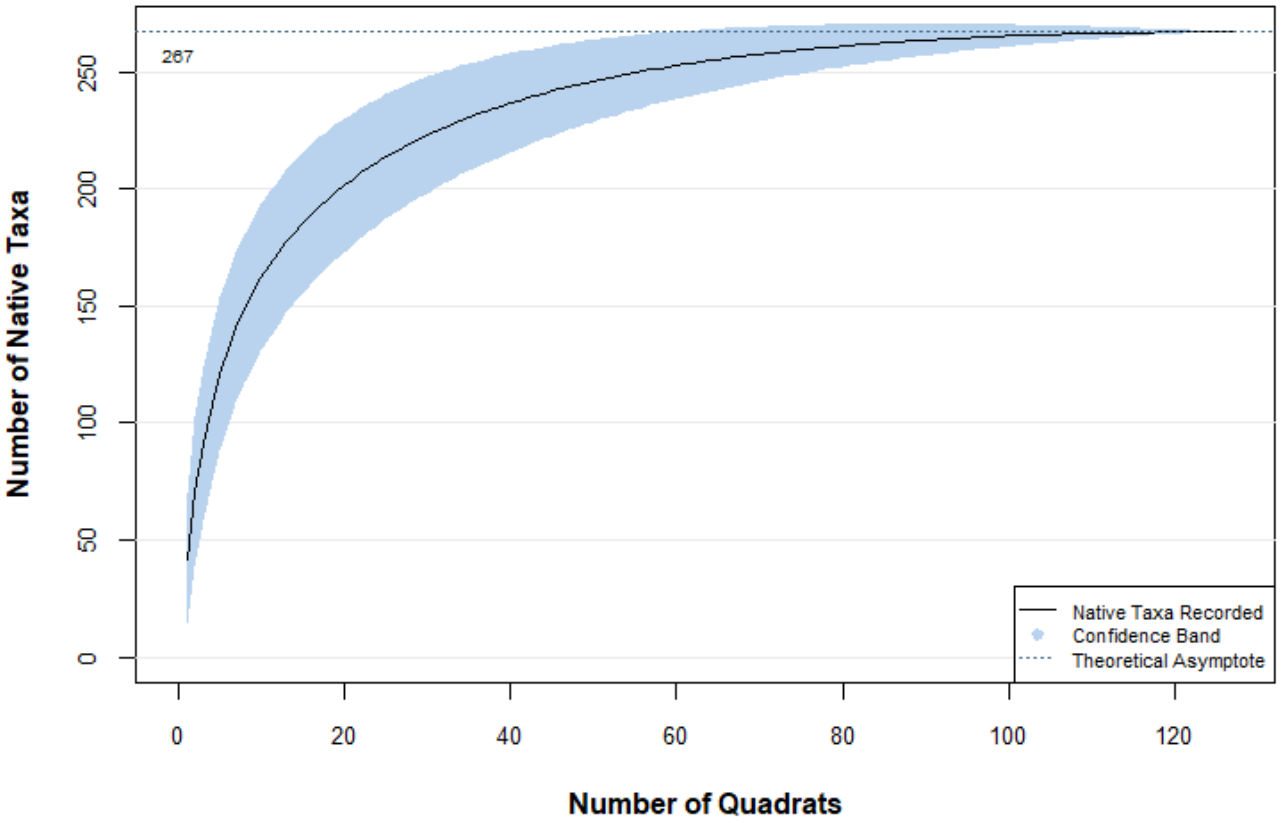
The Study Area covers 3,785.7 ha, with a total of 127 quadrats (including 108 newly established quadrats, eight re-scored Rapallo (2021a) quadrats and 11 Rapallo (2021a) quadrats which were not revisited) established within the Study Area. Quadrats were established in all preliminary vegetation patterns discernible by initial aerial photograph interpretation (**Section 3.3**), both to adequately sample variation in vegetation throughout the Study Area, and to ensure adequacy of sampling for vascular plant taxa.

The number of quadrats established within the Study Area is considered to be acceptable given the moderate diversity of topography and soil types noted in it, as well as the extent of native vegetation mapped in, the size of, and extent of native vegetation in the Study Area (approximately 1(99.9% of the Study Area). One quadrat was established per 30 ha of Study Area.

To provide an indication of the adequacy of this survey, a taxon accumulation curve was produced with the 'vegan' R package (Oksanen *et al.* 2020) using R Statistical Software (R Core Team 2022). Taxon accumulation curves represent a theoretical model of the relationship between sampling intensity and taxon accumulation; when sampling intensity is increased, taxon accumulation is reduced, and a taxon accumulation curve becomes asymptotic.

The taxon accumulation curve for quadrat data recorded in the Study Area was generated using all native taxa (both annual and perennial) recorded within each quadrat. Taxon accumulation calculations were then undertaken using the 'SpadeR' R package (Chao *et al.* 2016), utilising the Chao-2 estimator for species richness (bias corrected form) (Chao 1987) and compared to the actual number of taxa recorded in the Study Area. This provides an indication as to whether sufficient quadrats were surveyed to adequately sample the species richness in the Study Area. As the generation of taxon accumulation curves includes quadrat data only, and not opportunistically recorded taxa, the indication of adequacy of survey is considered to be conservative.

Graph 4.1 presents the taxon accumulation curve generated from quadrat data from the Study Area. Using the Chao-2 estimator, the recorded number of taxa within quadrats (267 taxa) has become asymptotic and is equivalent to 100 % of the estimated taxon richness in the Study Area, indicating that the Study Area was well-sampled. Interestingly, as per the flora census results (**Section 5.2.1**), a total of 320 discrete vascular native flora taxa, three known hybrids (as per WA Herbarium (1998)) and one putative hybrid were recorded in the Study Area by the 2022 survey. Therefore, in this case the Chao-2 estimator appears to have underestimated the native taxon richness of the Study Area.



Graph 4.1 Study Area Quadrata Data Taxon Accumulation Curve

Another adequacy of survey measure is that developed by Mueller-Dombois and Ellenberg (1974), who suggest that a cut-off point might be when a 10 % increase in quadrats surveyed results in a ≤ 5 % increase in taxa recorded. This measure was also calculated using all native taxa recorded within each quadrat. The number of quadrats established by the field survey satisfies this adequacy measure, with the final taxon increase value of 0 % recorded following a 10 % increase in quadrats.

Figure 3.1 presents the location of all quadrats and relevés sampled during the survey. Track logs of Targeted Flora survey intensity are also presented. Track logs between quadrats are presented only where quadrats were accessed via foot; due to poor access the majority of quadrats were accessed via helicopter and these logs are not presented.

4.2 Limitations of Assessment

Table 4.1 Limitations of the Flora and Vegetation Survey

Limitation	Limitation of Survey	Comment
Effort and extent	No	Detailed survey was undertaken encompassing the entire Study Area. At least three quadrats were established in each vegetation pattern identified through initial aerial photography interpretation and on-ground field survey in the Study Area. Re-score of an appropriate sample of existing quadrats (Rapallo 2021a) was undertaken during the survey. Mapping of VT boundaries was undertaken using a combination of aerial photography (scale 1:10,000) and information collected during traverses between quadrats and relevés. Field verification of VT boundaries post-analysis was not undertaken. Targeted survey for significant flora taxa identified by the desktop assessment and during quadrat sampling was conducted in 2022 across all areas identified as requiring such survey (Targeted survey area; see **section 1.2.4; and outside of this to address gaps; see section 3.4.4**) within the most appropriate time to survey in the Pilbara Bioregion (six to eight weeks post wet season). Targeted survey was undertaken using transects spaced approximately 50m apart, with finer scale transects employed where significant flora taxa were identified. Opportunistic targeted survey for significant flora taxa was also undertaken while traversing the Study Area to establish quadrats and relevés during the 2022 survey (see **Sections 3.4.4**). Detailed and Targeted Survey was conducted over a total of 90 person days in 2022. No constraints prevented appropriate sampling techniques (quadrat/relevé establishment, foot transects) being employed. Access within the Study Area enabled detailed VT and condition mapping to be undertaken throughout the Study Area via foot, vehicle and helicopter. Mapping and data reliability is therefore considered to be relatively high.

Limitation	Limitation of Survey	Comment
Competency/experience of the team carrying out the survey	No	The Project Manager and field lead has had over 3 years of experience in conducting flora and vegetation surveys in the Pilbara Region, as well as conducting systematic sampling and analysis, and worked with personnel with significant experience in field surveys of the region (> 10 years). The Project Manager also had previous experience in undertaking flora surveys in the local area. Other field team leaders have previous experience (> 14 years) in conducting flora and vegetation surveys in the Pilbara Region, and field team personnel have previous experience assisting in flora and vegetation surveys. Senior personnel provided guidance to less experienced botanists throughout the 2022 survey where necessary. Information relating to identifying characteristics, flowering period and habitat of significant flora taxa identified by the desktop assessment as potentially occurring in the Study Area were provided to all field team members prior to undertaking the 2022 field survey. Personnel overseeing plant identifications have had > 10 years' experience in plant identification in the Pilbara Region. Relevant taxonomic experts (including botanists at the WA Herbarium) were consulted for any specimens considered to be difficult to identify or of taxonomic interest.
Proportion of flora recorded and/or collected and identified	No	All vascular groups that were present in the Study Area were sampled. At least one reference specimen of all taxa encountered (excluding common, distinctive taxa) was collected for verification and identification purposes during the 2022 survey. A relatively high proportion of annual and ephemeral vascular taxa were recorded in 2022 based on the intensity and method of survey and the above-average precipitation received prior to the 2022 survey. Almost all ephemeral and perennial flora taxa could be positively identified. All unknown vascular taxa were collected, with specimens identified at the WA Herbarium. Adequacy of survey measures indicate that the Study Area was well sampled (**section 4.1**).
Sources of information e.g. previously available information (whether historic or recent) as distinct from new data	No	Reasonable contextual information for the Study Area was available prior to the 2022 survey. Sources of information used included government databases (DAWE, DBCA), previous unpublished reports and data from within and in the vicinity of the Study Area (**Section 5.1.3**), as well as numerous general sources pertaining to the climate, geomorphology, flora and vegetation of the Pilbara Region. All data sources used for the desktop assessment were considered to have high reliability.

Limitation	Limitation of Survey	Comment
Survey timing and weather/season/cycle	Partial	The 2022 field survey was conducted within the most appropriate time to survey in the Pilbara Region (approximately six to eight weeks post wet season – March to June). Above-average precipitation was received during the wet-post wet season 2021/2022, with significant above-average precipitation received in February and May 2022 (**Section 2.1**). This significant rainfall in May 2022 combined with reasonably warm temperatures allowed for further follow-up targeted survey in late June-July 2022. The 2022 survey was conducted mid-to end of season and the flowering season was considered to be good, with a relatively high proportion of annual and ephemeral vascular taxa recorded and many perennial taxa in flower. All perennial taxa were at least in good condition. All significant flora taxa known to occur or potentially occurring in the Study Area based on the desktop assessment results were considered to be identifiable during the 2022 survey with the exception of two taxa. *Arthropodium vanleeuwenii* (P2) is considered visible only when flowering in September, as it grows up through *Triodia.* This taxon could occur within the Study Area and Targeted Survey Area based on the habitats present (see **Section 5.2.5**). *Rhodanthe ascendens* (P1) was also potentially unidentifiable at the time of survey based the known flowering time. However, this taxon is unlikely to occur in the Study Area based on a combination of the habitat present, extent of targeted searching undertaken, and that the Study Area is outside of the known range (discussed in **Section 5.2.5**). One significant flora taxon (*Euphorbia clementii*) (P2) is a known fire responder; otherwise, fire response of significant flora from desktop review unknown or presumed not to be fire responders. The majority of the targeted flora survey area was either long-unburnt (>10 years), or otherwise subject to burn approximately 4.5 years ago. Unlikely that *Euphorbia clementii* (P2) is present in Study Area due to being outside of the known range of the taxon.

Limitation	Limitation of Survey	Comment
Disturbances (e.g. fire, flood, accidental human intervention etc.) that may have affected results of survey	No	Very minor historical clearing has occurred in the Study Area, mainly associated with tracks, historical mining exploration and associated clearing. The vegetation condition mapping reflects these impacts with regards to some of the larger areas of historical exploration clearing, however the overall vegetation type mapping was not affected. More recent minor clearing associated with exploration activities was underway (by a separate mining company) during the field survey in the Study Area in the vicinity of the Great Northern Highway. Various ages since fire have been mapped over the Study Area (**Figure 2.2**). These ages ranged from long unburnt (>10 years), January 2014 burn (8.5 years since fire) (affecting the eastern half of the Study Area associated with the Mine Development Envelope); October 2015 burn (6.5 years since fire) (affecting the western half of the Study Area associated with the Access Road and GNH intersection); and November 2017 burn (4.5 years since fire) (affecting extensive portions of the Study Area associated with the Access Road and Mine Development Envelope). Some areas have been affected by fire more than once in the last ten years. However, no vegetation was recently affected by fire, with at least four wet-season cycles allowing sufficient time for germination and regrowth of vegetation, with no effect of the burning regime on ability to identify vascular plant taxa at quadrats.
Remoteness and/or access restrictions	No	Some areas were somewhat difficult to reach due to large distances from available access tracks, or steep, rocky or unsafe terrain, however, significant access/remoteness issues were overcome with the use of a helicopter during field trips 1 and 2 during the 2022 survey, allowing high intensity of sampling across the Study Area. Access was not permitted to a number of relatively small areas that have been identified as Indigenous Australian Heritage Sites, both within the Footprint and in the wider Study Area. Therefore, such sites, in particular those within the Footprint, could not be surveyed for significant flora taxa. Such sites could also not be directly sampled in a vegetation context; however, most sites were relatively small and the vegetation could be observed from outside the site, and therefore it is considered that this did not affect the results of the VT mapping within the Study Area.

5.0 Results and Discussion

5.1 Desktop Assessment

5.1.1 Regional Flora

The interrogation of the DBCA TPFL Database and WA Herbarium (WA Herb) Specimen Database (DBCA 2022c) returned a total of 59 listed significant vascular flora taxa that have records in the Desktop Study Area. Of these, one taxon, *Thryptomene wittweri*, is listed as Threatened under the EPBC Act and BC Act, while the remaining 58 taxa are DBCA-classified Priority flora (**Table 5.1**). None of the taxa returned from the DBCA TPFL and WA Herbarium database interrogations have known records within the Study Area.

According to DAWE (2021b), *Thryptomene wittweri* (T) (or habitat for the taxon) is likely to occur within the Desktop Study Area (**Table 3.1**). As discussed above, according to DBCA databases this taxon has known records within the Desktop Study Area, with the closest record being approximately 23 km southwest of the Study Area. The full results of the DAWE database search are presented in **Appendix C**.

An interrogation of DBCA databases using NatureMap (DBCA 2007-2021) was also undertaken as part of the desktop assessment, to check for any recently added records and confirm the records returned from the DBCA TPFL and WA Herbarium Specimen Database searches. The NatureMap search did not return any additional listed significant flora taxa (**Table 5.1**). Conservation codes for Western Australia flora are presented on the DBCA Threatened species and communities website (DBCA 2020), with a full list of Threatened and Priority flora taxa available on the DBCA Threatened Plants website (current to 27 June 2022 (DBCA 2022a)).

Table 5.1 Listed Significant Flora Taxa Returned from DBCA Database Searches (DBCA 2007-, 2022b)

Taxon	Status (WA)	Status (EPBC Act)	Source			
			DAWE	TPFL	WA Herb	NM
Acacia bromilowiana	P4			x	x	x
Acacia daweana	P3			x	x	x
Acacia effusa	P3			x	x	x
Acacia subtiliformis	P3			x	x	x
Amaranthus centralis	P3				x	x
Aristida jerichoensis var. *subspinulifera*	P3				x	x
Aristida lazaridis	P2				x	x
Arthropodium vanleeuwenii (previously *Arthropodium* sp. Ironstone (J. Bull & J. Waters ONS PJ 36.01))	P2				x	x
Cladium procerum	P2				x	x
Dampiera metallorum	P3			x	x	x
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479) (previously *Oldenlandia* sp. Hamersley Station (A.A. Mitchell PRP 1479))	P3				x	x
Eragrostis crateriformis	P3				x	

Taxon	Status (WA)	Status (EPBC Act)	Source			
			DAWE	TPFL	WA Herb	NM
Eragrostis sp. Mt Robinson (S. van Leeuwen 4109)	P1			x	x	x
Eremophila magnifica subsp. *magnifica*	P4				x	x
Eremophila magnifica subsp. *velutina*	P3			x	x	x
Eremophila pusilliflora	P2			x	x	x
Eremophila spongiocarpa	P3				x	x
Eremophila naaykensii	P3				x	x
Eremophila sp. West Angelas (S. van Leeuwen 4068)	P1				x	x
Euphorbia australis var. *glabra*	P3				x	x
Euphorbia clementii	P3			x		x
Euphorbia inappendiculata var. *queenslandica*	P2				x	x
Euphorbia stevenii	P3				x	x
Fimbristylis sieberiana	P3			x	x	x
Glycine falcata	P3			x	x	x
Goodenia lyrata	P3			x	x	x
Goodenia sp. East Pilbara (A.A. Mitchell PRP 727)	P3			x	x	x
Grevillea saxicola	P3				x	x
Gymnanthera cunninghamii	P3				x	x
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	P2				x	x
Indigofera gilesii	P3			x	x	x
Iotasperma sessilifolium	P3				x	x
Ipomoea racemigera	P2				x	x
Isotropis parviflora	P2				x	x
Kohautia australiensis	P2				x	x
Lepidium catapycnon	P4			x	x	x
Olearia mucronata	P3			x	x	x
Oxalis sp. Pilbara (M.E. Trudgen 12725)	P2				x	x
Pilbara trudgenii	P3			x	x	x
Ptilotus mollis	P4				x	x
Rhagodia sp. Hamersley (M. Trudgen 17794)	P3			x	x	x
Rhodanthe ascendens	P1			x	x	x
Rhynchosia bungarensis	P4				x	x
Rostellularia adscendens var. latifolia	P3				x	x
Sida sp. Barlee Range (S. van Leeuwen 1642)	P3				x	x
Sida sp. Hamersley Range (K. Newbey 10692)	P3				x	x
Solanum kentrocaule	P3				x	x
Stackhousia clementii	P3				x	x
Stylidium weeliwolli	P3			x	x	x
Swainsona thompsoniana	P3				x	x

Taxon	Status (WA)	Status (EPBC Act)	Source			
			DAWE	TPFL	WA Herb	NM
Synostemon hamersleyensis	P1				x	x
Tetratheca fordiana	P2			x	x	x
Teucrium pilbaranum	P2				x	x
Themeda sp. Hamersley Station (M.E. Trudgen 11431)	P3				x	x
Thryptomene wittweri	T	Vulnerable	x	x	x	x
Triodia sp. Karijini (S. van Leeuwen 4111)	P1				x	x
Triodia sp. Mt Ella (M.E. Trudgen 12739)	P3				x	x
Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684)	P1				x	x
Xerochrysum boreale	P3				x	x

* Sources are: DAWE: DAWE (2021b), WA Herb (1998-), TPFL: DBCA (2022c), NM (NatureMap) DBCA: (2007-2021).

The search of the DAWE SPRAT database with regard to MNES listed under the EPBC Act identified one significant invasive introduced flora taxon, or habitat for this taxon, as likely to occur within the Desktop Study Area, being **Cenchrus ciliaris* (Buffel Grass) (DAWE 2021b). **Cenchrus ciliaris* is known to be widespread and common in the Pilbara (WA Herbarium 1998-). This taxon is considered by the States and Territories to pose a particularly significant threat to biodiversity as it is known to be invasive under certain conditions (Hussey *et al.* 2007). This taxon is not listed as a Declared Pest under the BAM Act (DPIRD 2022). The full results of the DAWE database searches are presented in **Appendix C** (DAWE 2021b).

5.1.2 Regional Vegetation

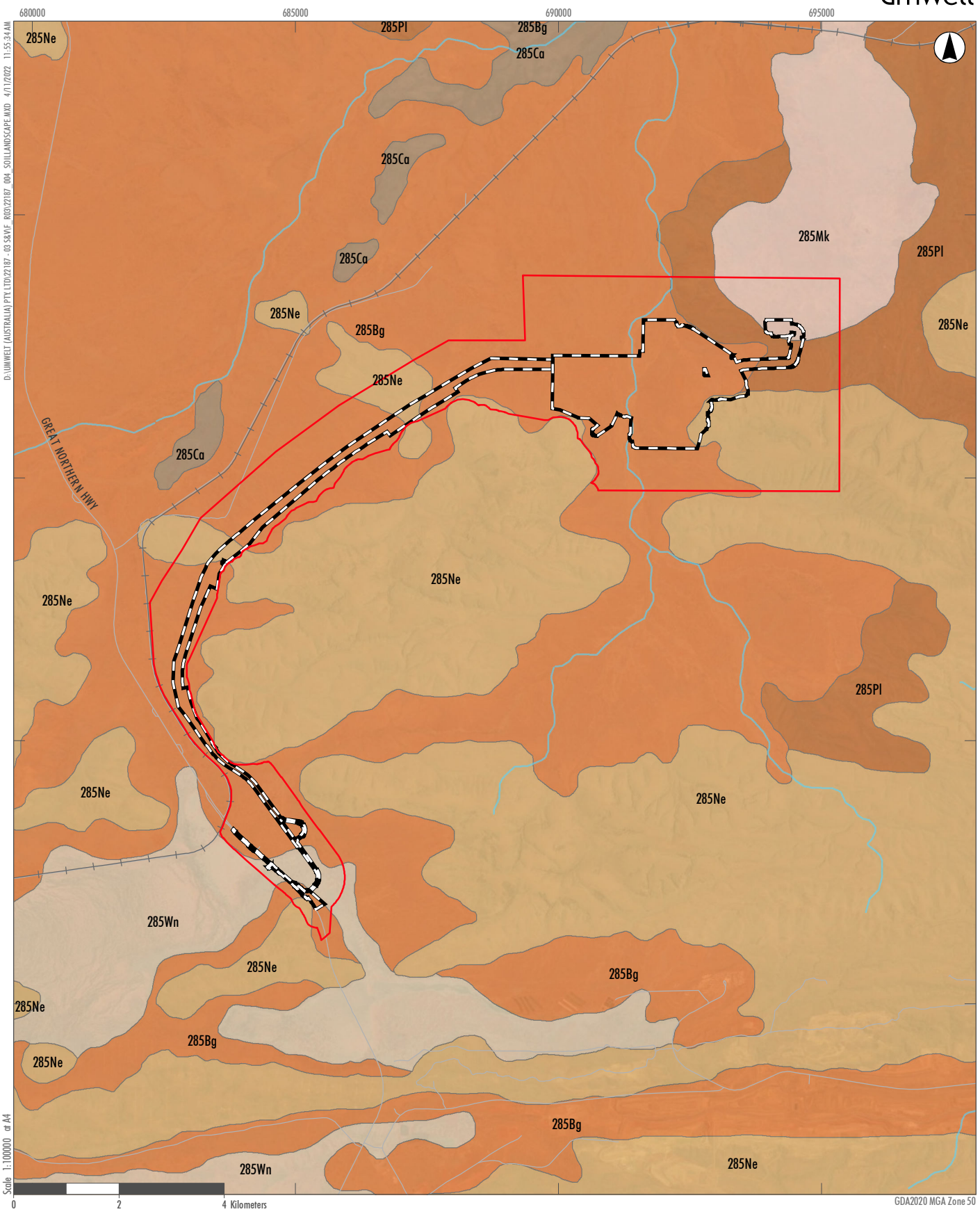
The Study Area is located within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) Bioregion, and specifically within the Hamersley IBRA Subregion (PIL3) (DAWE 2020). The Hamersley Subregion comprises mainly of mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges (Kendrick 2001).

Soil landscape mapping of WA (previously referred to as land system mapping) has been compiled from the results of various surveys across the state by the Department of Agriculture (now the Department of Primary Industries and Regional Development (DPIRD)) (DPIRD 2019). Data from van Vreeswyk *et al.* (2004) has been used to map soil landscape units in the region within which the Desktop Study Area is located. This data includes general ecological information, vegetation physiognomy and composition, patterns of variation, conservation status, gradational association and land system representation (van Vreeswyk *et al*., 2004).

The Study Area occurs across five soil landscape systems, as summarised in **Table 5.2** and presented on **Figure 5.1**. None of these soil landscape systems are listed as TECs under the EPBC Act (DAWE 2021a) or as TECs or PECs under the BC Act (DBCA 2018; 2022a), and all are detailed as being common in the Pilbara landscape mapping Study Area (van Vreeswyk *et al.* 2004).

Table 5.2 Soil Landscape Mapping of the Study Area (DPIRD 2019; van Vreeswyk *et al.*, 2004)

Soil Landscape System	Description	Area and % of van Vreeswyk Study Area	Area and % of Study Area
Boolgeeda (285Bg)	Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands and mulga shrublands Predominantly colluvium on gently sloping plains; widespread and common Stony lower slopes, level stony plains and narrow sub-parallel drainage floors, relief up to 20 m. A common system in shallow valleys below hill systems such as Newman and Rocklea Noted to be subject to fairly frequent burning.	774,800 ha 4.3%	2510.3 ha 66.3%
McKay (285Mk)	Hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands Predominantly sedimentary rocks on hills; widespread and common Erosional surfaces; hill tracts, ridges, plateaux remnants and breakaways with steep upper slopes and more gently inclined lower footslopes, restricted stony plains and interfluves; moderately spaced tributary drainage patterns incised in narrow valleys in upper parts becoming broader and more widely spaced downstream. Relief up to 100 m.	420,200 ha 2.3%	213.1 ha 5.6
Newman (285Ne)	Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands Predominantly jaspilite on ridges and plateaux; very common in the southern half of the Landscape mapping Study Area Rugged high mountains, ridges and plateaux with near vertical escarpments of jaspilite, chert and shale, the second largest system in the survey area and prominent in southern parts (e.g. Ophthalmia Range, Hamersley Range), relief up to 450 m.	1,458,000 ha 8.0%	654.3 ha 17.3 %
Platform (285Pl)	Dissected slopes and raised plains supporting hard spinifex grasslands Predominantly colluvium on incised slopes; common in the central and south-west of the Landscape mapping Study Area Narrow, raised plains and highly dissected slopes on partly consolidated colluvium below the footslopes of hill systems such as Newman, relief mostly up to about 30 m but occasionally considerably greater.	1,570,00 ha 0.9%	301.2 ha 8.0 %
Wannamunna (285Wn)	Hardpan plains and internal drainage tracts supporting mulga shrublands and woodlands (and occasionally Eucalypt woodlands) Predominately alluvium on hardpan plains, internal drainage flats; common in the central and south of the Landscape mapping Study Area Level alluvial plains with prominent grove patterns of vegetation and shallow loamy soils over hardpan and broad internal drainage plains with deeper more clayey soils, relief up to 5 m. The system is found in south central parts of the survey area as broad flats within the Hamersley Ranges (Newman land system).	57,700 ha 0.3%	106.8 ha 2.8 %



Legend

- Study Area
- Proposed Development Envelope
- Roads
- Rail
- Drainage Line

Soil Landscape Units

- 285Bg, Boolgeeda System
- 285Ca, Calcrete System
- 285Mk, McKay System
- 285Ne, Newman System
- 285Pl, Platform System
- 285Wn, Wannamunna System

FIGURE 5.1

Soil Landscape Mapping of the Study Area

Image Source: ESRI Basemap (2021) Data source: Landgate (2022), DPIRD (2019)

The vegetation of WA as it was presumed to have existed prior to European settlement has been mapped at a scale of 1:250,000 as vegetation system associations (VSAs) (DBCA, 2019), with the pre-European Vegetation spatial database subsequently created (DPIRD, 2019). The Study Area occurs across two VSAs, as summarised in **Table 5.3** and presented on **Figure 5.2**. **Table 5.3** also presents the current extent of each VSA in relation to its pre-European extent within the Hamersley IBRA Subregion, and the percentage of the current extent of each VSA currently protected for conservation in all DBCA-managed land (as a proportion of the current extent) within the Hamersley IBRA Subregion (Government of Western Australia 2019), as well as area (ha) and extent (as percentage) in the Study Area.

There is over 99 % of the pre-European extent of both VSAs remaining, and both have some areas protected for conservation (**Table 5.3**).

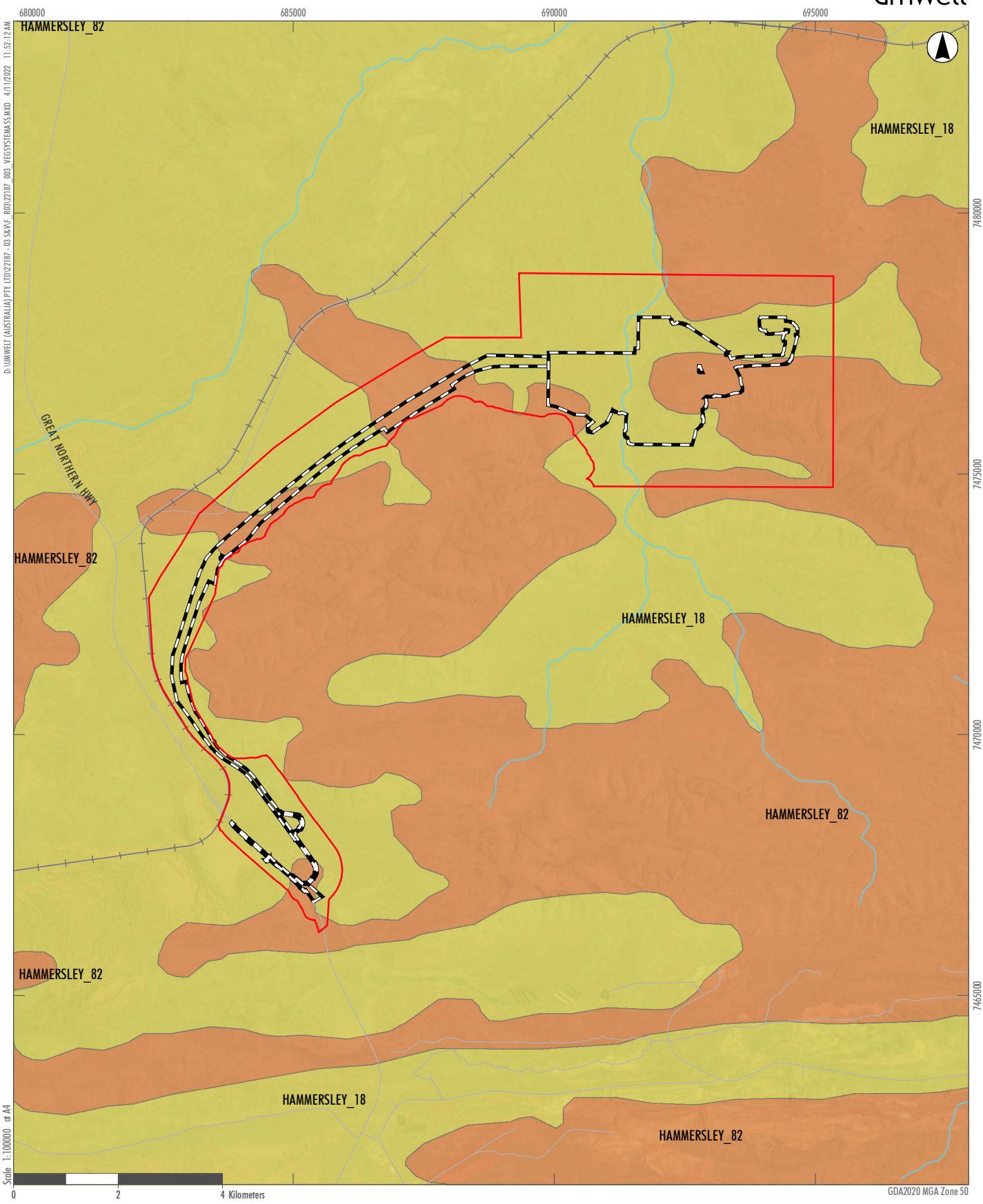
Table 5.3 Bioregional Statistics of Vegetation System Associations of the Desktop Study Area (DPIRD 2019)

Vegetation System Association	Description	Current Extent (ha)	Pre-European Extent Remaining (%)	Current Extent Protected for Conservation (%)	Area and Extent in Study Area
Hamersley_18	Low woodland, open low woodland or sparse woodland	575,808	99.2	29.6	2432.9 ha 64.3%
Hamersley_82	Low tree-steppe	2,146,708	99.4	13.7	1352.8 ha 35.7%

Three main vegetation descriptions for the Hamersley Plateau were provided by Beard (1975), of which two are pertinent to the Study Area:

- The Ranges: vegetation on jaspilite and dolerite ranges is characteristically tree-steppe of *Eucalyptus brevifolia-Triodia wiseana*; few *E. gamophylla* may be present. There are generally few shrubs but a rich flora of small shrubs and forbs. On the summits the tree layer is replaced by *E. kingsmilli*, *E. gamophylla* and *E. brevifolia*. Representative of Hamersley_82.

- Valley Plains: mulga is dominant (*Acacia aneura* low woodland); can develop to open grassland in the wider and flatter areas. *Astroleba pectinata* is dominant on red cracking clays, with a variety of other grasses and forbs. Representative of Hamerlsey_18.



Legend

- Study Area
- Proposed Development Envelope
- Roads
- Rail
- Drainage Line

Vegetation System Association

- HAMMERSLEY_18
- HAMMERSLEY_82

FIGURE 5.2

Vegetation System Associations of the Study Area

Image Source: ESRI Basemap (2021) Data source: Landgate (2022), DBCA (2019)

5.1.3 Local Flora and Vegetation Surveys

Flora and vegetation surveys undertaken for the Project or within the vicinity of the Study Area are summarised in **Table 5.4.** The locations of relevant surveys undertaken in the vicinity of the Desktop Study Area are presented on **Figure 5.3** (subject to the availability of survey boundary files) and those historical studies relevant to the Lamb Creek project area are displayed on **Figure 5.4**. Note that there have been numerous historical surveys undertaken in the general area and region, primarily due to the relatively extensive nature of mining interests; however, only more recent surveys (those undertaken in the last ten years; i.e. since 2011) have been summarised in **Table 5.4.**

Note that some previous surveys summarised in **Table 5.4** recorded locations of *Seringia exastia*, which despite being no longer recognised as Threatened under WA's BC ACT, remains listed as Threatened under the EPBC Act (Department of Premier and Cabinet (DPC) 2018). Binks *et al.* (2020) determined that material considered to represent *Seringia exastia*, which was thought to be restricted to a few locations near Broome and to the south of Broome in the Great Sandy Desert, should be considered conspecific with material considered to be *Seringia elliptica*, a taxon widespread across northern and central WA. Consequently, *Seringia elliptica* and *Seringia exastia* were synonymised under the oldest valid name, being *Seringia exastia*. This synonymisation has created an anomalous situation whereby *Seringia exastia* as now circumscribed is a common, widespread species that clearly does not meet the criteria for Threatened status under either of the aforementioned acts.

Detailed vegetation survey was undertaken in the GNH Intersection Area (Rapallo 2021a) and six vegetation types were mapped in this area:

A: Low open *Eucalyptus gamophylla* woodland over *Triodia melvillei* and *T. pungens* on stony plain.

B: Mulga and acacia low open woodland over open tussock grassland on gently sloping (drainage) plain with variable rock cover.

C: Mulga and acacia low open woodland over open spinifex and tussock grassland on flat plain with medium rock cove.

D: Mulga, *Hakea lorea*, and *Eucalyptus xerothermica* low open woodland over closed tussock grassland on gently sloping clay-loam plain (no rocks).

E: Low mulga woodland over sparse understorey on stony plain.

F: *Triodia wiseana* hummock grassland with emergent shrubs and low trees on gently sloping stony plain.

Likewise, six vegetation communities were mapped and described across the broader survey area of Rapallo (2012) as a result of a Level 2 survey:

1: *Eucalyptus gamophylla* woodland over hummock grassland.

2: *Eucalyptus leucophloia* subsp. *leucophloia* woodland over mixed shrubs over *Triodia wiseana* grassland.

3: Acacia shrubland over hummock grassland.

4: *Acacia tumida* var. *pilbarensis* scrub in creeklines.

5: Wannamunna Mulga grove.

6: *Acacia aptaneura* over hummock grassland.

Table 5.4 Summary of Results of Flora and Vegetation Surveys Previously Conducted Within and in the Vicinity of the Study Area

Project and Source	Size and Location of Survey Area	Survey Timing	Survey Scope and Parameters	No. Taxa Recorded	Vegetation	Significant Flora Taxa^
Flora and Vegetation Survey: Area C and Surrounds (Onshore 2011)	Approx. 29,411 ha. Located 1.4 km south of Study Area	• November to December 2009 • February 2010 • June 2010	Level 2 flora and vegetation assessment (now a Detailed Survey) and targeted survey. 204 quadrats assessed, incorporated data from 306 additional quadrats established from 1997 to 2010	479 taxa 166 genera 53 families over wider study area: Northern Study Area 206 species 45 families 97 genera Southern Study Area: 219 species 36 families 99 genera	37 vegetation associations described. One PEC recorded: • Weeli Wolli Spring Community (P1). Vegetation condition ranged from 'Excellent' to 'Completely Degraded' (majority mapped as 'Excellent' to 'Very Good')*	• *Acacia subtiliformis* (P3) • *Aristida jerichoensis* var. *subspinulifera* (P3) • *Aristida lazaridis* (P2) • *Eremophila magnifica* subsp. *magnifica* (P4) • *Euphorbia inappendiculata var. queenslandica* (P2) • *Fimbristylis sieberiana* (P3) • *Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727) (P3) • *Nicotiana umbratica* (P3) (see note under **Section 5.1.4**) • *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) • *Rostellularia adscendens* var. *latifolia* (P3) • *Sida* sp. Barlee Range (S. van Leeuwen 1642) (P3) • *Vittadinia* sp. Coondewanna Flats (S. van Leeuwen 4684) (P1) • *Stylidium weeliwolli* (P3)

Project and Source	Size and Location of Survey Area	Survey Timing	Survey Scope and Parameters	No. Taxa Recorded	Vegetation	Significant Flora Taxa^
Botanical Survey for an Exploration Drilling Program at Juna Downs South E47/1943 and Supporting Document to a Native Vegetation Clearing Permit Application (Rio Tinto 2011)	Approx. 181.4 ha. Located 20 km west of Study Area	• May and July 2009 • October 2010	Flora and vegetation survey. Assessed via foot traverses using a grid search technique (methodology to record vegetation types and significant flora taxa is not clear)	225 taxa 97 genera 35 families	18 vegetation types described. No TECs or PECs identified. Vegetation condition ranged from 'Very Good' to 'Poor'	• *Sida* sp. Barlee Range (S. van Leeuwen 1642) (P3) • *Triodia* sp. Mt Ella (M.E. Trudgen 12739) (P3)
Level 1 Flora and Fauna Surveys along the Great Northern Highway for Jimblebar Mine Module Transport (Eco Logical 2012)	Multiple survey areas; most relevant (Site 3) approx. 17 km south of Study Area	• August 2011	Level 1 flora and vegetation assessment (now a Reconnaissance and Targeted Survey). Eight quadrats/relevés assessed	52 taxa 26 genera 14 families	Four vegetation communities described at Site 3. No TECs or PECs identified. Vegetation condition at Site 3 ranged from 'Excellent' to 'Good' (majority mapped as 'Excellent')*	No significant flora taxa recorded

Project and Source	Size and Location of Survey Area	Survey Timing	Survey Scope and Parameters	No. Taxa Recorded	Vegetation	Significant Flora Taxa^
Level 2 Flora and Vegetation Survey: South Flank (Onshore 2012)	Approx. 18,627 ha. Located 7 km south of Study Area	• March to May 2010 • September 2010 • June 2011	Level 2 flora and vegetation assessment (now a Detailed Survey). 220 quadrats assessed	386 taxa 160 genera 50 families (known to date from study area)	34 vegetation associations described. Two PECs recorded: • Coolibah-lignum flats: *Eucalyptus victrix* over lignum community in the Pilbara - sub type 1: Coolibah and mulga (*Acacia aneura*) woodland over lignum and tussock grasses on clay plains (Coondewanna Flats and Wanna Munna Flats) (P3) • Coolibah-lignum flats: *Eucalyptus victrix* over lignum community in the Pilbara - sub type 2: Coolibah woodlands over lignum (*Duma florulenta*) over swamp wanderrie (Lake Robinson) (P1). Vegetation condition ranged from 'Excellent' to 'Degraded' (majority mapped as 'Excellent')*	• *Acacia bromilowiana* (P4) • *Aristida jerichoensis* var. *subspinulifera* (P3) • *Aristida lazaridis* (P2) • *Eremophila magnifica* subsp. *magnifica* (P4) • *Dampiera metallorum* (P3) • *Lepidium catapycnon* (P4) • *Pilbara trudgenii* (P3) • *Ptilotus mollis* (P4) • *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) • *Rostellularia adscendens* var. *latifolia* (P3) • *Sida* sp. Barlee Range (S. van Leeuwen 1642) (P3) • *Themeda* sp. Hamersley Station (M.E. Trudgen 11431) (P3) • *Triodia* sp. Mt Ella (M.E. Trudgen 12739) (P3)

Project and Source	Size and Location of Survey Area	Survey Timing	Survey Scope and Parameters	No. Taxa Recorded	Vegetation	Significant Flora Taxa^
Level 2 Flora and Vegetation Survey of Lamb Creek Project Area (Rapallo 2012)	Approx. 2,068 ha. Overlaps majority of Development Envelope / part of Study Area	• March to April 2012	Level 2 flora and vegetation assessment (now a Detailed Survey). 46 quadrats assessed	230 taxa 110 genera 42 families	Six vegetation types described. No TECs or PECs identified. Vegetation condition ranged from 'Pristine' to 'Good'*	• *Aristida calycina* var. *calycina* (P2) (see note under **Section 5.1.4**) • *Aristida lazaridis* (P2)
Greater West Angelas Vegetation and Flora Assessment (ecologia 2013)	Approx. 17,596 ha. Located 26 km south of Study Area	• August 2011 • July 2012	Level 2 flora and vegetation assessment (now a Detailed Survey). 150 quadrats assessed	441 taxa 163 genera 48 families	22 vegetation communities described. One PEC recorded: • West Angelas Cracking-Clays (P1). Vegetation condition ranged from 'Excellent' to 'Poor' (majority mapped as 'Excellent')	• *Aristida jerichoensis* var. *subspinulifera* (P3) • *Aristida lazaridis* (P2) • *Eremophila pusilliflora* (P2) • *Lepidium catapycnon* (P4) • *Indigofera gilesii* (P3) • *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) • *Sida* sp. Barlee Range (S. van Leeuwen 1642) (P3) • *Themeda* sp. Hamersley Station (M.E. Trudgen 11431) (P3) • *Triodia* sp. Mt Ella (M.E. Trudgen 12739) (P3)

Project and Source	Size and Location of Survey Area	Survey Timing	Survey Scope and Parameters	No. Taxa Recorded	Vegetation	Significant Flora Taxa^
Baby Hope Downs Flora and Vegetation Survey (Biota 2014)	Approx. 1,652 ha. Located 25 km southeast of Study Area	• October to November 2014	Level 2 flora and vegetation assessment (now a Detailed Survey). 17 quadrats and 8 relevés assessed, incorporated data from additional 13 quadrats and 5 relevés established in 2012	354 taxa 150 genera 53 families	12 vegetation units described. No TECs or PECs identified. Vegetation condition ranged from 'Excellent' to 'Completely Degraded' (majority mapped as 'Excellent')	• *Eremophila magnifica* subsp. *magnifica* (P4) • *Eremophila magnifica* subsp. *velutina* (P3) • *Eremophila* sp. Hamersley Range (K. Walker KW 136) (P3) • *Goodenia lyrata* (P3) • *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
Karijini National Park Tenements Flora and Vegetation Risk Assessment (Onshore 2015a)	Approx. 13,465 ha. Located 25 km southwest of Study Area	• November 2014	Reconnaissance and Targeted Survey. 50 relevés assessed	Not indicated	12 vegetation associations were described. No TECs or PECs identified; however there is an occurrence of the 'Brockman Iron cracking clay communities of the Hamersley Range' PEC (P1) in the southeast extent of the survey area. Three vegetation associations were determined to be of particular interest	• *Grevillea saxicola* (P3) • *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2) • *Lepidium catapycnon* (P4) • *Olearia mucronata* (P3) • *Pilbara trudgenii* (P3) • *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) • *Sida* sp. Barlee Range (S. van Leeuwen 1642) (P3) • *Triodia* sp. Mt Ella (M.E. Trudgen 12739) (P3)

Project and Source	Size and Location of Survey Area	Survey Timing	Survey Scope and Parameters	No. Taxa Recorded	Vegetation	Significant Flora Taxa^
Riparian Flora and Vegetation Survey Marillana Creek (Onshore 2015b)	Approx. 1,028 ha. Located 8 km north of Study Area	• June 2015	Level 2 flora and vegetation assessment (now a Detailed Survey) along a 32 km section of Marillana Creek. 40 quadrats and 237 relevés assessed	399 taxa 186 genera 58 families	22 vegetation associations described. No TECs or PECs identified. Vegetation condition ranged from 'Excellent' to 'Degraded' (majority mapped as 'Very Good')*	• *Amaranthus centralis* (P3) • *Aristida lazaridis* (P2) • *Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727) (P3) • *Ipomoea racemigera* (P2) • *Rostellularia adscendens* var. *latifolia* (P3)
Targeted Rare and Priority Flora Survey to Meet Conditions of CPS 4442 (Strategic Rail NVCP) (Rio Tinto 2015)	Multiple survey areas, totalling approx. 88 ha. Closest survey area on SW boundary of Study Area	• June 2015	Targeted Survey along railway	NA	NA	• *Aristida jerichoensis* var. *subspinulifera* (P3) • *Aristida lazaridis* (P2) • *Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727) (P3) • *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) • *Rostellularia adscendens* var. *latifolia* (P3) • *Themeda* sp. Hamersley Station (M.E. Trudgen 11431) (P3)

Project and Source	Size and Location of Survey Area	Survey Timing	Survey Scope and Parameters	No. Taxa Recorded	Vegetation	Significant Flora Taxa^
Flora, Vegetation and Fauna Habitat Assessment at Juna Downs: Native Vegetation Clearing Permit – Supporting Report (Rio Tinto 2016a)	Approx. 546 ha. Located 25 km west of Study Area	• October to November 2014 • April 2015	Reconnaissance Survey. 23 relevés assessed, incorporated data from six additional relevés established in 2013	186 taxa 81 genera 38 families	Six vegetation associations described. No TECs or PECs identified. Vegetation condition mapped as 'Excellent'	• *Acacia bromilowiana* (P4) • *Eremophila magnifica* subsp. *magnifica* (P4) • *Eremophila* sp. Hamersley Range (K. Walker KW 136) (P3) (now known as *E. naaykensii*) (P3) • *Rostellularia adscendens* var. *latifolia* (P3) • *Sida* sp. Barlee Range (S. van Leeuwen 1642) (P3) • *Solanum kentrocaule* (P3) • *Tetratheca fordiana* (P2) • *Triodia* sp. Mt Ella (M.E. Trudgen 12739) (P3)
Flora, Vegetation and Fauna Habitat Assessment at Koodaideri: Native Vegetation Clearing Permit – Supporting Report (Rio Tinto 2016b)	Approx. 1,313 ha. Located 33 km northeast of Study Area	• May 2016	Reconnaissance and Targeted Survey. 63 relevés assessed	135 taxa 68 genera 31 families	12 vegetation units described. No TECs or PECs identified. Vegetation condition ranged from 'Excellent' to 'Poor' (majority mapped as 'Excellent')	• *Acacia bromilowiana* (P4) • *Synostemon hamersleyensis* (P1)
Ministers North to Yandi Corridor Single Phase Level 2 Fauna and Detailed Flora/Vegetation Survey (Biologic 2017)	Approx. 2,025 ha. Located 14 km east of Study Area	• October 2017	Detailed Survey. 32 quadrats assessed	260 taxa 127 genera 44 families	12 vegetation associations described. No TECs or PECs identified. Vegetation condition ranged from 'Excellent' to 'Very Good' (majority mapped as 'Excellent')	• *Rostellularia adscendens* var. *latifolia* (P3) • *Sida* sp. Barlee Range (S. van Leeuwen 1642) (P3)

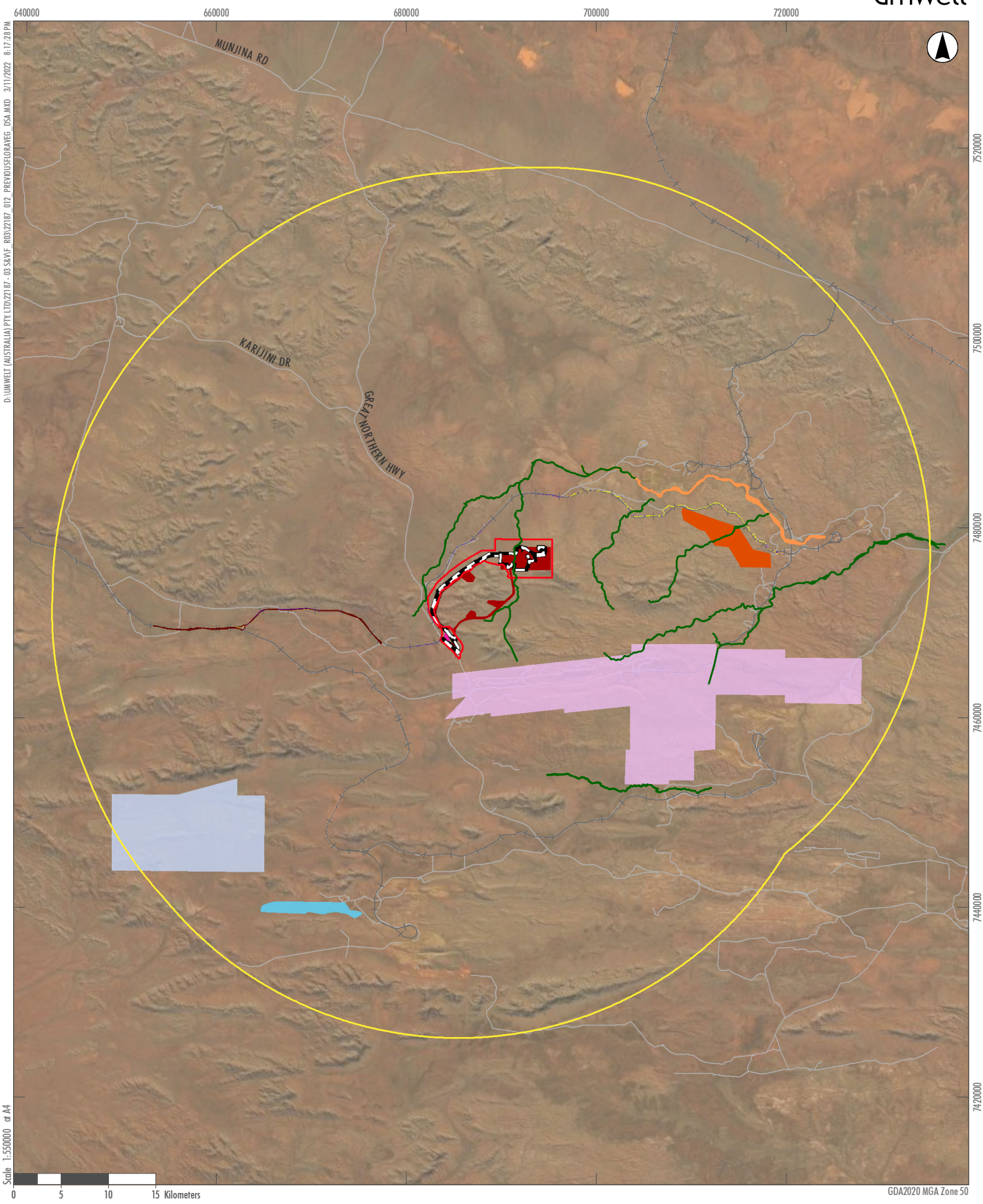
Project and Source	Size and Location of Survey Area	Survey Timing	Survey Scope and Parameters	No. Taxa Recorded	Vegetation	Significant Flora Taxa^
Area C West to Yandi Flora and Vegetation Assessment (Astron 2019)	Approx. 3,729 ha. Part of survey area overlaps Study Area	• November 2018	Reconnaissance Survey of four riparian systems (five creeklines: Marillana, Pebble Mouse, Yandicoogina, Lamb and Area C Mine Creeks). 24 relevés assessed	102 taxa 54 genera 21 families	38 vegetation associations described. No TECs or PECs identified. Vegetation condition ranged from 'Excellent' to 'Poor'. Eight vegetation associations potentially represent GDEs	• *Eremophila* sp. Hamersley Range (K. Walker KW 136) (P3) (now known as *E. naaykensii*) (P3)
West Angelas Gas Pipeline Native Vegetation Clearing Permit (B-2018-007) (Biota 2019)	Approx. 1,150 ha. Located 28 km south-southwest of Study Area	• October 2016	Reconnaissance and Targeted Survey. 56 relevés assessed	343 taxa 130 genera 41 families	18 vegetation units described. One PEC recorded: • West Angelas Cracking-Clays (P1). Vegetation condition ranged from 'Excellent' to 'Completely Degraded' (majority mapped as 'Excellent' to 'Very Good')	• *Aristida lazaridis* (P2) • *Eremophila pusilliflora* (P2) • *Isotropis parviflora* (P2) • *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) • *Themeda* sp. Hamersley Station (M.E. Trudgen 11431) (P3)
Stock Proof Fence Phase III Juna Rail Surveys to meet CPS 4442 Conditions, RTIO-HSE-0335913 (Rio Tinto 2019)	Approx. 412 ha. Located 6 km west of Study Area	• July 2019	Targeted Survey along Stock Proof Fence	NA	NA	• *Aristida jerichoensis* var. *subspinulifera* (P3) • *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) • *Themeda* sp. Hamersley Station (M.E. Trudgen 11431) (P3)

Project and Source	Size and Location of Survey Area	Survey Timing	Survey Scope and Parameters	No. Taxa Recorded	Vegetation	Significant Flora Taxa^
Detailed Flora and Vegetation Survey of the Great Northern Highway Intersection – Lamb Creek Project (Rapallo 2021a)	Approx. 254 ha. Overlaps southern extent of Study Area	• May 2021	Detailed Survey. 19 quadrats and 1 relevé assessed Vegetation Types defined using floristic analysis	187 taxa 35 families	Six vegetation types described. No TECs or PECs identified. All vegetation types assessed as having 'Moderate' significance, primarily due to the presence of *Aristida lazaridis* (P2). Vegetation condition ranged from 'Very Good' to 'Degraded' (majority mapped as 'Good')	• *Aristida lazaridis* (P2) • *Euphorbia* aff. *ferdinandi* (potentially undescribed) • *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
Targeted Conservation Significant Flora Survey of the Lamb Creek Project Area (Rapallo 2021b)	Approx. 872 ha. Overlaps majority of Development Envelope / part of Study Area	• April 2020 • May 2021	Targeted Survey	NA	NA	• *Aristida jerichoensis var. subspinulifera* (P3) • *Aristida lazaridis* (P2) • *Eremophila* sp. Hamersley Range (K. Walker KW 136) (P3) (now known as *E. naaykensii*) (P3) • *Euphorbia* aff. *ferdinandi* (potentially undescribed) • *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) • *Rostellularia adscendens* var. *latifolia* (P3)

Project and Source	Size and Location of Survey Area	Survey Timing	Survey Scope and Parameters	No. Taxa Recorded	Vegetation	Significant Flora Taxa^
ICSS Phase 2 Rail Project: Desktop Assessment and Targeted Significant Flora Survey (Stantec 2021)	Multiple survey areas, totalling approx. 311 ha. Closest survey area 6 km west of Study Area	• June 2021	Targeted Survey along railway	NA	Vegetation not described. No TECs or PECs identified.	• *Acacia subtiliformis* (P3) • *Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727) (P3) • *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) • *Rostellularia adscendens* var. *latifolia* (P3) • *Seringia exastia* (T)

^ Currently listed significant flora taxa only.

* Vegetation condition described using the scale for the South West and Interzone Botanical Provinces (**Appendix A**).



Legend

- Desktop Study Area
- Study Area
- Proposed Development Envelope

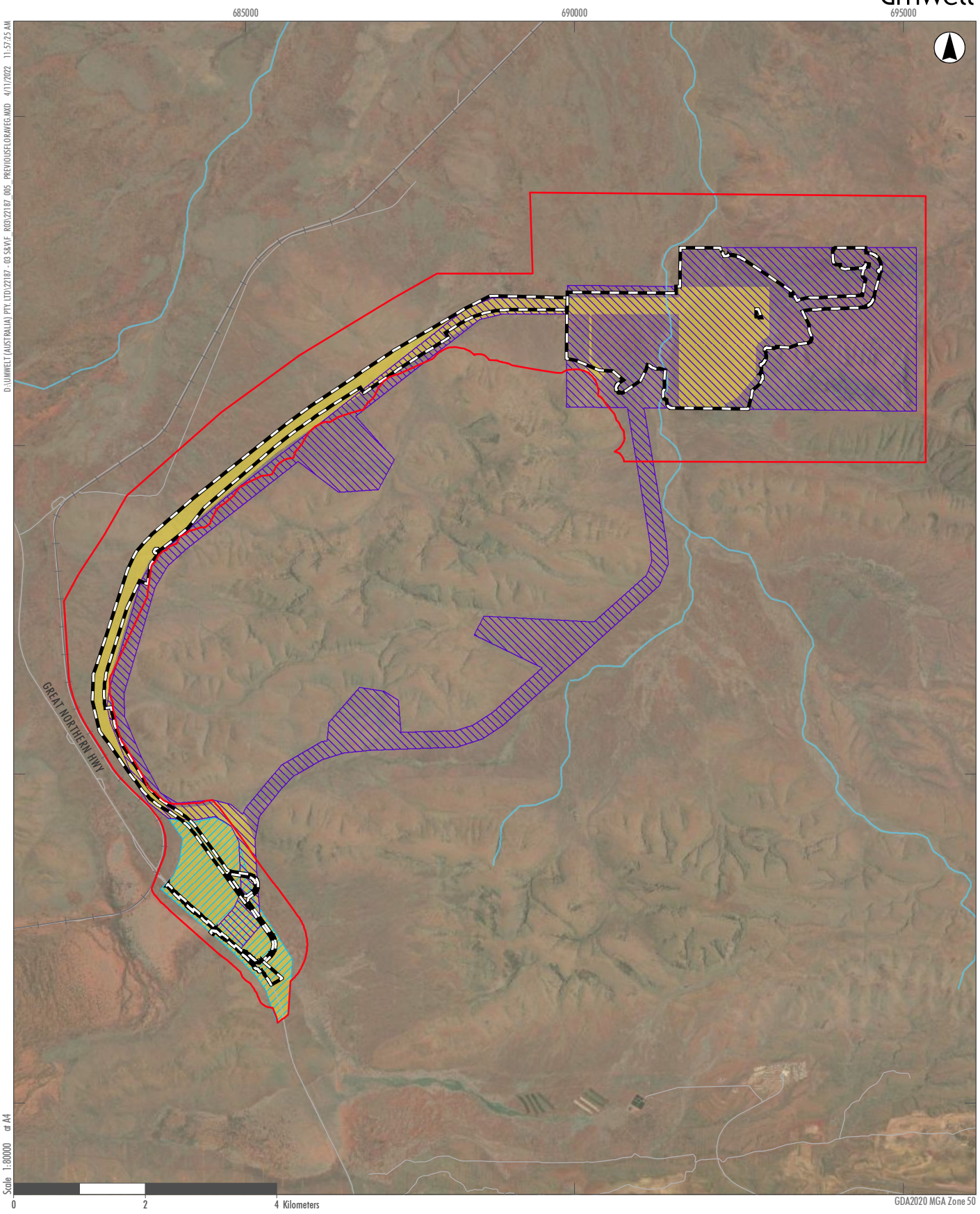
Previous Surveys

- Rapallo (2012) - Lamb Creek
- Rapallo (2021a) - Lamb Creek Detailed Survey
- Rapallo (2021b) - Lamb Creek Targeted Survey
- Astron (2019) - Area C to Yandi
- Biologic (2017) - Ministers North to Yandi
- Biota (2019) - West Angelas
- Onshore (2011) - Area C and Surrounds
- Onshore (2015a) - Karijini National Park
- Onshore (2015b) - Marillana Creek
- Rio Tinto (2015) - Strategic Rail
- Rio Tinto (2019) - Juna Rail
- Stantec (2021) - ICSS Phase 2 Rail Project

FIGURE 5.3

Flora and Vegetation Surveys Previously Conducted Within the Desktop Study Area

Image Source: ESRI Basemap (2022) Data source: Astron (2019), Biologic (2017), Onshore (2011, 2015a, 2015b), Rapallo (2012, 2021a, 2021b), Rio Tinto (2015, 2016b, 2019), Stantec (2021)



Legend

- Study Area
- Proposed Development Envelope
- Roads
- Rail
- Drainage Line

Previous Surveys

- Rapallo 2012 (L2)
- Rapallo 2021a (Detailed)
- Rapallo 2021b (Targeted)

FIGURE 5.4

Flora and Vegetation Surveys Previously Conducted for the Lamb Creek Project

Image Source: ESRI Basemap (2021) Data source: Rapallo (2012, 2021a, 2021b)

5.1.4 Summary of Significant Flora

Table 5.5 presents a summary of significant flora taxa known from or potentially occurring within the Desktop Study Area. This list has been compiled from the results of desktop searches of DBCA's Threatened Flora Databases (TPFL and WA Herbarium) (DBCA, 2022b), DAWE's SPRAT Database (DAWE 2021b), and the results of previous surveys as summarised in **Section 5.1.3**. **Table 5.5** also presents known information on the flowering period and habitat for each taxon (WA Herbarium, 1998-). **Figure 5.5** presents the known historical locations of significant flora taxa from within the Desktop Study Area (subject to the availability of spatial data).

A total of 61 significant flora taxa are known from the Desktop Study Area. This comprises two Threatened flora taxa listed under the EPBC Act and BC Act (*Thryptomene wittweri* and *Seringia exastia*, the latter of which will be delisted in the near future, as discussed in **Section 5.1.3**), 58 DBCA-classified Priority flora taxa, and one potentially undescribed taxon (discussed further below) (**Table 5.5**). Two taxa have records within the Study Area, being *Aristida lazaridis* (P2) and *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) (shaded in blue in **Table 5.5**) (**Figure 5.5**).

Rapallo (2021a, 2021b) recorded four locations of an entity *Euphorbia* aff. *ferdinandi* that was noted as being potentially undescribed. Rapallo (2021b) stated that material of this entity was reviewed by Steve Dillon from the WA Herbarium, who remarked that the specimen differs from typical *Euphorbia ferdinandi* in its broader seeds and a stigma 'opposite from what has been described for this species'. This latter statement is somewhat difficult to interpret, and no further detail was provided on whether further advice was sought or action taken to resolve this taxonomic uncertainty, including whether a representative specimen was submitted to the WA Herbarium for lodgement. At the time of writing of this report, no specimens of *Euphorbia ferdinandi* or *Euphorbia* aff. *ferdinandi* collected in 2021 from the Lamb Creek area have been submitted to the WA Herbarium (WA Herbarium, 1998-). However, as a precaution, this taxon has been included in **Table 5.5**.

Note that *Aristida calycina* var. *calycina* (P2) was recorded by the Rapallo 2012 Survey (**Table 5.5**); however, this taxon does not occur in WA according to the WA Herbarium (1998-), and accordingly, the specimen lodged to the WA Herbarium by Rapallo (2012) has since been redetermined as *Aristida lazaridis* (S. Dillon, *pers. comm.* May 2013). *Nicotiana umbratica* (P3) was recorded by Onshore (2011) approximately 21 km south of the Study Area; however, according to DBCA databases this taxon does not occur in the area (WA Herbarium, 1998-), and no records of the taxon were returned from the DBCA TPFL and WA Herbarium database searches (DBCA, 2022b). Therefore, *Aristida calycina* var. *calycina* (P2) and *Nicotiana umbratica* (P3) are not considered to occur in the Desktop Study Area and are not considered further in this assessment.

Table 5.5 Significant Flora Taxa Known from or Potentially Occurring Within the Desktop Study Area

Taxon	Status (WA)	Status (EPBC Act)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Source*
Acacia bromilowiana	P4		July to August	Rocky hills, breakaways, scree slopes, gorges, creek beds. Rocky red-brown loam with ironstone or laterite	DBCA, Onshore, Rio Tinto
Acacia daweana	P3		July to September	Low rocky rises, along drainage lines. Red stony clay loam	DBCA
Acacia effusa	P3		May to August	Scree slopes of low ranges. Red-brown silty clay or clay loam with ironstone and quartz stones and pebbles	DBCA
Acacia subtiliformis	P3		May to June	Rocky ridges, hills and slopes, often with calcrete. Light brown or brown loam or silty clay	DBCA, Onshore, Stantec
Amaranthus centralis	P3		May to July	Plains, flats and granite outcrops. Gritty red clay loam	DBCA, Onshore
Aristida jerichoensis var. *subspinulifera*	P3		likely after significant rainfall	Plains and flats. Red-brown loamy clay or cracking clay	DBCA, ecologia, Onshore, Rapallo, Rio Tinto
Aristida lazaridis	P2		likely after significant rainfall	Floodplains, drainage areas and plains. Red or red-brown clay loam, sometimes with ironstone	Biota, DBCA, ecologia, Onshore, Rapallo, Rio Tinto
Arthropodium vanleeuwenii	P2		September	Steep hill slopes and gorges. Red-brown or orange-brown loam, often with banded ironstone	DBCA
Cladium procerum	P2		likely year-round	Major creeks and gorges. Red gravelly sand	DBCA
Dampiera metallorum	P3		June to October	High in the landscape on steep slopes, summits of hills. Red-brown stony clay loam over banded ironstone	DBCA, Onshore
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)	P3		May to September	Floodplains and crabhole plains. Red-brown or brown cracking clay	DBCA

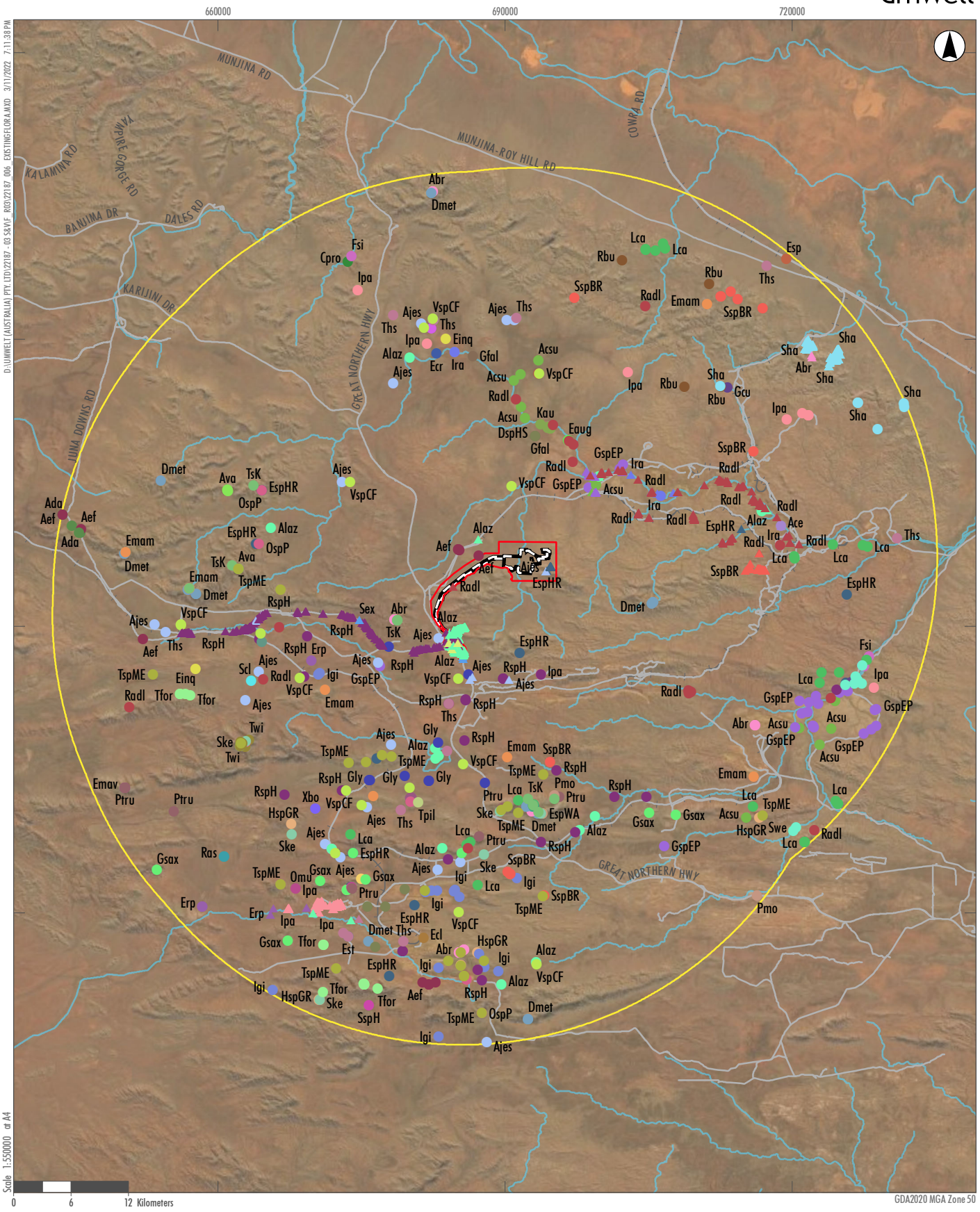
Taxon	Status (WA)	Status (EPBC Act)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Source*
Eragrostis crateriformis	P3		likely after significant rainfall	Creek banks, depressions. Gritty or gravelly brown sandy loam, red-brown clay loam	DBCA
Eragrostis sp. Mt Robinson (S. van Leeuwen 4109)	P1		likely after significant rainfall	Steep slopes, summits. Brown or red-brown silty loam, often with banded ironstone	DBCA
Eremophila magnifica subsp. *magnifica*	P4		August to November	Hillslopes and gullies. Rocky red-brown or brown sandy loam, often with ironstone	Biota, DBCA, Onshore, Rio Tinto
Eremophila magnifica subsp. *velutina*	P3		August to September	Hillslopes and ridges. Red stony loam, often with ironstone or banded ironstone	Biota, DBCA
Eremophila pusilliflora	P2		March to July	Flats and plains. Red-brown sandy loam, often with ironstone	Biota, DBCA, ecologia
Eremophila spongiocarpa	P3		May to September	Weakly saline alluvial plains and dune slopes on margins of marshes and saline flats. Red-brown clay loam	DBCA
Eremophila naaykensii (previously *Eremophila* sp. Hamersley Range (K. Walker KW 136))	P3		June to August	Rocky hill slopes, crests and gorges. Rocky red-brown clay loam, sometimes over banded ironstone	Astron, Biota, DBCA, Rapallo, Rio Tinto
Eremophila sp. West Angelas (S. van Leeuwen 4068)	P1		August to September	Hill slopes and crests. Brown or red silty loam over banded ironstone	DBCA
Euphorbia australis var. *glabra*	P3		likely after significant rainfall	Drainage lines and flats. Red-brown clay loam, sometimes with calcrete or silcrete	DBCA
Euphorbia clementii	P3		likely after significant rainfall	Fire responder. Recently burnt hills, slopes and undulating plains. Red-brown clay loam	DBCA
Euphorbia aff. *ferdinandi*	Potentially Undescribed		likely after significant rainfall	-	Rapallo
Euphorbia inappendiculata var. *queenslandica*	P2		likely after significant rainfall	Flats and plains. Brown cracking clay, gilgai	DBCA, Onshore
Euphorbia stevenii	P3		likely after significant rainfall	Gentle slopes and plains. Brown or red-brown clay and cracking clay	DBCA

Taxon	Status (WA)	Status (EPBC Act)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Source*
Fimbristylis sieberiana	P3		May to June	Pool edges, sandstone cliffs and major creek lines. Brown or red-brown gritty sand	DBCA, Onshore
Glycine falcata	P3		May to September	Along drainage depressions in crabhole plains and clay plains. Brown or red cracking clay	DBCA
Goodenia lyrata	P3		likely after significant rainfall	Claypans and plains. Red or brown sandy loam or clay loam	Biota, DBCA
Goodenia sp. East Pilbara (A.A. Mitchell PRP 727)	P3		likely after significant rainfall	Low undulating plains, swampy plains. Red-brown clay soil, calcrete pebbles	DBCA, Onshore, Rio Tinto, Stantec
Grevillea saxicola	P3		February to June	Rocky hills, slopes and gullies. Red-brown sandy loam	DBCA, Onshore
Gymnanthera cunninghamii	P3		February to May, October to December	Drainage lines. Brown or red-brown sand or sandy loam	DBCA
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	P2		April to August, October	Rocky gullies, drainage lines and gorges. Loamy skeletal soil	Biota, DBCA, Onshore
Indigofera gilesii	P3		May, August	Rocky slopes, hills, creeklines and outcrops. Red or orange loam, often with ironstone	DBCA, ecologia
Iotasperma sessilifolium	P3		August to September	Edges of waterholes, plains, Cracking clay, black loam	DBCA
Ipomoea racemigera	P2		April to June	Drainage lines and flats. Brown silty loam	DBCA, Onshore
Isotropis parviflora	P2		June to August	Rocky hills, slopes and undulating plains. Red or brown sandy loam, often with ironstone	Biota, DBCA
Kohautia australiensis	P2		likely after significant rainfall	Plains and hills. Brown or orange clay with calcrete	DBCA
Lepidium catapycnon	P4		September	Rocky hills and slopes. Red or brown loam or sandy loam, often with ironstone	DBCA, ecologia, Onshore
Olearia mucronata	P3		July to August	Rocky hills, gullies and creeklines. Red-brown or orange-brown silty clay or sandy clay loam with ironstone	DBCA, Onshore

Taxon	Status (WA)	Status (EPBC Act)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Source*
Oxalis sp. Pilbara (M.E. Trudgen 12725)	P2		May to July	Gorges, gullies, drainage lines and slopes. Red loam or sandy loam, often with ironstone	DBCA
Pilbara trudgenii	P3		September to October	Hill summits, steep slopes, screes, cliff faces. Skeletal red stony soil over ironstone	DBCA, Onshore
Ptilotus mollis	P4		July to September	Rocky hills and screes with red or brown clay loam, often with ironstone	DBCA, Onshore
***Rhagodia* sp. Hamersley (M. Trudgen 17794)**	P3		March to May, September	Plains and alluvial plains. Red or brown clay loam, often with ironstone gravel	Biota, DBCA, ecologia, Onshore, Rapallo, Rio Tinto, Stantec
Rhodanthe ascendens	P1		September	Flats. Cracking clay and sand over clay	DBCA
Rhynchosia bungarensis	P4		May to November	Rocky hill slopes, drainage lines, gorges. Orange brown loam, often with ironstone	DBCA
Rostellularia adscendens var. *latifolia*	P3		April to May	Rocky hills, gullies, floodplains and drainage lines. Red/brown sandy loam	Biologic, DBCA, Onshore, Rapallo, Rio Tinto, Stantec
Seringia exastia	T	Critically Endangered	July to September	Sandplains, pindan plain, rangelands. Orange or red sand	Rapallo, Stantec
Sida sp. Barlee Range (S. van Leeuwen 1642)	P3		likely after significant rainfall	Rocky hills, gullies and gorges. Red or brown sandy loam, often with ironstone	Biologic, DBCA, ecologia, Onshore, Rio Tinto
Sida sp. Hamersley Range (K. Newbey 10692)	P3		likely after significant rainfall	Ironstone gullies, slopes and breakaways. Skeletal red loam	DBCA
Solanum kentrocaule	P3		May to September	Steep rocky gullies, slopes, gorges. Skeletal red loam	DBCA, Rio Tinto
Stackhousia clementii	P3		April to September	Floodplains and flats. Clay loam, sometimes saline or with calcrete	DBCA
Stylidium weeliwolli	P3		March to September	Drainage lines, pool edges, seepage areas. Sandy loam or clay	DBCA, Onshore
Swainsona thompsoniana	P3		April to August	Floodplains and flats. Red or brown cracking clay, clay loam	DBCA

Taxon	Status (WA)	Status (EPBC Act)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Source*
Synostemon hamersleyensis	P1		August to November	Steep hills, slopes, screes. Rocky red or brown sandy loam with ironstone or banded ironstone	DBCA, Rio Tinto
Tetratheca fordiana	P2		April to July	Cliffs, ridges and breakaways. Skeletal soil with ironstone	DBCA, Rio Tinto
Teucrium pilbaranum	P2		April to September	Flats, clay pans and crabhole plains. Red or brown sandy loam, clay or cracking clay, sometimes with calcrete	DBCA
***Themeda* sp. Hamersley Station (M.E. Trudgen 11431)**	P3		May to July	Floodplains, drainage lines and flats. Red or brown clay loam, clay or cracking clay	Biota, DBCA, ecologia, Onshore, Rio Tinto
Thryptomene wittweri	T	Vulnerable	April to August	Breakaways and cliffs. Skeletal red-brown soil with sandstone or ironstone	DAWE, DBCA
***Triodia* sp. Karijini (S. van Leeuwen 4111)**	P1		likely after significant rainfall	Hill crests, moderate to steep hill slopes. Grey, brown or red sandy loam or silty loam, often with ironstone	DBCA
***Triodia* sp. Mt Ella (M.E. Trudgen 12739)**	P3		likely after significant rainfall	Rocky slopes, gullies, ridges gorges and associated drainage lines/floodplains. Red or brown sandy clay loam, often with ironstone	DBCA, ecologia, Onshore, Rio Tinto
***Vittadinia* sp. Coondewanna Flats (S. van Leeuwen 4684)**	P1		March to September	Floodplains and drainage areas. Red or brown clay loam or silty loam	DBCA, Onshore
Xerochrysum boreale	P3		July, September	Stony plains and flats. Red or brown clay or clay loam	DBCA

* Sources are: Astron: Astron (2019), Biologic: Biologic (2017), Biota: Biota (2014, 2019), DAWE: DAWE (2021b), DBCA: DBCA (2022c, 2007-), ecologia: ecologia (2013), Onshore: Onshore (2011, 2012, 2015a, 2015b), Rapallo: Rapallo (2012, 2021a, 2021b), Rio Tinto: Rio Tinto (2011, 2015, 2016a, 2016b, 2019), Stantec: Stantec (2021).



Legend

- Desktop Study Area
- Study Area
- Proposed Development Envelope
- Roads
- Rail
- Drainage Line

FIGURE 5.5

Existing Formally Listed Flora Records in the Desktop Study Area

Image Source: ESRI Basemap (2021) Data source: Landgate (2022), DBCA (2021)

D:\UMWELT (AUSTRALIA) PTY LTD\72187 - 03 S&WF R03\72187_006_EXISTINGFLORALEGEND.MXD 3/11/2022 7:08:23 PM

Legend

Significant Flora (Previous Local Studies)

- Abr, *Acacia bromilowiana* (P4)
- Ace, *Amaranthus centralis* (P3)
- Acsu, *Acacia subtiliformis* (P3)
- Ajes, *Aristida jerichoensis* var. *subspinulifera* (P3)
- Alaz, *Aristida lazaridis* (P2)
- Eafe, *Euphorbia aff. ferdinandi* (Potentially undescribed)
- Erp, *Eremophila pusilliflora* (P2)
- EspHR, *Eremophila* sp. Hamersley Range (K. Walker KW 136) (P3)
- GspEP, *Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727) (P3)
- Ira, *Ipomoea racemigera* (P2)
- Ipa, *Isotropis parviflora* (P2)
- RspH, *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl, *Rostellularia adscendens* var. *latifolia* (P3)
- Sex, *Seringia exastia* (T)
- SspBR, *Sida* sp. Barlee Range (S. van Leeuwen 1642) (P3)
- Sha, *Synostemon hamersleyensis* (P1)
- Ths, *Themeda* sp. Hamersley Station (M.E. Trudgen 11431) (P3)

Significant Flora (DBCA)

- Abr, *Acacia bromilowiana* (P4)
- Ada, *Acacia daweana* (P3)
- Aef, *Acacia effusa* (P3)
- Acsu, *Acacia subtiliformis* (P3)
- Ace, *Amaranthus centralis* (P3)
- Ajes, *Aristida jerichoensis* var. *subspinulifera* (P3)
- Alaz, *Aristida lazaridis* (P2)
- Ava, *Arthropodium vanleeuwenii* (P2)
- Cpro, *Cladium procerum* (P2)
- Dmet, *Dampiera metallorum* (P3)
- DspHS, *Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3)
- Ecr, *Eragrostis crateriformis* (P3)
- EspMR, *Eragrostis* sp. Mt Robinson (S. van Leeuwen 4109) (P1)
- Emam, *Eremophila magnifica* subsp. *magnifica* (P4)
- Emav, *Eremophila magnifica* subsp. *velutina* (P3)
- Erp, *Eremophila pusilliflora* (P2)
- Esp, *Eremophila spongiocarpa* (P3)
- EspHR, *Eremophila* sp. Hamersley Range (K. Walker KW 136) (P3)
- EspWA, *Eremophila* sp. West Angelas (S. van Leeuwen 4068) (P1)
- Eaug, *Euphorbia australis* var. *glabra* (P3)
- Ecl, *Euphorbia clementii* (P3)
- Einq, *Euphorbia inappendiculata* var. *queenslandica* (P2)
- Est, *Euphorbia stevenii* (P3)
- Fsi, *Fimbristylis sieberiana* (P3)
- Gfal, *Glycine falcata* (P3)
- Gly, *Goodenia lyrata* (P3)
- GspEP, *Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727) (P3)
- Gsax, *Grevillea saxicola* (P3)
- Gcu, *Gymnanthera cunninghamii* (P3)
- HspGR, *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
- Igi, *Indigofera gilesii* (P3)
- Ise, *Iotasperma sessilifolium* (P3)
- Ira, *Ipomoea racemigera* (P2)
- Ipa, *Isotropis parviflora* (P2)
- Kau, *Kohautia australiensis* (P2)
- Lca, *Lepidium catapycnon* (P4)
- Omu, *Olearia mucronata* (P3)
- OspP, *Oxalis* sp. Pilbara (M.E. Trudgen 12725) (P2)
- Ptru, *Pilbara trudgenii* (P3)
- Pmo, *Ptilotus mollis* (P4)
- RspH, *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Ras, *Rhodanthe ascendens* (P1)
- Rbu, *Rhynchosia bungarensis* (P4)
- Radl, *Rostellularia adscendens* var. *latifolia* (P3)
- SspBR, *Sida* sp. Barlee Range (S. van Leeuwen 1642) (P3)
- SspH, *Sida* sp. Hamersley Range (K. Newbey 10692) (P3)
- Ske, *Solanum kentrocaule* (P3)
- Scl, *Stackhousia clementii* (P3)
- Swe, *Stylidium weeliwolli* (P3)
- Swt, *Swainsona thompsoniana* (P3)
- Sha, *Synostemon hamersleyensis* (P1)
- Tfor, *Tetratheca fordiana* (P2)
- Tpil, *Teucrium pilbaranum* (P2)
- Ths, *Themeda* sp. Hamersley Station (M.E. Trudgen 11431) (P3)
- Twi, *Thryptomene wittweri* (T)
- TsK, *Triodia* sp. Karijini (S. van Leeuwen 4111) (P1)
- TspME, *Triodia* sp. Mt Ella (M.E. Trudgen 12739) (P3)
- VspCF, *Vittadinia* sp. Coondewanna Flats (S. van Leeuwen 4684) (P1)
- Xbo, *Xerochrysum boreale* (P3)

FIGURE 5.5

LEGEND - Existing Formally Listed Flora Records in the Desktop Study Area

5.1.5 Summary of Significant Vegetation

Table 5.6 presents a summary of listed significant vegetation communities known from or potentially occurring within the Desktop Study Area. This list has been compiled from the results of searches of DBCA's Threatened and Priority Ecological Communities Database (DBCA, 2022c) and the results of previous surveys as summarised in **Section 5.1.3**. **Figure 5.6** presents the known historical locations of significant vegetation from within the Desktop Study Area (subject to the availability of spatial data). Note that DBCA records of significant vegetation communities presented on **Figure 5.6** consist of DBCA-applied buffers (ranging from 500 m to 5 km) surrounding known locations, as per the metadata from the DBCA Threatened and Priority Ecological Communities Database interrogation (DBCA, 2022c).

A total of eight significant vegetation communities have records within the Desktop Study Area. All communities are DBCA-classified PECs, with no TECs listed under the EPBC Act or BC Act identified by the desktop assessment (**Table 5.6**).

There are no known records of significant vegetation communities within the Study Area, with the closest record being 'Coolibah-lignum flats: *Eucalyptus victrix* over lignum community in the Pilbara - sub type 2: Coolibah woodlands over lignum (*Duma florulenta*) over swamp wanderrie (Lake Robinson)' PEC (P1); the edge of this PEC's buffer polygon is approximately 3 km south of the Study Area (**Figure 5.6**).

According to the DBCA Threatened and Priority Ecological Communities Database interrogation results (DBCA 2022c), there are no records of the 'Coolibah-lignum flats: *Eucalyptus victrix* over lignum community in the Pilbara - sub type 1: Coolibah and mulga (*Acacia aneura*) woodland over lignum and tussock grasses on clay plains (Coondewanna Flats and Wanna Munna Flats)' PEC (P3) in the Desktop Study Area. However, as discussed in **Section 3.9.2**, a review of current DBCA PEC lists (DBCA 2022a) identified this PEC as having the potential to occur in the Desktop Study Area as the Coondewanna Flats are located within the Desktop Study Area. According to Rapallo (2021a), Onshore undertook a review of vegetation mapping within the Coodewanna Flats and Lake Robinson areas in 2013 and confirmed fine-scale mapping for sub types 1 and 2 of the Coolibah-lignum flats PECs. Onshore concluded that sub type 2 lies at the lowest point of the Coondewanna Flats associated with Lake Robinson, and sub type 1 occurs on alluvial flats (Coondewanna Flats) around Lake Robinson (Onshore (2013), cited in Rapallo (2021a)). Therefore, this PEC has been included in **Table 5.6**; however, the report and associated data from Onshore (2013) could not be acquired, and therefore this PEC is not presented on **Figure 5.6**.

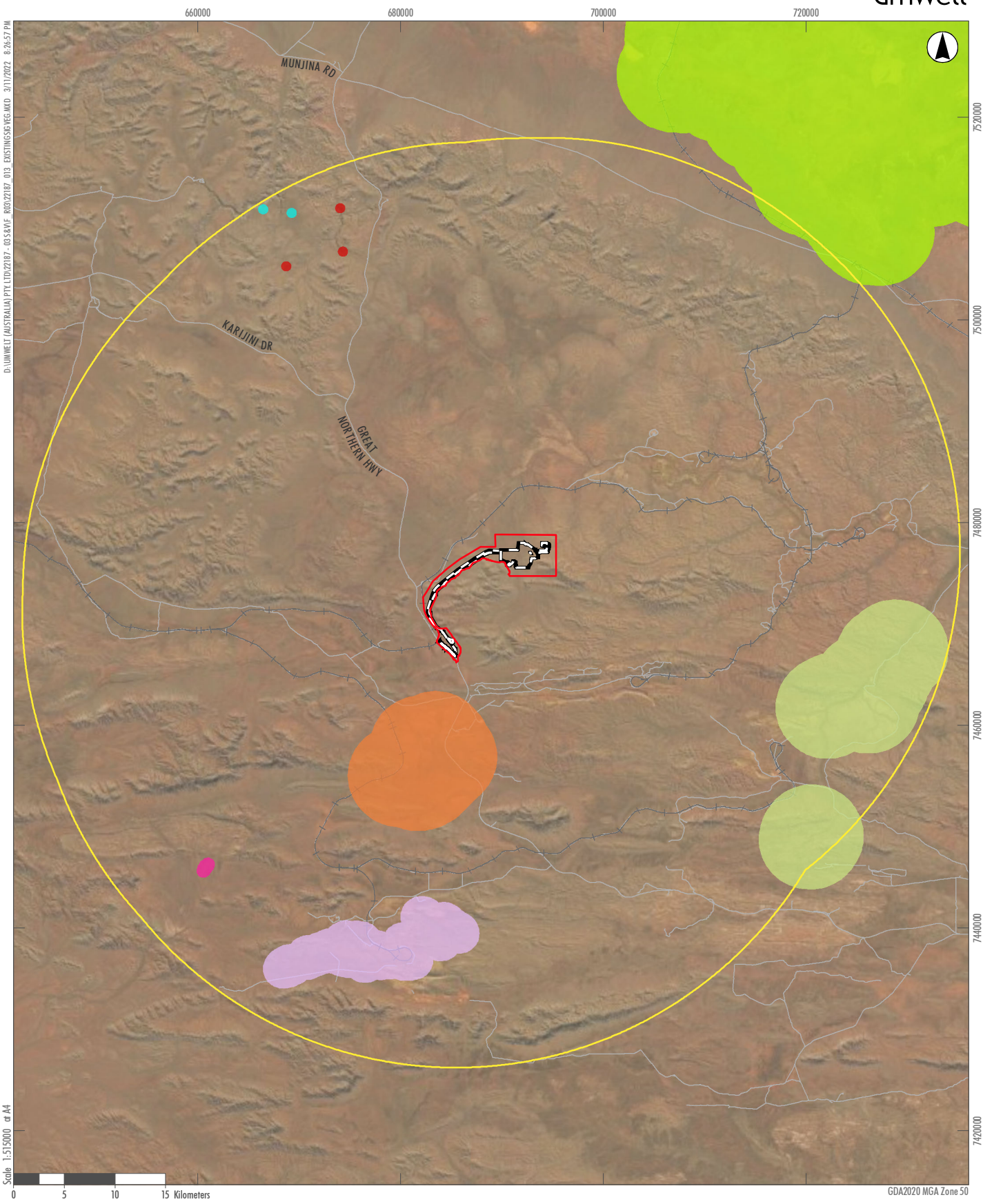
The definitions, categories and criteria for TECs and PECs are presented on the DBCA Threatened species and communities website (DBCA 2013).

Table 5.6 Listed Significant Vegetation Known from or Potentially Occurring Within the Desktop Study Area

Community	Status (WA)	Status (EPBC Act)	Source*
Brockman Iron cracking clay communities of the Hamersley Range	PEC (P1)		DBCA, Onshore
Coolibah-lignum flats: *Eucalyptus victrix* over lignum community in the Pilbara - sub type 1: Coolibah and mulga (*Acacia aneura*) woodland over lignum and tussock grasses on clay plains (Coondewanna Flats and Wanna Munna Flats)	PEC (P3)		DBCA, Onshore

Community	Status (WA)	Status (EPBC Act)	Source*
Coolibah-lignum flats: *Eucalyptus victrix* over lignum community in the Pilbara - sub type 2: Coolibah woodlands over lignum (*Duma florulenta*) over swamp wanderrie (Lake Robinson)	PEC (P1)		DBCA, Onshore
Fortescue Marsh (Marsh Land System)	PEC (P1)		DBCA
Kumina Land System	PEC (P3)		DBCA
Riparian flora and plant communities of springs and river pools with high water permanence of the Pilbara Region	PEC (P2)		DBCA
Weeli Wolli Spring Community	PEC (P1)		DBCA, Onshore
West Angelas Cracking-Clays	PEC (P1)		Biota, DBCA, ecologia

* Sources are: Biota: Biota (2019), DBCA: DBCA (2018, 2022a, 2022d), ecologia: ecologia (2013), Onshore: Onshore (2011, 2012, 2015a).



Legend

- Desktop Study Area
- Study Area
- Proposed Development Envelope

Significant Vegetation (DBCA, 2020a)

- Brockman Iron cracking clay communities of the Hamersley Range
- Coolibah - Lignum Flats: sub type 2: Coolibah woodlands over lignum (*Duma florulenta*) over swamp wanderrie (Lake Robinson)
- Fortescue Marsh (Marsh Land System)
- Kumina Land System
- Riparian flora and plant communities of springs and river pools with high water permanence of the Pilbara Region
- Weeli Wolli Spring Community
- West Angelas Cracking-Clays

FIGURE 5.6

Existing Significant Vegetation Records of the Desktop Study Area

Image Source: Landgate (2021) Data source: DBCA (2020a)

5.2 Field Survey

5.2.1 Vascular Flora Census

A total of 328 discrete vascular flora taxa, three known hybrids (as per WA Herbarium (1998-)) and one putative hybrid were recorded in the Study Area by the 2022 survey. The taxa and hybrids represent 45 families and 137 genera. The most well-represented families were Fabaceae (64 discrete taxa, three known hybrids), Poaceae (56 taxa), Malvaceae (45 taxa) and Amaranthaceae (16 taxa). A total of seven taxa are introduced (see **Section 5.2.6**).

Within quadrats established by the 2022 survey, average taxon richness per quadrat was 42.3 (± 14.8), with the greatest number of taxa recorded in a single quadrat being 89 (C19), and the lowest number being 12 (K39) (excluding hybrid, introduced and opportunistic taxa).

A full list of taxa recorded by the 2022 survey is presented in **Appendix D**, with raw quadrat and relevé data and parameters presented in **Appendix E**.

Note that several collections could not be identified to species level due to poor material. Some are known to be distinct taxa relative to other taxa recorded by the survey, and therefore have been included in the totals presented above and **Appendix D** (e.g. ?*Enchylaena tomentosa*). Other collections may represent distinct taxa relative to other taxa recorded by the survey; however, it is more likely that they represent taxa already recorded elsewhere, with the quality of the material such that this distinction cannot be made (e.g. *Ptilotus* ?*exaltatus*). Such collections are not included in the totals above or presented in **Appendix F**. None of these collections are considered to represent significant flora taxa.

5.2.2 Summary of Significant Flora

Table 5.7 presents a summary of data relating to significant flora taxa recorded in the Study Area by the 2022 survey. A total of eight significant flora taxa were recorded by the 2022 survey; this includes one Threatened taxon, five DBCA-listed Priority flora taxa and two taxa considered significant under the 'new species or species with anomalous features that indicate a potential new species' reason from EPA (2016a, 2016b) (**Section 3.9.1**); these taxa are subsequently referred to as 'potentially undescribed'. Locations of significant flora taxa recorded in the Study Area by the 2022 survey are presented on **Figure 5.7**. A detailed description and summary of information for each taxon recorded by the 2022 survey is provided in **Sections 5.2.3** and **5.2.4**, with specific location details presented in **Figure 5.7** and **Appendix F**.

Three significant taxa were recorded in the Development Envelope: *Aristida jerichoensis* var. *subspinulifera* (single record with single individual); *Aristida lazaridis* (P2) (three records with a total of four individuals); and *Seringia exastia* (T) (14 records with a total of 222 individuals). *Rhagodia* sp. Hamersley (M. Trudgen 17794) was not further recorded in the Development Envelope (recorded previously by Rapallo (2021b)).

Table 5.7 includes a summary of the VTs within which each significant flora taxon was recorded. Preferred habitat for each taxon has been determined based on proportional location representation and landforms/soils and is indicated with '~'. However, it must be qualified that some taxa recorded by the 2022 survey were recorded from few locations; and this in combination with the limited area of the Targeted survey area (and the targeted survey area of Rapallo (2021b)) within the Study Area concludes that there may not be sufficient data to confidently assign preferred habitat in terms of VTs for these taxa.

Note that assessment of VT habitat includes record information from Rapallo (2021b). Further qualification is provided for each taxon in **sections 5.2.3** and **5.2.4**

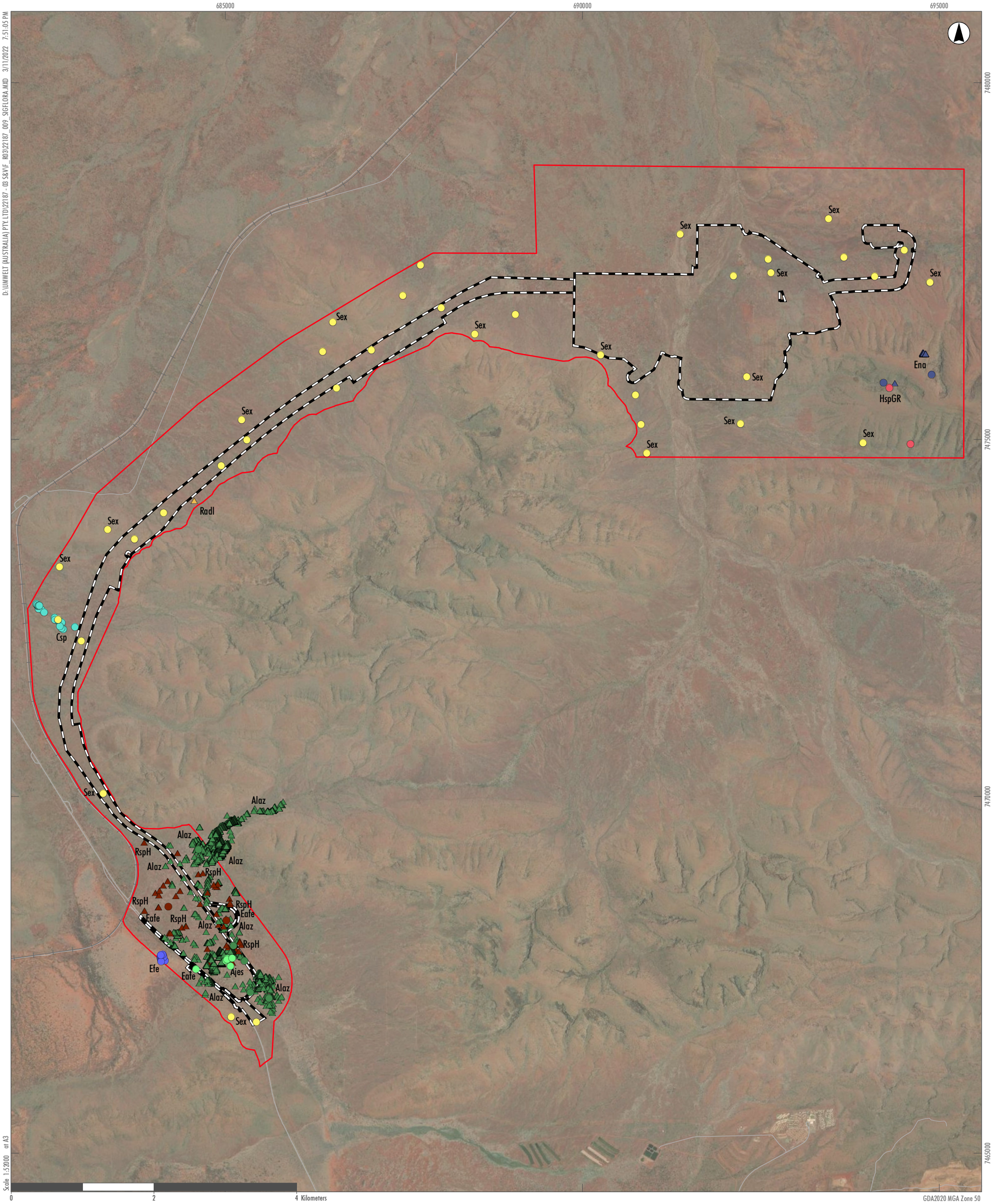
Note that the 2022 survey recorded locations of *Seringia exastia*, a taxon currently listed as Threatened under the EPBC Act. As described in **Section 5.1.3**, the conservation status of this taxon will not be revised until both the Threatened Species Scientific Committee meet to formalise the delisting and the name is formally removed from the published listing (W.A. Government Gazette). Further information is provided in **section 5.2.3.7**.

Table 5.7 Summary of Significant Flora Taxa Recorded by the 2022 Survey Within the Study Area

Taxon	Status (WA)	Study Area		Vegetation Types*
		Number of Locations	Number of Individuals	
Aristida jerichoensis* var. *subspinulifera	P3	8	97	8~
Aristida lazaridis	P2	5	264	7~; 8~; 3, 9
***Corchorus* sp.**	Potentially undescribed	21	33	9~
***Euphorbia ferdinandi* s. lat.**	Potentially undescribed	12	53	8~, 7
Eremophila naaykensii	P3	2	38	4~
***Hibiscus* sp. Gurrinbiddy Range (M.E. Trudgen MET 15708)**	P2	2	17	4~
***Rhagodia* sp. Hamersley (M. Trudgen 17794)**	P3	3	7	7~; 8; 9
Seringia exastia	T	37	783	1~, 2, 3, 6, 9, 10

* Refer to **Section 5.2.8** for VT descriptions.

~ Designates preferred habitat, based on proportional location representation and landforms/soils. Counts not undertaken for taxon.



Legend

- Study Area
- Proposed Development Envelope

Significant Flora (Umwelt, 2022)

- Ajes *Aristida jerichoensis* var. *subspinulifera* (P3)
- Alaz *Aristida lazaridis* (P2)
- Csp *Corchorus* sp. (Potentially Undescribed)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* S. lat (Potentially Undescribed)
- HspGR *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)
- Sex *Seringia exastia* (T)

Significant Flora (Rapallo, 2021b)

- Alaz *Aristida lazaridis* (P2)
- Ena *Eremophila naaykensii* (P3)
- Eafe *Euphorbia aff. ferdinandi* (Potentially Undescribed)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)

FIGURE 5.7

Significant Flora Recorded by the 2021 and 2022 Field Surveys

5.2.3 Listed Significant Flora Taxa

5.2.3.1 *Aristida jerichoensis* var. *subspinulifera* (P3)

Aristida jerichoensis var. *subspinulifera* (P3) is a perennial tussock grass growing to 0.8 m high (**Photo 5-1**), occurring on flats with red-brown clay over ironstone (WA Herbarium 1998-). In WA it has a range of over 1,000 km from near Gill Pinnacle (close to the WA / Northern Territory (NT) border) in the east, to north-west of Tom Price in the west; the Study Area is in the known range of this taxon. This taxon is known from 42 WA Herbarium records across approximately 38 broad regional locations, three of which occur within DBCA-managed tenure within Karijini National Park (WA Herbarium 1998-). The nearest WA Herbarium specimen record of this taxon is in close proximity to the GNHI area (within one kilometre of the Study Area, located on the western side of the GNH – specimen PERTH08694265 (WA Herbarium 1998-), recorded as occurring in Mulga woodland over closed sedges and open tussock grassland on orange light clay.

WA Herbarium records include three locations from outside of WA, including one location in the Northern Territory (NT) (north of Alice Springs) and two locations within Queensland (Qld) (north of Capella and west of St George). There are considerably more locations of this taxon across the NT, South Australia (SA), Qld, New South Wales (NSW) and Victoria (Vic) (over 1,800 records across Australia) according to records presented by the Atlas of Living Australia (ALA) (2022).

Photo 5-1: *Aristida jerichoensis* var. *subspinulifera* (P3) (Photos: Umwelt)

Rapallo (2021b) previously recorded this taxon within the Study Area; however, this record was not lodged at the WA Herbarium and inspection of this location during the survey in 2022 has determined this to be erroneous (considered to be a misidentification, with *Aristida burbidgeae* recorded at the given location during the 2022 survey). This record occurred on a south-facing rocky slope of a gorge/gully a high

elevation, which was noted as being odd by Rapallo (2021b) due to this habitat not being typical of the taxon.

A total of 97 individuals of *Aristida jerichoensis* var. *subspinulifera* (P3) were recorded at eight locations within the Study Area in 2022 within VT 8 (**Figure 5.7**; Sheet 10 and 11 of **Appendix F**); one of these locations was recorded in the DE. This taxon was not otherwise recorded within the Targeted Survey Area during the 2022 survey; no other locations were recorded within the Development Envelope by Rapallo (2021b). All records were returned from areas mapped as VT 8, which is considered to be the preferred habitat of this taxon in the Study Area.

Note that this taxon was recorded at Area C and South Flank by Onshore Environmental (2011; 2012); Greater West Angeles (ecological 2013), and surveys conducted on behalf of Rio Tinto including the stock proof fence and Rail NVCP (2019 and 2015 respectively) (**Table 5.4**).

5.2.3.2 *Aristida lazaridis* (P2)

Aristida lazaridis (P2) is a perennial tussock grass growing to 1.5 m high (**Photo 5-2**), occurring on flats with red-brown clay loam, sometimes in floodplains and minor drainage areas (WA Herbarium 1998-). This taxon occurs over a range of approximately 130 km within WA, from north-east of Newman in the south-east, to south-east of Wittenoom in the north-west, and the Study Area is within the known range of this taxon. *Aristida lazaridis* (P2) is known from 22 WA Herbarium records across approximately 17 broad regional locations, one of which occurs within DBCA-managed tenure within Karijini National Park (WA Herbarium 1998-). This taxon is also known from two records in the NT and 78 records in Qld (ALA 2022).

Photo 5-2: *Aristida lazaridis* (P2) (Photo: Umwelt)

Rapallo (2021a; b) undertook extensive survey to map the extent of the *Aristida lazaridis* (P2) population in the vicinity of the GNHI, recording an estimated population of 12,773 plants from 6,757 point locations over the 2020 and 2021 survey periods combined (71 locations, representing 85 individuals, of which occur

within the Development Envelope). A further 264 individuals of *Aristida lazaridis* (P2) were recorded at five locations within the Study Area in 2022; three of these locations (total four plants) were in the Development Envelope (**Figure 5.7**; **Appendix F**).

This taxon was recorded mainly in VTs 7 and 8, with less representation in VTs 3 and 9 (as mapped on Sheets 10 and 11 of **Appendix K).** The representative habitat of this taxon in the Study Area can be considered VTs 7 and 8 in the GNHI DE area only; this taxon was not otherwise recorded in other areas mapped as VT 7, despite targeted survey effort by both Rapallo (2021b) and Umwelt (2022 survey) in these areas.

5.2.3.3 *Eremophila naaykensii* (P3)

Eremophila naaykensii (P3) (previously *Eremophila* sp. Hamersley Range (K. Walker KW 136)) is a perennial shrub or tree growing to 3 m high (**Photo 5-3**), characterised by large, silver-green leaves and pale grey-brown bark. This taxon occurs in gorges, breakaways, and clifftops of ironstone, often growing out of seemingly solid rock walls (WA Herbarium 1998-). This taxon is endemic to WA (ALA 2022), known from a range of approximately 200 km from near Newman in the east to east of Paraburdoo in the west, with the Study Area in the known range of this taxon.

This taxon is known from 21 WA Herbarium records across approximately 19 broad regional locations, one of which occurs within DBCA-managed tenure within Karijini National Park (WA Herbarium 1998-). The nearest WA Herbarium record of this taxon is located south of these records, on a range of hills between the Lamb Creek Study Area and Area C (PERTH09105972; two plants recorded on rocky hill slopes, hills crests and upper hill slopes, 2018 record).

Photo 5-3: *Eremophila naaykensii* (P3) (Photos: Umwelt)

Rapallo (2021b) recorded 35 locations (representing 35 individuals) of *Eremophila naaykensii* (P3) within the VT 4 and VT6. A total of 38 individuals of *Eremophila naaykensii* (P3) were recorded at two locations within the Study Area in 2022 within VT 4 (**Figure 5.7**; **Appendix F**). VTs 4 and 6 are considered to be the preferred habitat of this taxon within the Study Area. This taxon was not recorded within the Targeted Survey Area in 2022, nor otherwise in the Development Envelope.

5.2.3.4 Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)

Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2) is a slender shrub growing to 2 m high (**Photo 5-5**), occurring on rocky gullies, drainage lines and gorges with loamy skeletal soil (WA Herbarium 1998-). It is endemic to WA (ALA 2022), known from a range of approximately 180 km from north of Newman in the east to north-east of Paraburdoo in the west. The Study area is located on the northern extent of its known range. This taxon is known from 24 WA Herbarium records across 10 broad regional locations, two of which occur within DBCA-managed tenure within Karijini National Park (WA Herbarium 1998-); no records are within 10km of the Study Area.

Rapallo (2021a; b) did not record *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2) during the targeted or detailed survey. A total of 17 individuals of *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2) were recorded at two locations within the Study Area in 2022 within VT 4 (**Figure 5.7**; **Appendix F**). VT 4 is considered to be the preferred habitat of this taxon in the Study Area. This taxon was not recorded within the Targeted Survey Area in 2022 and was not otherwise recorded in the Development Envelope. This record of *Hibiscus* sp. Gurinbiddy Range (M.E. Trudge MET 15708) (p2) is a slight range extension of the known range of this taxon to the north.

Photo 5-4: *Hibiscus* sp. Gurrinbiddy Range (M.E. Trudgen MET 15708) (P2) (Photos: Umwelt)

5.2.3.5 *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)

Rhagodia sp. Hamersley (M. Trudgen 17794) (P3) is an erect shrub growing to 2 m high (**Photo 5-6**), occurring on plains and alluvial plains with red or brown clay loam, often with ironstone gravel (WA Herbarium 1998-). It is endemic to WA (ALA 2022), known from a range of approximately 330 km from west of Jigalong in the east to north-east of Tom Price in the west. The Study Area in in the northern extent of the known range of this taxon.

This taxon is known from 72 WA Herbarium records across more than 50 broad regional locations, two of which occur within DBCA-managed tenure including Jigalong Aboriginal Reserve and Karijini National Park (WA Herbarium 1998-). A total of five records are known from within 10km of the Study Area, with nearby records confirming preferred habitat for this taxon.

Rapallo (2021a; b) recorded 50 individuals of *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) during the targeted and detailed surveys. A total of seven individuals of this taxon were recorded at three locations within the Study Area during the current survey in 2022 within VT 7 (**Figure 5.7**; **Appendix F**). This taxon was not recorded within the Targeted Survey Area or otherwise further in the Development Envelope in 2022.

All records are located in the GNHI section of the Study Area (Sheets 10 and 11 of **Appendix K**). The mapped areas of VT 7 in the GNHI section of the Study Area is considered preferred habitat for this taxon, due to the majority of known records occurring in this area combined with soil and landform descriptions.

Photo 5-5: *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) (Photos: Umwelt)

5.2.3.6 Seringia exastia

The Threatened taxon *Seringia exastia* has been recorded within the Development Envelope and wider Study Area, which despite being no longer recognised as Threatened under WA's BC ACT, remains listed as Threatened under the EPBC Act (Department of Premier and Cabinet (DPC) 2018). Correspondence with DBCA Species and Communities Assessment Team (dated 4th August 2022) has provided clarity with regards to the treatment of this taxon. It is understood that the synonymisation of *S. elliptica* under *S. exastia* means that *S. exastia* is now considered common and widespread. However, until changes are officially made to the threatened species list, *S. exastia* should still be treated as Threatened flora, however the new understanding of the taxon's distribution would be considered in the EIA process.

A total of 37 locations with 783 individuals were recorded within the Study Area, of which 22 locations and 222 individuals are located in the Development Envelope. This taxon was recorded across a range of VTs **Figure 5.7**; **Appendix F**, however was predominantly recorded in VT1 which can be considered preferred habitat. This taxon now has a very wide range across Western Australia, extending from Giralia Station in the west through to the border with the NT, and from Broome in the north to Mt Manning Range NR in the south. The Study Area is within the known range of this taxon.

5.2.4 Other Flora Taxa of Interest

5.2.4.1 Euphorbia ferdinandi s. lat. (potentially undescribed)

Euphorbia ferdinandi s. lat. (**Photo 5-7**) is considered conspecific with the entity *Euphorbia* aff *ferdinandi* recorded by Rapallo (2021a; b). It was recorded at 12 locations consisting of 53 individuals within the Study Area in 2022 within VTs 7 and 8 (**Figure 5.7**; **Appendix F**). This taxon was not recorded within the Targeted Survey Area in 2022, otherwise further in the Development Envelope.

Rapallo (2021a; b) recorded this entity at four locations in 2021 and treated it as a potentially undescribed taxon based on discussions with personnel from the WA Herbarium (see **Section 5.1.4**). The specimens collected during the current survey are considered to represent the same taxon previously collected in the area by Rapallo (2021a; b). The taxonomic status of this entity is currently under review by the WA Herbarium; it has been segregated by the WA Herbarium in the main collection, though still housed under the name *E. ferdinandi* var. *ferdinandi*. It appears to have been distinguished by the broader seeds (0.8-0.9mm), longer capsules (to 2.4mm) and bifid styles, although styles are apparently only just bifid on the segregated material, as per the collection taken in 2022. The specimen collected in April 2022 required mature fruit to confirm the status; that specimen and those collected in June 2022 have been submitted to the WA Herbarium to confirm the taxonomic status of this entity. In the interim, a precautionary approach would see this entity treated as potentially significant.

Photo 5-6: *Euphorbia ferdinandi* s. lat. (Potentially undescribed) (Photos: Umwelt)

5.2.4.2 *Corchorus* sp. (potentially undescribed)

Corchorus sp. (**Photo 5-8**) does not match reference specimens of any published species and has potential taxonomic significance. This entity is distinct in having elongated fruit. Fruiting specimens were collected in April and June 2022, indicating approximately a March-May flowering period. Flowering specimens were also collected in late June, though this could be considered a response to the unseasonably late rains of May 2022 rather than an indicator of usual flowering time.

Targeted survey in June 2022 recorded a single population of 35 plants, restricted to one drainage line in VT 9, between the hills and the railway line (**Figure 5.7**; Sheets 5 and 9 of **Appendix F**). The habitat of the recorded population was restricted to drainage lines of sandy loam soils, with no or very few stones, and an open lower stratum of tussock grasses and low shrubs. Nearby drainage lines were searched and further individuals were not located; these drainage lines did not represent the same micro-habitat, with differing percentage cover of surface stones, density of the understory stratum, and differing species composition. No plants were recorded within the Development Envelope.

A review of the quadrat data for VT 9 in the mine area DE shows it is unlikely that this taxon would occur in other areas of VT9, based on absence of habitat features.

There are no other known populations of this entity, which may indicate that it is geographically restricted. A precautionary approach would see it regarded as a taxon of potential conservation significance, though this is not yet able to be formally assessed.

Photo 5-7: ***Corchorus*** **sp. (Potentially undescribed) (Photos: Umwelt)**

No other flora taxa were recorded that are potentially significant in terms of being representative of significant extensions of their known ranges, however it is of general interest that there is a relative lack of representative flora specimens housed in the WA Herbarium from the general project area.

5.2.5 Likelihood of Occurrence of Further Significant Flora Taxa

Table 5.8 presents an assessment of the likelihood of occurrence of significant taxa within the Study Area and Targeted Survey Area. This list includes significant taxa identified as occurring (or potentially occurring) within the Desktop Study Area prior to survey (listed in **Table 5.5**) as well as any additional significant taxa recorded by the survey (listed in **Table 5.7**). The assessment considered whether a taxon was identifiable at the time of survey, the known range of the taxon, if habitat is present in the Study Area and/or Targeted Survey Area, proximity of known records to the Study Area and the extent of targeted survey undertaken within the Study Area and Targeted Survey Area, when determining the potential for a taxon to occur in the Study Area and Targeted Survey Area.

A total of 62 taxa have been assessed within **Table 5.8** including two Threatened taxa, 58 Priority listed taxa and two potentially undescribed taxa**.** Of these, eight taxa were recorded within the Study Area by the 2022 survey, and two taxa are considered potentially not identifiable during the survey. *Arthropodium vanleeuwenii* (P2) is considered visible only when flowering in September as it grows up through *Triodia*. *Rhodanthe ascendens* (P1) is an annual taxon known from a limited number of records all of which were collected in August or September. It is possible that this taxon is present (and therefore identifiable) after significant rainfall; however, this cannot be confirmed based on the current existing information. It is considered that the 60 remaining taxa were identifiable during the 2022 survey, either because the survey period coincides with the taxon's flowering period, or the taxon can be identified reliably when in fruit or sterile.

The likelihood of occurrence assessment identified a total of 42 taxa which could Possibly occur within the Study Area due to suitable habitat occurring within the Study Area and the Study Area being within the known range of the taxon or within close proximity to its known range. All of these taxa were identifiable at the time of survey with the exception of *Arthropodium vanleeuwenii* (P2). Suitable habitat for this taxon is described as elevations above 900 m on south-facing hillslopes of Brockman Iron Formation (Dillon and Macfarlane 2020). This habitat occurs within the Study Area, at the highest elevation areas of VTs 4 and 6. The areas of VT 4 and 6 within the Targeted Survey Area are not considered to represent suitable habitat; these areas occur at or below 750 m elevation and are north and north-west facing.

It is worthy of note that 'suitable habitat' as used to inform the assessment has been determined using details recorded at known locations. However, for many of the taxa known from the general vicinity of the Study Area, suitable habitat is difficult to define, as available habitat information is often vague or very broad and difficult to interpret; for example an area described as a stony plains and flats with red or brown clay or clay loam could feasibly occur almost anywhere in the Pilbara. Therefore, a precautionary approach has been adopted when assessing whether suitable habitat for a species is present in the Study Area.

All 62 taxa assessed are considered unlikely to occur within the Targeted Survey Area due to their known range, the extent of targeted survey undertaken and/or the absence of suitable habitat within the Targeted Survey Area.

Table 5.8 Likelihood of Occurrence of Further Significant Flora Taxa in the Study Area and Targeted Survey Area

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Targeted Survey Area
Acacia bromilowiana	P4	July to August	Rocky hills, breakaways, scree slopes, gorges, creek beds. Rocky red-brown loam with ironstone or laterite	Yes	3.9 km W of Study Area	**Possible** – known record in close proximity to Study Area, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Acacia daweana	P3	July to September	Low rocky rises, along drainage lines. Red stony clay loam	Yes	37 km W of Study Area	**Possible** – Study Area occurs outside of known range of taxon; however, suitable habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Acacia effusa	P3	May to August	Scree slopes of low ranges. Red-brown silty clay or clay loam with ironstone and quartz stones and pebbles	Yes	1.6 km NW of Study Area	**Possible** – known record in close proximity to Study Area, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Acacia subtiliformis	P3	May to June	Rocky ridges, hills and slopes, often with calcrete. Light brown or brown loam or silty clay	Yes	7.1 km NE of Study Area	Unlikely –potential habitat unlikely to be present in Study Area	Unlikely – potential habitat unlikely to be present in Targeted Survey Area, all potential habitat searched
Amaranthus centralis	P3	May to July	Plains, flats and granite outcrops. Gritty red clay loam	Yes	23.5 km E of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Aristida jerichoensis var. *subspinulifera*	P3	likely after significant rainfall	Plains and flats. Red-brown loamy clay or cracking clay	Yes	0.6 km W of Study Area	**Recorded in the Study Area**	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Aristida lazaridis	P2	likely after significant rainfall	Floodplains, drainage areas and plains. Red or red-brown clay loam, sometimes with ironstone	Yes	Within Study Area	**Recorded in the Study Area**	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Targeted Survey Area
Arthropodium vanleeuwenii	P2	September	Steep hill slopes and gorges. Red-brown or orange-brown loam, often with banded ironstone	No	20.4 km W of Study Area	**Possible** – Study Area occurs outside of the known range of taxon; however, suitable habitat present in Study Area and taxon not identifiable during the survey	**Unlikely** –taxon not identifiable during the survey however suitable habitat not present in Targeted Survey Area.
Cladium procerum	P2	likely year-round	Major creeks and gorges. Red gravelly sand	Yes	33.2 km NNE of Study Area	Unlikely –Study Area occurs within known range of taxon; however, potential habitat unlikely to be present in Study Area	Unlikely - potential habitat unlikely to be present in Targeted Survey Area
Corchorus sp.	-	No data on *FloraBase* but flowering during the survey	No data on *FloraBase* (not formally described)*;* in the Study Area this entity was recorded within a drainage line in VT10 on sandy loam soils	Yes	NA	**Recorded in the Study Area**	Unlikely - all potential habitat has been searched within the Targeted Survey area.
Dampiera metallorum	P3	June to October	High in the landscape on steep slopes, summits of hills. Red-brown stony clay loam over banded ironstone	Yes	10.3 km E of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)	P3	May to September	Floodplains and crabhole plains. Red-brown or brown cracking clay	Yes	11 km N of Study Area	Unlikely –Study Area occurs within known range of taxon, west of Study Area is area of cracking clay which extends into the western edge of VT 9; however the area of cracking clay has been searched	Unlikely - potential habitat unlikely to be present in Targeted Survey Area

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Targeted Survey Area
Eragrostis crateriformis	P3	likely after significant rainfall	Creek banks, depressions. Gritty or gravelly brown sandy loam, red-brown clay loam	Yes	20.7 km N of Study Area	**Possible** – Study Area occurs outside of the known range of taxon; however, suitable habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Eragrostis sp. Mt Robinson (S. van Leeuwen 4109)	P1	likely after significant rainfall	Steep slopes, summits. Brown or red-brown silty loam, often with banded ironstone	Yes	16.7 km S of Study Area	**Possible** – Study Area occurs outside of the known range of taxon; however, suitable habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Eremophila magnifica subsp. *magnifica*	P4	August to November	Hillslopes and gullies. Rocky red-brown or brown sandy loam, often with ironstone	Yes	11 km S of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Eremophila magnifica subsp. *velutina*	P3	August to September	Hillslopes and ridges. Red stony loam, often with ironstone or banded ironstone	Yes	15.1 km SW of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Eremophila naaykensii	P3	June to August	Rocky hill slopes, crests and gorges. Rocky red-brown clay loam, sometimes over banded ironstone	Yes	5.6 km E of Study Area	**Recorded in the Study Area**	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Eremophila pusilliflora	P2	March to July	Flats and plains. Red-brown sandy loam, often with ironstone	Yes	13.9 km W of Study Area	**Possible** –Study Area occurs on eastern edge of range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Targeted Survey Area
Eremophila spongiocarpa	P3	May to September	Weakly saline alluvial plains and dune slopes on margins of marshes and saline flats. Red-brown clay loam	Yes	38.2 km NE of Study Area	Unlikely –Study Area occurs outside of known range of taxon (known from plains adjacent to Fortescue Marsh), potential habitat unlikely to be present in Study Area	Unlikely - potential habitat unlikely to be present in Targeted Survey Area
Eremophila sp. West Angelas (S. van Leeuwen 4068)	P1	August to September	Hill slopes and crests. Brown or red silty loam over banded ironstone	Yes	17.9 km S of Study Area	**Possible** – Study Area occurs outside of the known range of taxon; however, suitable habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Euphorbia australis var. *glabra*	P3	likely after significant rainfall	Drainage lines and flats. Red-brown clay loam, sometimes with calcrete or silcrete	Yes	10.7 km N of Study Area	**Possible** – Study Area occurs outside of the known range of taxon; however, suitable habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Euphorbia clementii	P3	likely after significant rainfall	Fire responder. Recently burnt hills, slopes and undulating plains. Red-brown clay loam	Yes	29.1 km S of Study Area	Unlikely –Study Area is outside of known range of taxon according to FloraBase (WA Herbarium (1998-)); the record of this taxon near the Study Area is potentially erroneous given it is not verified by a vouchered specimen and is a significantly disjunct record	Unlikely – record near Study Area potentially erroneous, all potential habitat searched, however area not recently burnt.
Euphorbia ferdinandi s. lat	-	No data on *FloraBase* but flowering during the survey	No data on *FloraBase* (not formally described); recorded on VTs 7 and 8 on red-brown clay to clay loam with ironstone pebbles on plains in the Study Area	Yes	Unknown	**Recorded in the Study Area**	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Targeted Survey Area
Euphorbia inappendiculata var. *queenslandica*	P2	likely after significant rainfall	Flats and plains. Brown cracking clay, gilgai	Yes	26 km W of Study Area	Unlikely –Study Area occurs within known range of taxon, west of Study Area is area of cracking clay which extends into the western edge of VT 9; however the area of cracking clay has been searched	Unlikely - potential habitat unlikely to be present in Targeted Survey Area
Euphorbia stevenii	P3	likely after significant rainfall	Gentle slopes and plains. Brown or red-brown clay and cracking clay	Yes	31 km SSW of Study Area	**Possible** –Study Area occurs on eastern edge of range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Fimbristylis sieberiana	P3	May to June	Pool edges, sandstone cliffs and major creek lines. Brown or red-brown gritty sand	Yes	33.7 km E of Study Area	Unlikely –Study Area occurs within known range of taxon; however, potential habitat unlikely to be present in Study Area	Unlikely - potential habitat unlikely to be present in Targeted Survey Area
Glycine falcata	P3	May to September	Along drainage depressions in crabhole plains and clay plains. Brown or red cracking clay	Yes	11 km N of Study Area	Unlikely –Study Area occurs outside of known range of taxon, west of Study Area is area of cracking clay which extends into the western edge of VT 9; however the area of cracking clay has been searched	Unlikely - potential habitat unlikely to be present in Targeted Survey Area
Goodenia lyrata	P3	likely after significant rainfall	Claypans and plains. Red or brown sandy loam or clay loam	Yes	1.5 km S of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Targeted Survey Area
Goodenia sp. East Pilbara (A.A. Mitchell PRP 727)	P3	likely after significant rainfall	Low undulating plains, swampy plains. Red-brown clay soil, calcrete pebbles	Yes	6.6 km NE of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Grevillea saxicola	P3	February to June	Rocky hills, slopes and gullies. Red-brown sandy loam	Yes	20 km S of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Gymnanthera cunninghamii	P3	February to May, October to December	Drainage lines. Brown or red-brown sand or sandy loam	Yes	24.1 km NE of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	P2	April to August, October	Rocky gullies, drainage lines and gorges. Loamy skeletal soil	Yes	26.6 km SW of Study Area	**Recorded in the Study Area**	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Indigofera gilesii	P3	May, August	Rocky slopes, hills, creeklines and outcrops. Red or orange loam, often with ironstone	Yes	13.3 km W of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Iotasperma sessilifolium	P3	May to September	Edges of waterholes, plains, Cracking clay, black loam	Yes	23.3 km N of Study Area	Unlikely –Study Area occurs outside of known range of taxon, west of Study Area is area of cracking clay which extends into the western edge of VT 9; however the area of cracking clay has been searched	Unlikely - potential habitat unlikely to be present in Targeted Survey Area

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Targeted Survey Area
Ipomoea racemigera	P2	April to June	Drainage lines and flats. Brown silty loam	Yes	11.9 km NE of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Isotropis parviflora	P2	June to August	Rocky hills, slopes and undulating plains. Red or brown sandy loam, often with ironstone	Yes	8.2 km SE of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Kohautia australiensis	P2	likely after significant rainfall	Plains and hills. Brown or orange clay with calcrete	Yes	11.8 km N of Study Area	Unlikely – Study Area occurs outside the known range of taxon, potential habitat unlikely to be present in the Study Area	Unlikely – potential habitat unlikely to be present in Targeted Survey Area
Lepidium catapycnon	P4	September	Rocky hills and slopes. Red or brown loam or sandy loam, often with ironstone	Yes	15.6 km S of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Olearia mucronata	P3	July to August	Rocky hills, gullies and creeklines. Red-brown or orange-brown silty clay or sandy clay loam with ironstone	Yes	26.1 km SW of Study Area	**Possible** –Study Area occurs on eastern edge of range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Oxalis sp. Pilbara (M.E. Trudgen 12725)	P2	May to July	Gorges, gullies, drainage lines and slopes. Red loam or sandy loam, often with ironstone	Yes	15.6 km S of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Pilbara trudgenii	P3	September to October	Hill summits, steep slopes, screes, cliff faces. Skeletal red stony soil over ironstone	Yes	15.8 km S of Study Area	**Possible** –Study Area occurs north of known range of taxon; however, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Targeted Survey Area
Ptilotus mollis	P4	July to September	Rocky hills and screes with red or brown clay loam, often with ironstone	Yes	16.9 km S of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Rhagodia sp. Hamersley (M. Trudgen 17794)	P3	March to May, September	Plains and alluvial plains. Red or brown clay loam, often with ironstone gravel	Yes	Within Study Area	**Recorded in the Study Area**	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Rhodanthe ascendens	P1	August to September	Flats. Cracking clay and sand over clay	Unknown – limited information	32.1 km SW of Study Area	Unlikely –Study Area occurs within known range of taxon, west of Study Area is area of cracking clay which extends into the western edge of VT 8; however the area of cracking clay has been searched	Unlikely - potential habitat unlikely to be present in Targeted Survey Area. Study Area is outside known range.
Rhynchosia bungarensis	P4	May to November	Rocky hill slopes, drainage lines, gorges. Orange brown loam, often with ironstone	Yes	21 km NE of Study Area	**Possible** –Study Area occurs on southern edge of known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Rostellularia adscendens var. latifolia	P3	April to May	Rocky hills, gullies, floodplains and drainage lines. Red/brown sandy loam	Yes	8.6 km NNE of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Seringia exastia	T		Sandy soils on plains, creeks, rocky areas	Yes	5 km south of the Study Area	**Recorded in the Study Area**	**Recorded in the Targeted Survey Area**
Sida sp. Barlee Range (S. van Leeuwen 1642)	P3	likely after significant rainfall	Rocky hills, gullies and gorges. Red or brown sandy loam, often with ironstone	Yes	13.9 km S of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Targeted Survey Area
Sida sp. Hamersley Range (K. Newbey 10692)	P3	likely after significant rainfall	Ironstone gullies, slopes and breakaways. Skeletal red loam	Yes	37.4 km SSW of Study Area	**Possible** –Study Area occurs outside of known range of taxon; however, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Solanum kentrocaule	P3	May to September	Steep rocky gullies, slopes, gorges. Skeletal red loam	Yes	16.1 km S of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Stackhousia clementii	P3	April to September	Floodplains and flats. Clay loam, sometimes saline or with calcrete	Yes	20.6 km W of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Stylidium weeliwolli	P3	March to September	Drainage lines, pool edges, seepage areas. Sandy loam or clay	Yes	32.2 km E of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Swainsona thompsoniana	P3	April to August	Floodplains and flats. Red or brown cracking clay, clay loam	Yes	18.1 km W of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Synostemon hamersleyensis	P1	April to November	Steep hills, slopes, screes. Rocky red or brown sandy loam with ironstone or banded ironstone	Yes	23.7 km NE of Study Area	**Possible** –Study Area occurs outside (south) of known range of taxon; however, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Tetratheca fordiana	P2	April to July	Cliffs, ridges and breakaways. Skeletal soil with ironstone	Yes	26.8 km W of Study Area	**Possible** –Study Area occurs outside (east) of known range of taxon; however, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Targeted Survey Area
Teucrium pilbaranum	P2	April to September	Flats, clay pans and crabhole plains. Red or brown sandy loam, clay or cracking clay, sometimes with calcrete	Yes	15.4 km SSW of Study Area	Unlikely –Study Area occurs within known range of taxon, west of Study Area is area of cracking clay which extends into the western edge of VT 9; however the area of cracking clay has been searched	Unlikely - potential habitat unlikely to be present in Targeted Survey Area
Themeda sp. Hamersley Station (M.E. Trudgen 11431)	P3	May to July	Floodplains, drainage lines and flats. Red or brown clay loam, clay or cracking clay	Yes	4.6 km S of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Thryptomene wittweri	T	April to August	Breakaways and cliffs. Skeletal red-brown soil with sandstone or ironstone	Yes	22.9 km SW of Study Area	**Possible** –Study Area occurs outside (east) of known range of taxon; however, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Triodia sp. Karijini (S. van Leeuwen 4111)	P1	likely after significant rainfall	Hill crests, moderate to steep hill slopes. Grey, brown or red sandy loam or silty loam, often with ironstone	Yes	3.7 km W of Study Area	**Possible** –Study Area occurs on eastern edge of known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Triodia sp. Mt Ella (M.E. Trudgen 12739)	P3	likely after significant rainfall	Rocky slopes, gullies, ridges gorges and associated drainage lines/floodplains. Red or brown sandy clay loam, often with ironstone	Yes	12.3 km SW of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched
Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684)	P1	March to September	Floodplains and drainage areas. Red or brown clay loam or silty loam	Yes	1.7 km S of Study Area	**Possible** –Study Area occurs within known range of taxon, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Targeted Survey Area
Xerochrysum boreale	P3	July, September	Stony plains and flats. Red or brown clay or clay loam	Yes	21.6 km SW of Study Area	**Possible** –Study Area occurs outside (north) of known range of taxon; however, potential habitat present in Study Area	Unlikely – potential habitat present in Targeted Survey Area; however, all potential habitat searched

*Source: WA Herbarium (1998-)

5.2.6 Introduced Flora Taxa

Seven introduced flora taxa were recorded within the Study Area by the current survey. **Table 5.9** lists location information and comments regarding the significance of these taxa, including ecological impact and invasiveness ratings for each introduced taxon under Ecological Impact and Invasiveness Ratings from the Department of Parks and Wildlife for the Pilbara Region (DBCA 2014). None of the recorded introduced flora taxa are Declared Pests under the BAM Act (DPIRD 2022) or WoNS (Weeds Australia 2022).

Four introduced flora taxa recorded in the Study Area by the survey are rated as having 'High' ecological impact (**Table 5.9**). Taxa with this ecological impact rating are considered significant weeds capable of causing acute disruption of ecological processes, as well as dominating and/or significantly altering the vegetation structure, composition and function of ecosystems (DBCA 2014).

Five introduced flora taxa recorded in the Study Area by the current survey are rated as having 'Rapid' invasiveness in native vegetation (**Table 5.9**) (DBCA 2014). These taxa are typically disturbance opportunists and are relatively common around disturbance areas, and as well as along drainage lines and other areas of periodic inundation.

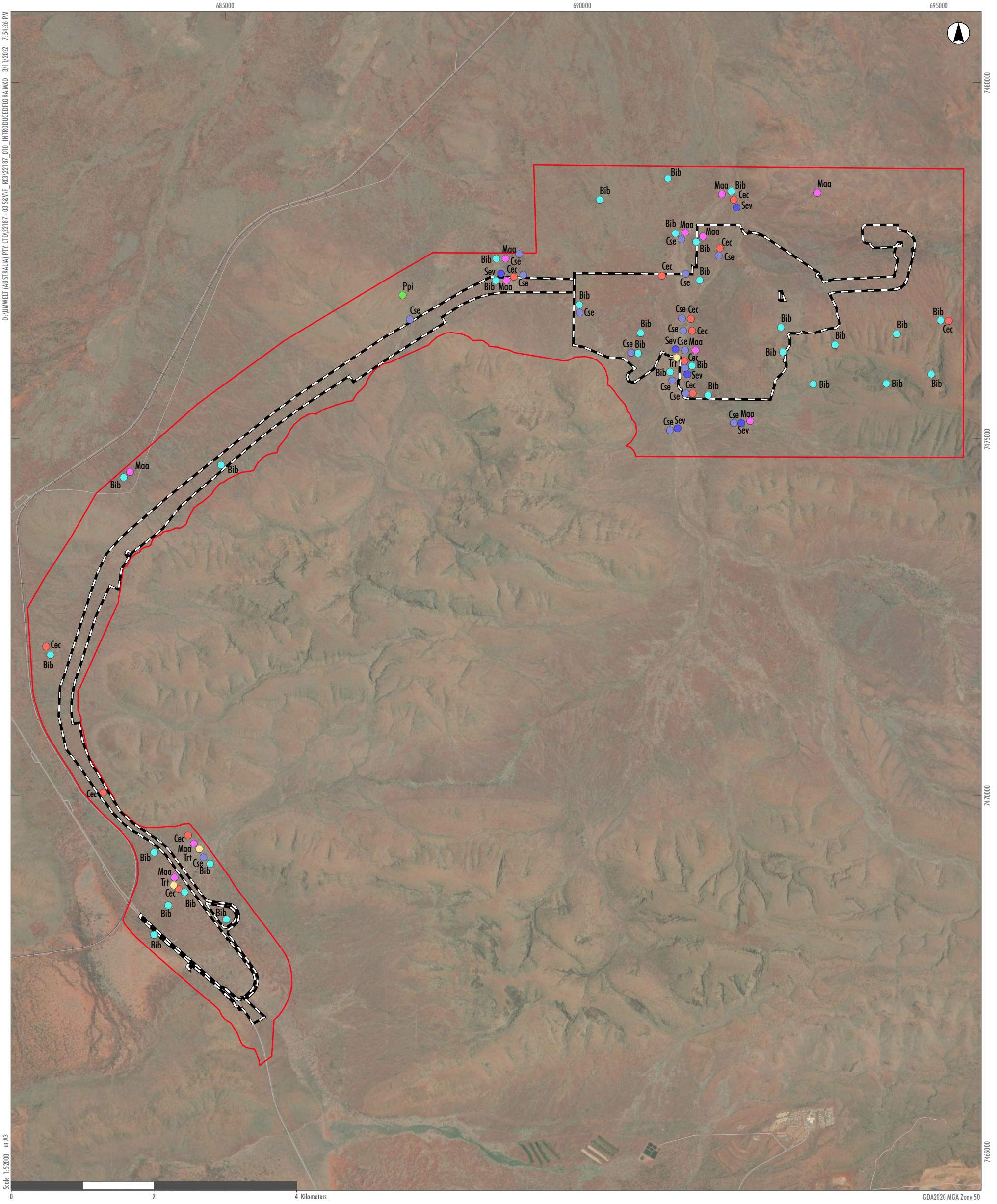
It is worthy of note that despite the High/Rapid ecological impact and invasiveness ratings of the introduced flora taxa recorded in the Study Area, no introduced taxa were widespread in the Study Area, and the vegetation of the Study Area was considered to be in mostly Excellent condition (**Section 5.2.11**). *Bidens bipinnata*, *Cenchrus ciliaris* and *C. setigera* were the most common introduced taxa in terms of numbers of locations and individuals recorded; these taxa were likewise identified in the top 20 most common weed taxa in terms of presence records assessed in a Pilbara weed risk assessment (Webber *et al.* 2017). Introduced flora were most commonly recorded in drainage areas, and presented further in section **5.2.11**.

Locations of introduced flora taxa are presented on **Figure 5.8**.

Table 5.9 Introduced Flora Taxa Recorded in the Study Area

Taxon	Common Name	Number of Locations	Number of Individuals	VTs	Ecological Impact*	Invasiveness*
Bidens bipinnata	Bipinnate Begger's Tick	31	824	1, 2, 4, 6, 7, 9, 10	Unknown	Rapid
Cenchrus ciliaris	Buffel Grass	13	149	1, 4, 7, 10	High	Rapid
Cenchrus setiger	Birdwood Grass	17	2,654	1, 7, 10	High	Rapid
Malvastrum americanum	Spiked Malvastrum	11	70	1, 7, 10	High	Rapid
Portulaca pilosa	Pink Purslane	1	1	2	Not rated	Not rated
Setaria verticillata	Whorled Pigeon Grass	6	20	1, 7, 10	High	Rapid
Tribulus terrestris	Caltrop	3	5	7, 10	Unknown	Moderate

* Data from DBCA (2014)



Legend

- Study Area
- Proposed Development Envelope

Introduced Flora Taxa (Umwelt 2022)

- Bib **Bidens bipinnata*
- Cec **Cenchrus ciliaris*
- Cse **Cenchrus setiger*
- Maa **Malvastrum americanum*
- Ppi **Portulaca pilosa*
- Sev **Setaria verticillata*
- Trt **Tribulus terrestris*

FIGURE 5.8

Introduced Flora Recorded by the 2022 Field Surveys

5.2.7 Flora Classification Results

The PATN software package (Belbin and Collins 2013) initially suggested that classification of quadrats into 11 groups may be appropriate for the data analysed. The resulting dendrogram (**Appendix G**) and taxon group matrix (**Appendix H**) were therefore initially examined at this level, to determine the plausibility of groups with regard to taxon groups and field observations. This process identified one group of quadrats (containing two quadrats) that did not represent a plausible VT based on field observations and site knowledge. Both quadrats were manually reassigned to related groups, as indicated in **Appendix I**, based on detailed investigation of their species composition, as well as other characteristics including topography, soils, and geographic location.

The examination of the dendrogram also identified an additional two quadrats that were considered to have been misclassified, for similar reasons. These quadrats were also reassigned, as presented in **Appendix I**.

It was ultimately determined that there were 10 plausible groups that are considered to represent VTs in the Study Area; these groups were resolved at differing levels of similarity. The groups are labelled in the dendrogram in **Appendix G** and taxon group matrix in **Appendix H**. The initial 11 groups identified by the analysis are also indicated on the dendrogram in **Appendix G** and taxon group matrix in **Appendix H**.

5.2.8 Vegetation Types

As noted above, 10 VTs were defined in the Study Area via floristic composition classification and subsequent examination of quadrat data. The VTs are considered to belong to three broad vegetation groups based on soils and topography, and are also separated on the analysis dendrogram (**Appendix G**):

- Group 1: VTs 1, 2 and 3

  Woodlands over sparse shrublands and hummock grasslands on gentle lower to upper slopes on red-brown clay loams. This supergroup was mapped on the gentle foot slopes associated with the hill relevant to the Gaguna heritage area (Study Area associated with the GNHI DE; Access Rd DE and Mine DE), and areas of lower relief between the steeper ranges present in the south of the Study Area associated with the Mine DE and vegetation associated with the McKay land system. Representative taxa are from species groups L and O, with common species from species groups D, B and C, and lacking in representation of species groups E-J (representative of group 3) and Q (representative of group 2) (**Appendix H**).

- Group 2: VTs 4, 5 and 6

  Open Woodlands over sparse shrublands and tussock and hummock grasslands on steep slopes, crests, gullies and gorges with exposed ironstone and skeletal soils. This supergroup was mapped on areas of higher relief, steep, rocky areas with exposed ironstone on the range within the eastern portion of the Study Area associated with the Mine DE, associated with the Newman and McKay land systems in this area. Representative taxa are from species groups K and Q, with common representation of species groups B and D and lacking species from species groups E-J (**Appendix H**).

- Group 3: VTs 7, 8, 9 and 10

  Mulga Woodlands over tussock grasslands and open woodlands over sparse shrublands over hummock grasslands on red-brown clay-loam on plains; and open woodlands over shrublands over hummock grasslands on major and minor drainage lines. This group was mapped on plains within the Study Area

associated with the GNHI DE, the Access Rd DE and in the vicinity of the western part of the Mine DE, as well as Mine Creek and associated tributaries in the vicinity of the Mine DE. Representative taxa are from species groups E-J, with common taxa from species groups B-D (and minor from A) and lacking in representation from species groups K-Q (**Appendix H**).

The review of the relevé data did not identify any additional VTs in the Study Area. Relevé sites were therefore assigned to one of the 10 VTs defined by the floristic classification analysis, following detailed investigation of their species composition, topography, soils, and geographic location.

The locations of quadrats and/or relevés within each VT were used in conjunction with examination of aerial photography and field notes taken during the 2022 survey to develop VT mapping polygon boundaries across the Study Area.

Table 5.10 presents a description of each of the VTs mapped in the Study Area, including location, area mapped, sampling regime, significant flora taxa ('^' denotes preferred habitat for a significant taxon, significant flora taxa recorded in 2022 and by previous surveys), average taxon richness and a description of variation found within the VT. **Figure 5.9** presents an overview of the distribution of VTs. Raw quadrat and relevé data and parameters are presented in **Appendix E**. Detailed VT mapping with locations of quadrats and relevés established by the 2020 and 2021 surveys are presented in **Appendix J**. **Appendix K** presents a taxon-VT matrix and **Appendix L** presents the results of the indicator taxon analysis.

VTs 1, 7 and 9 had the greatest extents within the Study Area (combined VTs covering 67.5% of the Study Area); of these, they were also dominant in the Development Envelope (76.9 % of the DE).

Table 5.10 Summary of VTs Mapped in the Study Area

VT	Summary	Representative Photograph
1	**Description:** Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and/or *E. gamophylla* with isolated *Corymbia deserticola* subsp. *deserticola* over low to mid sparse to open shrubland dominated by species including *Acacia atkinsiana* and *A. ancistrocarpa* over low open hummock grassland of *Triodia pungens*, *T. vanleeuwenii* and *T. wiseana* and low open tussock grassland of *Themeda* sp. Mt Barricade (M.E. Trudgen 2471) and *Paraneurachne muelleri* on red-brown sandy clay loam to clay loam on gently inclined mid to lower slopes and associated drainage lines **Area mapped:** Study Area – 1429.2 ha (37.8 % of Study Area); Development Envelope – 445.0 ha (50% of the DE) **Sampling:** 33 quadrats (C01, C02, C03, C08, C09, C15, C16, C18, C21, C27, C29, C30, C31, C34, C44, C46, C49, C51, K02, K03, K06, K10, K14, K20, K21, K22, K24, K27, K28, K30, K31, K36, K44) **Indicator taxa:** *Ptilotus rotundifolius*, *Senna glutinosa* subsp. x *luerssenii* **Significant taxa:** *Rostellularia adscendens* var. *latifolia* (P3)^;*Seringia exastia* (T) **Average taxon richness per quadrat:** 37 ± 10 **Notes:** VT 1 was mapped on undulating plains (**Photo 5-9**), gently inclined slopes **(Photo 5-10**) and occasionally minor associated drainage lines, with no outcropping, mainly associated with the Boolgeeda and Platform land systems (DPIRD 2019), and the Hamersley_18 VSA. VT 1 had the greatest mapped extent in the Study Area and correspondingly had the highest number of representative quadrats, which is reflective of the relatively widespread nature of these land systems. Despite a relatively high species richness of annual and perennial shrubs and forbs they provided relatively little foliage cover and were not dominant in any stratum. Quadrats of VT 1 had a variety of burn ages, ranging from >10 years, 5-10 years (Photo 5-9) and <5 years, with the greatest portion of quadrats subject to burn in November 2017 (**Figure 2.2**; DBCA 2022). VT 1 is represented by two branches on the analysis dendrogram (**Appendix G**); which roughly represent VT 1 quadrats located in the far north-east of the Study Area (Sheet 4 of **Appendix J**) (top dendrogram branch) and the quadrats downslope of the hills representing the Gaguna heritage area and within the Study Area associated with the Mine DE (Sheets 2, 3, 5, 6, 9 of **Appendix J)**. The two indictor taxa are	 **Photo 5-8: VT 1 (Quadrat C08)** **Photo 5-9: VT 1 (Quadrat C21)**

VT	Summary	Representative Photograph
	commonly recorded on stony or rocky hills, however are also associated with more sandy soils (WA Herbarium 1998-). VT 1 is represented strongly by taxa from species group D, which were also common to VTs 2 and 3 (**Appendix H**). Although VT 1 is most closely related to VTs 2 and 3, differences include greater representation of taxa such as *Eucalyptus gamophylla*, *Duperreya commixta* and *Themeda* sp. Mt Barricade (M.E. Trudgen 2471) (species group C), and reduced representation of taxa such as *Acacia hilliana*, *Fimbristylis simulans*, *Acacia adoxa* subsp. *adoxa*, *Goodenia stobbsiana* and *G. triodiophylla*.	
2	**Description:** Low open woodland of *Eucalyptus leucophloia* subsp. *leucophloia* with occasional *Corymbia deserticola* subsp. *deserticola* and *C. hamersleyana* over low sparse shrubland of *Acacia hilliana* and *Hakea chordophylla* over open hummock grassland of *Triodia vanleeuwenii* and *T. wi*seana on red-brown clay loam with ironstone pebbles on gently inclined lower to upper slopes **Area mapped:** Study Area – 382.3 ha (10.1 % of Study Area), Development Envelope – 85.6 ha (9.6 % of the DE) **Sampling:** 16 quadrats (C04, C20, C22, C25, C26, C41, C47, K15, K16, K23, K26, K29, K33, K46, K47, K48) **Indicator taxa:** *Acacia adoxa* var. *adoxa*, *Acacia hilliana*, *Fimbristylis simulans*, *Goodenia stobbsiana*, *Goodenia triodiophila*, *Ptilotus calostachyus*, *Triodia vanleeuwenii* **Significant taxa:** *Seringia exastia* (T) **Average taxon richness per quadrat:** 36 ± 8 **Notes:** VT 2 was mapped in areas mainly adjoining VT 1 on the Boolgeeda land system and extended onto slopes associated with the Newman land system; it is also associated with the Hamersley_82 VSA. VT 2 was represented by a relatively large number of quadrats, reflecting the widespread nature of this vegetation and landform type (Sheets 1-5 and 7-8 of **Appendix J**). Similar to VT 1, few of the taxa recorded dominated the existing strata, with the majority of taxa contributing limited foliage cover. The indicator taxa are commonly recorded on a variety of soils, including sandplains, rocky rises and stony hills. Floristics of VT 2 were represented by taxa mainly from species group D, which was common to group 1 (and indeed, more widely throughout the Study Area); however had a greater representation of taxa such as *Acacia adoxa* var. *adoxa*, *Goodenia stobbsiana*, *Goodenia triodiophylla*, *Triodia vanleeuwenii* and	 **Photo** 5-10: VT 2 (Quadrat C41)

VT	Summary	Representative Photograph
	Ptilotus calostachyus in comparison to VT 1. VT 2 also had representation from taxa of species group L including *Acacia hilliana*, *Fimbristylis simulans* and *Gompholobium oreophilusm* (**Appendix H)**. The majority of quadrats in this VT had experienced a burn in the preceding 10 years, most of them within 5 years (November 2017) (**Photo 5-11**; quadrat on foothills), and others approximately 8.5 years ago (January 2014) (**Photo 5-12**; quadrat on lower slope); two quadrats had no data and therefore had not been burnt in excess	 **Photo 5-11: VT 2 (Quadrat C47)**
3	**Description:** Isolated trees of *Corymbia hamersleyana*, *Eucalyptus leucophloia* subsp. *leucophloia* and *E. gamophylla* over low sparse shrubland of mixed Acacia species over low hummock grassland of *Triodia pungens* and *T. wiseana* on red-brown sandy clay loam on mid to lower slopes with ironstone pebbles **Area mapped:** Study Area – 48.2 ha (1.3 % of Study Area); Development Envelope – 7.3 ha (0.8% of the DE) **Sampling:** 2 quadrats (K50; R01) **Indicator taxa:** *Acacia adsurgens*, *Acacia atkinsiana*, *Acacia minyura*, *Acacia tenuissima*, *Acacia pachyacra*, *Amphipogon sericeus*, *Gompholobium oreophilum*, *Schizachyrium fragile*, *Senna glutinosa* subsp. *pruinosa*, *Senna pleurocarpa* var. *angustifolia*, *Senna pleurocarpa* var. *pleurocarpa*, *Seringia exastia* (T), *Triodia pungens* **Significant taxa:** *Aristida lazaridis* (P2); *Seringia exastia* (T) **Average taxon richness per quadrat:** 33 ± 3 VT 3 is mapped on one area on the far southern end of the Study Area in the Great Northern Highway Intersection area (Sheet 11 of **Appendix J). This area corresponds to that mapped by Rapallo (2021a) as**	 **Photo 5-12: VT 3 (Quadrat R01)**

VT	Summary	Representative Photograph
	VT 'A'. It is associated with the Boolgeeda land system and the Hamersley_83 VSA. In the analysis dendrogram two further quadrats (C23 and K01) were grouped into this VT, however it was determined that re-allocation of these quadrats was warranted (see Appendix I). A relatively high number of indicator species were determined for VT 3, however many of these taxa had been recorded in other VTs from group 1. The species richness of this VT is less than that of the other VTs in this group; partially due to the lower number of quadrats, but also the quadrats themselves recorded generally fewer taxa. Taxa recorded were predominantly those from species group D (**Appendix H**). One of the quadrats was long unburnt (>10 years) (**Photo 5-13**, quadrat on a lower slope); the other was burnt in October 2015 (6.5 years since fire) (**Photo 5-14**, quadrat on a midslope).	 **Photo 5-13: VT 3 (Quadrat K50)**
4	**Description:** Low open woodland of *Corymbia ferriticola* or *Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* with *Ficus brachypoda* occurring on gorge and gully areas, over low sparse shrubland of mixed species dominated by *Corchorus laniflorus*, *Dodonaea viscosa* subsp. *mucronata* and *Gossypium robinsonii* over sparse hummock grassland dominated by *Triodia pungens* with *T. wiseana* and tussock grasses including *Cymbopogon ambiguus* and *Aristida burbidgeae* on red brown clay loam on steep upper slopes, gullies, breakaways and gorges with significant ironstone outcropping **Area mapped:** Study Area – 95.3 ha (2.5 % of Study Area), Development Envelope – 1.0 ha (0.1% of the DE) **Sampling:** Six quadrats (C24; C35; C36; C42; C52; C55) and two relevés (CR04; CR05) **Indicator taxa:** *Abutilon* sp. Dioicum (A.A. Mitchell PRP 1618), *Amaranthus undulatus*, *Aristida burbidgeae*, *Astrotricha hamptonii*, *Brachychiton acuminatus*, *Capparis mitchellii*, *Capparis spinosa* subsp. *nummularia*, *Corymbia ferriticola*, *Corchorus laniflorus*, *Cucumis variabilis*, *Cymbopogon ambiguus*, *Cynanchum pedunculatum*, *Cyperus cunninghamii* subsp. *cunninghamii*, *Dodonaea pachyneura*, *Dodonaea viscosa* subsp. *mucronata*, *Eremophila naaykensii* (P3), *Eremophila petrophila* subsp. *petrophila*, *Euphorbia trigonosperma*, *Ficus brachypoda*, *Gomphrena cunninghamii*, *Hibiscus* sp. Gurinbiddy Range	 **Photo 5-14: VT 4 (Quadrat C24)**

VT	Summary	Representative Photograph
	(M.E. Trudgen MET 15708) (P2), *Paspalidium clementii*, *Ptilotus astrolasius*, *Senna venusta*, *Sida* sp. Shovelanna Hill (S. van Leeuwen 3842), *Solanum cleistogamum*, *Solanum gabrielae*, *Stylobasium spathulatum*, *Tinospora smilacina*, *Triodia biflora*, *Triumfetta leptacantha*, *Triumfetta maconochieana* **Significant taxa:** *Eremophila naaykensii* (P3)^, *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)^ **Average taxon richness per quadrat:** 53 ± 12 VT 4 was mapped on steep, rocky areas associated with the range present in the south-eastern corner of the Study Area associated with the Mine DE, corresponding to the Newman land system (**Figure 5.1;** Sheets 4 and 8 of **Appendix J).** VT 4 was species richness in comparison to the other VTs in this group and had the highest species richness per quadrat, however relatively few taxa contributed significantly to the foliage cover to the stratum present. Although significant representation of taxa from species groups B, D and K were present (similar to the other VTs of group 2), VT 4 represents the almost exclusive presence of taxa from species group Q, which include the taxa as listed above as indicator taxa. These taxa are known to occur on rocky sites, including gorges, gullies, rocky hills and screen slopes. Other common taxa to VT 4 which were not commonly recorded in other VTs include *Cucumis variabilis*, *Pterocaulon sphacelatum*, *Arivela viscosa* (species group O) and *Solanum cleistogamum*. This clear species differentiation is due to the landform upon which it occurs, including rocky gorge areas. The vegetation associated with VT 4 was mostly burnt 8.5 years prior to survey (October 2014 burn) (**Photo 5-15**; quadrat in a gorge); however one representative quadrat was burnt 4.5 years prior to survey (November 2017) (**Photo 5-16**; quadrat on a breakaway).	 **Photo 5-15: VT 4 (Quadrat C52)**

VT	Summary	Representative Photograph
5	**Description:** Occasional *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* over mixed isolated shrubs including *Acacia inaequilatera* and *Senna artemisioides* subsp. *glutinosa* over low hummock grassland of *Triodia wiseana* on steep upper slopes and associated drainage lines on red-brown clay loam with exposed ironstone and dolerite **Area mapped:** Study Area – 523.4 ha (13.8 % of Study Area), Development Envelope – not mapped in the DE **Sampling:** Three quadrats (K04; K05; K01) **Indicator taxa:** *Acacia inaequilatera*; *Fimbristylis dichotoma*; *Tephrosia* sp. Newman (A.A. Mitchell PRP 29) **Significant taxa:** NA **Average taxon richness per quadrat:** 27 ± 10 VT 5 is comprised of three quadrats, two of which grouped in the analysis dendrogram, and one of which was manually grouped (K01). VT 5 is mapped in the far north-eastern corner of the Study Area associated with the Mine DE, on an area of higher relief (Sheet 4 of **Appendix J)**. This area is associated with the McKay land system, which although is not extensive in the Study Area extends further northwards (**Figure 5.1**). Although the indicator taxa are widespread in the Pilbara, they commonly occur on stony areas. VT 5 is most closely associated to VT 4, however fewer taxa were recorded in VT 5 and it is lacking the presence of taxa associated with species group Q (representative of VT 4) and K (representative of VTs 4 and 6). Although moderately diverse, most flora taxa provided little cover and the structure of the vegetation was dominated by the few taxa listed in the description. This VT was sampled both on upper slopes (**Photo 5-17**) and associated small drainage lines **(Photo 5-18**). VT 5 was burnt over two occasions in the last ten years; in October 2014 (8.5 years prior to survey) and November 2017 (4.5 years prior to survey). It is unlikely that this fire history has influenced the separation of this VT from the VTs 4 and 6 (group 2), due to the differing land system which this VT occurs and associated differences in geology, soil and microhabitats.	 **Photo 5-16: VT 5 (Quadrat K04)** **Photo 5-17: VT 5 (Quadrat K05)**

VT	Summary	Representative Photograph
6	**Description:** Low woodland to open woodland of *Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* and occasional *E. kingsmillii* over mid isolated shrubs of *Acacia hamersleyensis* and *Grevillea wickhamii* ?subsp. *hispidula* over low hummock grassland of *Triodia wiseana* on red brown sandy clay loam on steep mid to upper slopes with exposed ironstone **Area mapped:** Study Area – 316.6 ha (8.4 % of Study Area), Development Envelope – 3.7 ha (0.4% of the DE) **Sampling:** Nine quadrats (C23; C37; C40; C48; K35; K39; K40; K41; K51); one relevé (CR01) **Indicator taxa:** *Cassytha capillaris*, *Cheilanthes brownii*, *Eucalyptus kingsmillii*, *Scaevola browniana* subsp. *browniana* **Significant taxa:** *Seringia exastia* (T) **Average taxon richness per quadrat:** 25 ± 9 VT 6 was mapped in the same landscape as VT 4, on the range present in the south-eastern corner of the Study Area surrounding the Mine DE, in association with the Newman land system (Sheets 4 and 8 of **Appendix J**). However, VT 6 was recorded and mapped on the steep upper slopes of this range, with VT 4 mapped on the associated gorges and gullies. Quadrat C23 was manually grouped into VT 6, and one relevé was also allocated to VT 6. The species richness was generally less than that recorded in VT 4, however as with previous VTs relatively few of the taxa present contributed significant cover the stratum of the VT. Taxa commonly occurring in VT 6 are from species groups K, B and D, which were all common in VTs in group 2. VT 6 was floristically most similar to VT 4, which is expected as they occur on similar habitats on the same range of hills; however, there was no or little representation of taxa from species group Q, nor some others common to VT 4, for example *Cymbopogon ambiguus* or *Jasminium didymium* subsp lineare (species group C). The indicator taxa of VT 6 are commonly found on hillslopes and ironstone areas, however *Tephrosia* sp. Newman (A.A. Mitchell PSP 29) is also commonly recorded on basalt plains and drainage lines (WA Herbarium 1998-). Of note is *Eucalyptus kingsmillii*, which was not recorded in any other VT, and is mentioned by Beard (1975) as occurring on summits.	 **Photo 5-18: VT** 6 **(Quadrat** C37) **Photo 5-19: VT 6 (Quadrat K51)**

VT	Summary	Representative Photograph
	The vegetation of this VT was mainly burnt in January 2014 (8.5 years prior to survey) (**Photo 5-19; Photo 5-20**; both quadrats on upper slopes); however, several quadrats were also more recently burnt in November 2017 (4.5 years prior to survey).	
7	**Description:** Isolated trees of *Corymbia hamersleyana*, *Eucalyptus leucophloia* subsp. *leucophloia* and *Eucalyptus xerothermica* over low open to sparse shrubland dominated by *Acacia aptaneura*, *A. aneura* and *A. pruinocarpa* over low tussock grassland to sparse tussock grassland dominated by *Themeda* sp. Mt Barricade (M.E. Trudgen 2471), *Enneapogon polyphyllus*, *Chrysopogon fallax* and *Aristida* spp. with occasional *Triodia pungens* on red brown clay loam with some ironstone pebbles on plains **Area mapped:** Study Area – 523.4 ha (13.8 % of Study Area), Development Envelope – 171.9 ha (19.3 % of the DE) **Sampling:** 16 quadrats (C05; C11; C13; C32; C33; C53; K07; K17; K37; K42; K45; Q03; Q04; Q09; Q14; Q26); 11 quadrats recorded by Rapallo (2021a)) (Q02-Rap; Q05-Rap; Q06-Rap; Q09-Rap; Q10-Rap; Q11- Rap; Q12 -Rap; Q13-Rap; Q14-Rap; Q17-Rap) **Indicator taxa:** *Acacia aptaneura*, *Acacia aneura*, *Acacia ayersiana*, *Acacia acradenia*, *Acacia* ?*ayersiana*, *Acacia pruinocarpa*, *Dactyloctenium radulans*, *Duperreya commixta*, *Enneapogon polyphyllus*, *Enneapogon robustissimus*, *Maireana villosa*, *Perotis rara*, *Ptilotus helipteroides*, *Salsola australis*, *Sclerolaena cornishiana* **Significant taxa:** *Aristida lazaridis* (P2), *Euphorbia ferdinandi* s. lat. (potentially undescribed), *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)^ **Average taxon richness per quadrat:** 52 ± 10 VT7 broadly represents the mulga woodlands and shrublands within the Study Area. Although isolated *Corymbia* and *Eucalyptus* trees were recorded, the dominant upper stratum is the tall shrubland which was typically dominated by mulga species (*A. aptaneura* and *A. aneura* in the Study Area), although other taxa such as *A. pruinocarpa*, *A. atkinsoniana* and *A. ayersiana* were generally present. The lower stratum also differed from the grasslands of the majority of the other VTs, being dominated by taxa other than the ubiquitous *Triodia*. However, common to other VTs presented each stratum were dominated by relatively few taxa.	 **Photo 5-20: VT 7 (Quadrat C11)**

VT	Summary	Representative Photograph
	Several indicator taxa, including *Maireana villosa*, *Salsola australis* and *Sclerolaena cornishiana* highlight the higher salinity of the soils on which this VT was mapped. VT 7 contained taxa from species groups F-J which were not well represented in other VTs; however, common taxa were those from species group C (**Appendix H**). The average species richness of this VT was higher than all others recorded in group 3. VT 7 was mapped on the Boolgeeda land system and in association with the Hamersley_18 VSA. VT 7 was mapped relatively widespread in the Study Area adjacent to the GNHI DE (Sheets 10 and 11 of **Appendix J**), in the Access Rd DE (Sheets 2, 5 and 9 of **Appendix J**) and in the section of the Mine DE west of the ranges in the Study Area, on plains downslope of areas of mapped VT 1 and in the vicinity of Mine Creek which occurs in this area (VT 10) (Sheets 2 and 3 of **Appendix J**). The mapped area in the vicinity of the GNHI DE is at the upper reaches of a drainage system which flows north-eastwards around the hills associated with the Gaguna heritage area towards the Mine DE within the Study Area. The majority of quadrats of VT 7 have not been burnt in the past 10 years (**Photo 5-21)**; several were burnt in October 2015 (6.5 years prior to survey) (**Photo 5-22**; quadrat showing recovery after the last burn, approximately 6.5 years prior to survey); and one quadrat was burnt in November 2017 (4.5 years prior to survey). A split in the analysis dendrogram for VT 7 separates the quadrats near the GNHI DE and Access Rd DE apart from those in the Study Area associated with the Mine DE (Appendix G), however, floristic differences are minor and do not warrant further splitting of this VT.	 **Photo 5-21: VT 7 (Quadrat K07)**

VT	Summary	Representative Photograph
8	**Description:** Isolated trees of *Eucalyptus xerothermica* over tall open to sparse shrubland of *Hakea lorea* subsp. *lorea* and *Acacia aptaneura* over low open tussock grassland of *Aristida contorta*, *A. inaequiglumis* and *Themeda triandra* on red-brown sandy clay to clay on plains **Area mapped:** Study Area – 68.9 ha (1.8 % of Study Area), Development Envelope – 3.6 ha (0.4% of the DE) **Sampling:** Three quadrats (K49; Q19; Q24); two Rapallo quadrats (Q23-Rap; Q27-Rap) **Indicator taxa:** *Abutilon otocarpum*, *Alternanthera nana*, *Aristida inaequiglumis*, *Chrysopogon fallax*, *Digitaria ammophila*, *Eremophila lanceolata*, *Goodenia nuda*, *Panicum effusum*, *Panicum decompositum*, *Ptilotus obovatus*, *Sida platycalyx*, *Sida* sp. L (A.M. Ashby 4202) **Significant taxa:** *Aristida jerichoensis* var. *subspinulifera* (P3)^, *Aristida lazaridis* (P2)^, *Euphorbia Euphorbia ferdinandi* s.lat (potentially undescribed)^, *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) **Average taxon richness per quadrat:** 31 ± 4 VT 8 is most closely floristically related to VT 7 and is mapped in proximity to that VT in the southern end of the Study Area, adjacent to the GNHI DE (Sheets 10 and 11 of **Appendix J**). Both the species richness per quadrat and diversity were lower in comparison to VT 7, generally lacking in taxa in species groups D – I, and a portion of C, which were common to VT 7. A variety of mid stratum taxa were present, however as with other described VTs foliage covers were generally very low. Indicator taxa generally occur on a variety of stony loams, plains, mulga hardplain and stony flats. VT 8 is most closely associated with the Wannamunna land system, which although poorly represented in the Study Area extends outside of the Study Area in both a westerly and easterly direction (**Figure 5.1**). One quadrat in this VT (K49) was established in a small area of cracking clay, on the south-western side of the Great Northern Highway; the cracking clay is limited to this side of the GNH in the Study Area, however extends further to the west outside of the Study Area (by review of aerial photography). The vegetation in this area is generally long unburnt (>10 years) (**Photo 5-23)**, although one quadrat in this VT was burnt in October 2015 (6.5 years prior to survey) (**Photo 5-24).**	 **Photo 5-22: VT 8 (Quadrat Q19)** **Photo 5-23: VT 8 (Quadrat Q24)**

VT	Summary	Representative Photograph
9	**Description:** Low open woodland of *Corymbia hamersleyana*, *C. deserticola* subsp. *deserticola*, *Eucalyptus gamophylla* and *Eucalyptus leucophloia* subsp. *leucophloia* over tall sparse shrubland of *Acacia atkinsoniana* and occasional *A. ancistrocarpa* and *A. aptaneura* over low hummock grassland dominated by *Triodia pungens* and occasional *T. wiseana* with *Paraneurachne muelleri* also dominant on red-brown clay loam with ironstone pebbles on plains **Area mapped:** Study Area – 600.8 ha (15.9 % of Study Area), Development Envelope – 102.1ha (11.5 % of the DE) **Sampling:** 17 quadrats (C06; C07; C10; C12; C14; C28; C38; C39; C50; C54; K08; K09; K11; K25; K38; K52: Q01) **Indicator taxa:** *Goodenia microptera*, *Hibiscus burtonii*, *Hibiscus sturtii* var. *platychlamys*, *Paraneurachne muelleri*, *Vincetoxicum lineare* **Significant taxa:** *Aristida lazaridis* (P2), *Corchorus* sp. (potentially undescribed)^, *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) **Average taxon richness per quadrat:** 49 ± 11 VT9 is mapped on the Boolgeeda land system, and the Hamersley_18 VSA, on plains in the Study Area to the north-west of the Mine DE (Sheets 2 and 3 of **Appendix J**), along the Access Rd DE (Sheets 1, 2, 5,9 and 10 of **Appendix J**) and in the GNHI DE portions of the Study Area (Sheets 10 and 11 of **Appendix J**). It is associated with areas mapped as VT 7, and mulga was recorded as commonly occurring within this VT (*A. aptaneura* and *A. aneura*), however the lower stratum is dominated by *Triodia* species. Floristically it is most similar to VT 10, however having less representation of taxa from species groups A and B and greater representation from species group C; with taxa in group D also commonly present (**Appendix H**). A variety of forbs and shrubs were recorded in this VT, however the vast majority had little foliage cover and did not dominate any stratum. Indicator taxa for VT 9 are commonly recorded on a variety of habitats including plains, drainage lines, sandplains and footslopes. A split in the analysis dendrogram roughly separates quadrats located on the Access Rd DE (lower branch) from those quadrats occurring in and northwards of the Mine DE (upper branch) portions of the Study Area, however floristic differences between the two branches are minor and do not warrant further separation and may be related to differences in burn age. Approximately half of this VT is long unburnt	 **Photo 5-24: VT 9 (Quadrat K52)** **Photo 5-25: VT 9 (Quadrat K38)**

VT	Summary	Representative Photograph
	(more than 10 years) (Study Area in the vicinity of the Mine DE) (**Photo 5-25)**; the rest had a scattering of burn ages, between January 2014 (8.5 years prior to survey) and November 2017 (4.5 years prior to survey) (**Photo 5-26).**.	
10	**Description:** Low open woodland of *Corymbia hamersleyana* with occasional *Eucalyptus gamophylla*, *E. leucophloia* subsp. *leucophloia* and *E. xerothermica* over tall open shrubland dominated by taxa including *Acacia cowleana*, *A. tumida* var. *pilbarensis*, *Gossypium robinsonii* and *A. pyrifolia* over low open hummock grassland of *Triodia pungens* and tussock grassland dominated by *Themeda* sp. Mt Barricade (M.E. Trudgen 2471) and *Aristida* spp. on red-brown clay loams on major and minor drainage lines **Area mapped:** Study Area – 215.5 ha (5.7 % of Study Area), Development Envelope – 67.5 ha (7.6 % of the DE) **Sampling:** 17 quadrats (C06; C07; C10; C12; C14; C28; C38; C39; C50; C54; K08; K09; K11; K25; K38; K52: Q01) **Indicator taxa:** *Afrohybanthus aurantiacus*, *Androcalva luteiflora*, ?*Androcalva loxophylla*, *Bonamia erecta*, *Corchorus crozophorifolius*, *Corymbia hamersleyana*, *Crotalaria medicaginea* var. *neglecta*, *Dodonaea lanceolata* var. *lanceolata*, *Euphorbia australis* var. *subtomentosa*, *Evolvulus alsinoides* var. *decumbens*, *Evolvulus alsinoides* var. *villosicalyx*, *Gomphrena canescens* subsp. *canescens*, *Gossypium australe*, *Indigofera monophylla*, *Melhania oblongifolia*, *Nellica maderaspatensis*, *Polymeria ambigua*, *Senna artemisioides* subsp. *oligophylla*, *Setaria surgens*, *Sida* sp. spiciform panicles (E. Leyland s.n. 14/8/90), *Themeda* sp. Mt Barricade (M.E. Trudgen 2471), *Themeda triandra*, *Waltheria indica* **Significant taxa:** NA **Average taxon richness per quadrat:** 63 ± 13 VT10 is mapped on the Boolgeeda land system, and the Hamersley_18 VSA, on drainage lines in the centre of the Study Area associated with the Mine DE (Sheets 3, 4, 7 and 8 of **Appendix J**). Floristically it similar to VT 9, however it has greater representation of taxa from species groups A and B (**Appendix H)**. The indicator species were representative of taxa which commonly occur on drainage lines, flats and broad plains, with some taxa recorded on drainage lines associated with rocky areas.	 **Photo 5-26: VT 10 (Quadrat C45)**

VT	Summary	Representative Photograph
	A split in the analysis dendrogram roughly separates quadrats located on and near Mine Creek in the centre of the Mine DE (**Photo 5-28)** from those on smaller tributaries feeding into Mine Creek (**Photo 5-27)**; however, differences are minor and do not warrant splitting the VT. All quadrats had been burnt in November 2017 (4.5 years since fire). Although the majority of the VTs of the Study Area had relatively small areas of less than Excellent condition, VT 10 had the greatest extent of vegetation mapped as either Very Good or Good. This is due to the nature of drainage areas which both tend to collect seed from upstream areas, and also attract animals which may have been feeding in or otherwise inhabiting or crossing through areas of greater weed loading associated with water gaining areas.	 **Photo 5-27: VT 10 (Quadrat K18)**

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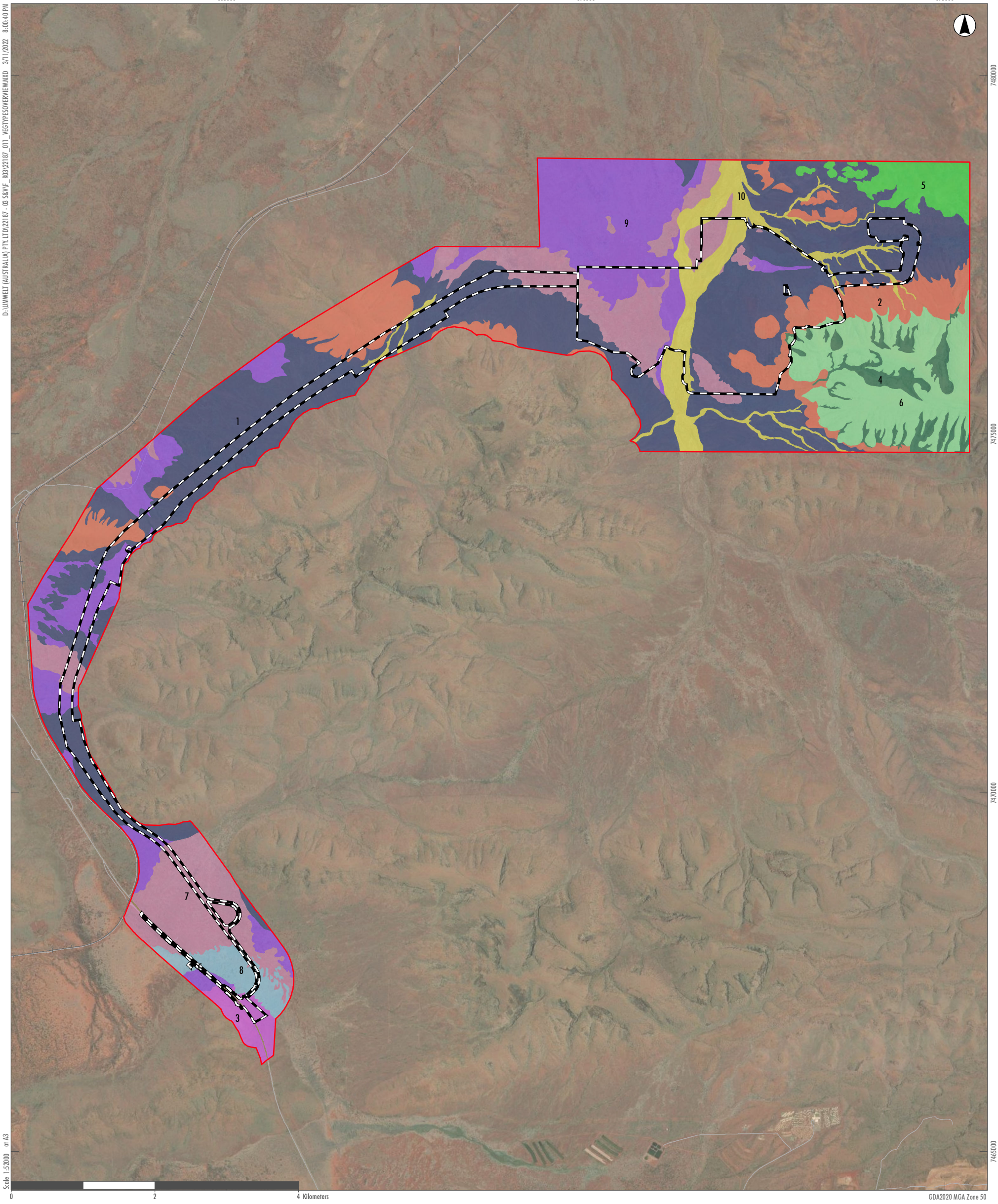

Legend

Study Area

Proposed Development Envelope

Vegetation Types

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FIGURE 5.9

Overview of Vegetation Types of the Study Area

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Legend

Vegetation Types

1 Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and/or *E. gamophylla* with isolated *Corymbia deserticola* subsp. *deserticola* over low to mid sparse to open shrubland dominated by species including *Acacia atkinsiana* and *A. ancistrocarpa* over low open hummock grassland of *Triodia pungens, T. vanleeuwenii* and *T. wiseana* and low open tussock grassland of *Themeda* sp. Mt Barricade (M.E. Trudgen 2471) and *Paraneurachne muelleri* on red-brown sandy clay loam to clay loam on gently inclined mid to lower slopes and associated drainage lines

2 Low open woodland of *Eucalyptus leucophloia* subsp. *leucophloia* with occasional *Corymbia deserticola* subsp. *deserticola* and *C. hamersleyana* over low sparse shrubland of *Acacia hilliana* and *Hakea chordophylla* over open hummock grassland of *Triodia vanleeuwenii* and *T. wi*seana on red-brown clay loam with ironstone pebbles on gently inclined lower to upper slopes

3 Isolated trees of *Corymbia hamersleyana, Eucalyptus leucophloia* subsp. *leucophloia* and *E. gamophylla* over low sparse shrubland of mixed Acacia species over low hummock grassland of *Triodia pungens* and *T. wiseana* on red-brown sandy clay loam on mid to lowerslopes with ironstone pebbles

4 Low open woodland of *Corymbia ferriticola* or *Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* with *Ficus brachypoda* occurring on gorge and gully areas, over low sparse shrubland of mixed species dominated by *Corchorus laniflorus, Dodonaea viscosa* subsp. *mucronata* and *Gossypium robinsonii* over sparse hummock grassland dominated by *Triodia pungens* with *T. wiseana* and tussock grasses including *Cymbopogon ambiguus* and *Aristida burbidgeae* on red brown clay loam on steep upperslopes, gullies, breakaways and gorges with significant ironstone outcropping

5 Occasional *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* over mixed isolated shrubs including *Acacia inaequilatera* and *Senna artemisioides* subsp. *glutinosa* over low hummock grassland of *Triodia wiseana* on steep upperslopes and associated drainage lines on red-brown clay loam with exposed ironstone and dolerite

6 Low woodland to open woodland of *Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* and occasional *E. kingsmillii* over mid isolated shrubs of *Acacia hamersleyensis* and *Grevillea wickhamii* ?subsp. *hispidula* over low hummock grassland of *Triodia wiseana* on red brown sandy clay loam on steep mid to upperslopes with exposed ironstone

7 Isolated trees of *Corymbia hamersleyana, Eucalyptus leucophloia* subsp. *leucophloia* and *Eucalyptus xerothermica* over low open to sparse shrubland dominated by *Acacia aptaneura, A. aneura* and *A. pruinocarpa* over low tussock grassland to sparse tussock grassland dominated by *Themeda* sp. Mt Barricade (M.E. Trudgen 2471), *Enneapogon polyphyllus, Chrysopogon fallax* and *Aristida* spp. with occasional *Triodia pungens* on red brown clay loam with some ironstone pebbles on plains

8 Isolated trees of *Eucalyptus xerothermica* over tall open to sparse shrubland of *Hakea lorea* subsp. *lorea* and *Acacia aptaneura* over low open tussock grassland of *Aristida contorta, A. inaequiglumis* and *Themeda triandra* on red-brown sandy clay to clay on plains

9 Low open woodland of *Corymbia hamersleyana, C. deserticola* subsp. *deserticola, Eucalyptus gamophylla* and *Eucalyptus leucophloia* subsp. *leucophloia* over tall sparse shrubland of *Acacia atkinsoniana* and occasional *A. ancistrocarpa* and *A. aptaneura* over low hummock grassland dominated by *Triodia pungens* and occasional *T. wiseana* with *Paraneurachne muelleri* also dominant on red-brown clay loam with ironstone pebbles on plains

10 Low open woodland of *Corymbia hamersleyana* with occasional *Eucalyptus gamophylla, E. leucophloia* subsp. *leucophloia* and *E. xerothermica* over tall open shrubland dominated by taxa including *Acacia cowleana, A. tumida* var. *pilbarensis, Gossypium robinsonii* and *A. pyrifolia* over low open hummock grassland of *Triodia pungens* and tussock grassland dominated by *Themeda* sp. Mt Barricade (M.E. Trudgen 2471) and *Aristida* spp. on red-brown clay loams on major and minor drainage lines

C Cleared Land (road and verge)

FIGURE 5.9

LEGEND - Overview of Vegetation Types of the Study Area

5.2.9 Significant Vegetation

The desktop assessment did not identify any EPBC or DBCA-listed significant vegetation communities with records within the Desktop Study Area (**Section 5.1.5**). The closest significant vegetation record to the Study Area is an occurrence of the 'Coolibah-lignum flats: *Eucalyptus victrix* over lignum community in the Pilbara - sub type 2: Coolibah woodlands over lignum (*Duma florulenta*) over swamp wanderrie (Lake Robinson)' PEC (P1); the edge of this PEC's buffer polygon is approximately 3 km south of the Study Area (**Figure 5.6**). In addition, sub type 1: Coolibah and mulga (*Acacia aneura*) woodland over lignum and tussock grasses on clay plains (Coondewanna Flats and Wanna Munna Flats)' PEC (P3) may occur in the Desktop Study Area (see **Section 5.1.5**). Lake Robinson is the only known occurrence of sub type 2 (DBCA 2022a) and mapping by Onshore indicates both sub types are restricted to flats associated with Lake Robinson (see **Section 5.1.5**). In addition, there were no occurrences of *Eucalyptus victrix* or *Duma florulenta* within the Study Area, this PEC is not considered to occur in the Study Area. Likewise, the VTs mapped within the Study Area are not considered to represent any other listed PECs (DBCA 2022a) or TECs (DAWE 2021a; DBCA 2018).

One small area of cracking clay was recorded in the Study Area; this area was mapped within a polygon of VT 8 on the southern side of the Great Northern Highway. This area was too small to be sampled by a quadrat. It is possible that if the Study Area were to extend further to the west to capture larger areas of cracking clay, and these areas were sampled with quadrats, floristic analysis may determine that the vegetation occurring on this cracking clay would represent a VT discrete from VT 8. The PEC 'Brockman Iron cracking clay communities of the Hamersley Range' is known to occur in the wider region surrounding the Study Area; however, the dominant taxon associated with this PEC (*Astrebla lappacea* (P3)) was not identified in this area; this area is also not located on the Brockman land system. The small area of cracking clay identified in the Study Area is therefore not considered to represent this PEC.

None of the VTs described in the Study Area by the 2022 survey are considered to be significant for reasons other than formal listing (**Section 3.9.2**). No vegetation is considered to have a significant degree of historical impact due to threatening processes; historical clearing for exploration has been limited in the Study Area, and weeds are not widespread. Likewise, no VTs are considered to be providing important functions required to maintain ecological integrity of a significant ecosystem. VT 4 could be considered to provide a role as a refuge, due to the presence of gorges, gullies and steep cliffs which could provide both micro habitats for refuge species to occur, and also protect from significant, repeated burning. No flora taxa recorded in the survey in VT 4 are considered restricted across the region, and both Priority flora known to occur in VT 4 have widespread regional extents (*Eremohila naaykensii* (P3) and *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)), although they are restricted to similar habitats such as those characteristic to VT 4. As such, although VT 4 does contain refugia-type habitat it is not considered significant in a regional context.

Based on field observations and aerial photography interpretation, all VTs mapped in the Study Area are either known to, or considered likely to, extend outside the Study Area to some extent, and are not considered to be restricted in distribution. All are associated with both soil landscape systems and VSAs which are not restricted in the region.

VTs 3, 4, 5 and 8 can be considered locally restricted within the Study Area, each being mapped over less than 3 % of the total area of the Study Area; this is considered an artefact of the location and extent of the Study Area:

- VT 4 is associated with the steep cliffs and gorges in the hills in Study area to the south-east of the Mine DE. It is considered likely that similar vegetation occurs on ranges to the east of the Study Area.
- VT 5 is associated with the hills in the north-east of the Study Area associated with the McKay soil landscape system which is poorly represented in the Study Area. It is considered that this VT extends further outside of the Study Area to the north and east, and that the limited representation is an artefact of the Study Area extent and location.
- VT 3 was mapped in the far southern extent of the GNHI section of the Study Area and was associated with the area mapped as 'A' (Low open *Eucalyptus gamophylla* woodland over *Triodia melvillei* and *T. pungens* on stony plain) by Rapallo (2021a). It is considered likely that this VT extends further to the south-west based on review of aerial photography, and its association with Boolgeeda land system.
- VT 8 is associated with mulga on the Wannamunna land system, corresponding with the area mapped as VT 'D' (Mulga, *Hakea lorea* and *Eucalyptus xerothermica* low open woodland over closed tussock grassland on gently-sloping clay-loam plain) by Rapallo (2021a). The Wannamunna land system is restricted within the Study Area, extending to the south and west. It is considered that this VT extends in these directions outside of the Study Area.

As no Pilbara-wide vegetation dataset defined at the same scale at which the Study Area VTs were defined is available, it is not possible to conclusively assess the significance of VTs in a regional context. However, based on the overall taxon composition of the VTs mapped, it is likely that these would be relatively widespread in the general region surrounding the Study Area; additionally, the landforms and geology with which the VTs are associated are known to occur widely in the region (**Section 5.1.2**). Although several VTs are considered preferred habitat for significant flora taxa, none of the listed taxa have particularly restricted distributions; the most restricted is *Aristida lazaridis* (P2) with a known range of 130km (**Section 5.2.3.2**). This taxon is associated with VTs 7 and 8 in and near the Study Area in the vicinity of the GNHI; Rapallo (2021b) recorded this taxon as occurring further northwards outside of the Study Area, and therefore it is likely that this habitat extends outside the Study Area.

5.2.10 Surface and Groundwater Dependent Vegetation

The main surface water feature of the Study Area is located in association with the Mine DE (Mine Creek, a tributary flowing northwards to Marillana Creek). This drainage feature allows for drainage around the hills associated with the Gaguna heritage area, as well as the range present in the south-east and north-east of the Study Area associated with the Mine DE. Other minor ephemeral drainage features direct water from rain events (including cyclones) from the hills crossing into both the GNHI DE and Access Rd DE portions of the Study Area. None of the drainage features in the Study Area hold permanent water, and are ephemeral creeklines during and post-wet season, particularly after larger rainfall events. The vegetation downstream of these ephemeral creeklines, in particular the Mine Creek, may be reliant on periodic inundation after such events.

Groundwater dependent terrestrial vegetation (GDV) is a component of Groundwater Dependent Ecosystems (GDEs), and is at least partly composed of phreatophytic species - those that use groundwater to meet some or all of their water requirements (Clifton *et al*., 2007a). As a minimum groundwater is usually relied upon during seasonal or episodically dry periods such as droughts. Phreatophytes are usually deep-rooted perennial species that rely on groundwater sources for water uptake (Busch *et al*., 1992). These species are often found within the riparian zones of permanent and ephemeral rivers, creeks and

wetlands where water tables are often very close to the ground surface. Phreatophytes are divided into 2 main groups:

- Obligate phreatophytic vegetation is completely reliant on access to groundwater to survive, including riverine species such as *Melaleuca argentea* and *Eucalyptus camaldulensis* (Loomes & Braimbridge, 2010). This reliance can be continual, seasonal or episodic and is often highly sensitive to alterations in groundwater regimes.

- Facultative phreatophytes rely on groundwater only during extended periods of drought. These are generally deep-rooted species occurring on floodplains and higher in the landscape away from very shallow groundwater aquifers. These species tend to be less sensitive to changes in groundwater regimes, however may suffer stress during prolonged periods of drought.

Vegetation can be considered as a candidate for GDV when the groundwater is 0-10 mbgl, based on the known habitat preferences and apparent drawdown susceptibility of phreatophytic taxa (Loomes and Braimbridge, 2010; Braimbridge & Loomes, 2013). As the depth to groundwater in the Study Area is presumed to be >10m (as referred to by PSM 2021), the vegetation is unlikely to be groundwater dependent. The presence of phreatophytic taxa from the Pilbara region is used to assist in determination of likelihood of associated vegetation being GDV; a number of phreatophytic flora species are known from the Pilbara region including:

- *Melaleuca argentea* (obligate phreatophyte): occurs along rivers and creeklines in the Pilbara, and can also be associated with permanent pools (Department of Water, 2009). *Melaleuca argentea* is an obligate phreatophyte at all locations where it occurs; however, it will utilise surface water sources such as floodwaters and river flows when available (O'Grady *et al*., 2002). *M. argentea* appears to be the most sensitive to changes in groundwater regimes according to literature, due to its shallow planiform root system adapted to areas of very shallow groundwater (2-3m below ground level) (Graham (2001); it has difficulty adjusting to short periods of dry conditions (Loomes & Braimbridge, 2010).

- *Eucalyptus camaldulensis* (obligate phreatophyte when in close proximity to groundwater, facultative in areas with deeper groundwater resources): a riparian tree species of the Pilbara and is commonly found on rivers and creeklines mostly occurring where the groundwater is less than 10 mbgl (Loomes, 2010). As such, *Eucalyptus camaldulensis* is treated as an obligate phreatophyte in situations where the groundwater source is within 10m of the surface, though its reliance on groundwater is likely to be less in areas where surface water (such as floodwaters and river flows) is the primary source of water.

- *Sesbania formosa* is also considered likely to be an obligate phreatophyte, as it is restricted to alluvial soils in rivers or major creeks, potentially indicating high groundwater use (Department of Water 2010). No published data was available that describes this taxon's reliance on groundwater or sensitivity to drawdown.

- *Eucalyptus victrix* (facultative phreatophyte): known to occur on drier locations in comparison to *E. camaldulensis* or *M. argentea*; it is treated as a facultative phreatophyte in most situations but is a vadophyte due to its ability to access water in the unsaturated vadose soil zone above the water table. It is worth noting that the vadose zone is itself dependent on the presence of a groundwater layer.

- *Melaleuca glomerata*, *Atalaya hemiglauca*, *Acacia ampliceps* and *Melaleuca linophylla* appear to generally be considered at least partially facultative phreatophytes, primarily based on their presence

in major river channels where groundwater is known to be close to the surface (Loomes 2010a, 2010b; Loomes and Braimbridge 2010). However, this appears to not have been substantiated by any specific investigation; only Loomes (2010a) has investigated depth to water ranges for some of these species, however this investigation considered a limited number of sample sites, all of which were in significant drainage channels.

No obligate phreatophytes were recorded in the Study Area, and likewise *Eucalyptus victrix* was not recorded. The only potential facultative-phreatophyte listed above recorded in the Study Area is *Atalaya hemiglauca*, which typically occurs on floodplains and creeklines higher in the topography where groundwater levels exceed 3-5 mbgl; it can also be found on sandstone ridges (Loomes, 2010; WA Herbarium, 1998). Although this species requires moist soil conditions it is more tolerant of prolonged periods of drought and are likely to access other sources of moisture such as clays within the soil profile (Loomes & Braimbridge, 2010). This taxon may only rely upon groundwater during extended drought periods and may suffer stress if a significant dry period coincides with a period of groundwater drawdown, if indeed those individuals are relying on a groundwater source. Observations by Woodman Environmental Consulting (unpublished) of vegetation being supported by shallow groundwater in the Pilbara subjected to drawdown saw impacts to obligate phreatophytes *Melaleuca argentea* and *Eucalyptus camaldulensis*; however, co-occurring individuals of *Atalaya hemiglauca* were not affected.

Atalaya hemiglauca was recorded in one quadrat in VT 5 (associated with a minor drainage line), and three quadrats in VT 10, associated with Mine Creek, the main drainage line in the centre of the Study Area associated with the Mine DE. It is unlikely that this system represents GDV, as no other phreatophytic taxa were recorded, and *A. hemiglauca* was present only in low densities (percentage foliage cover ranged between 0.1-1%). The presence of *Atalaya hemiglauca* alone is not considered justification for categorising this area as GDV.

5.2.11 Vegetation Condition

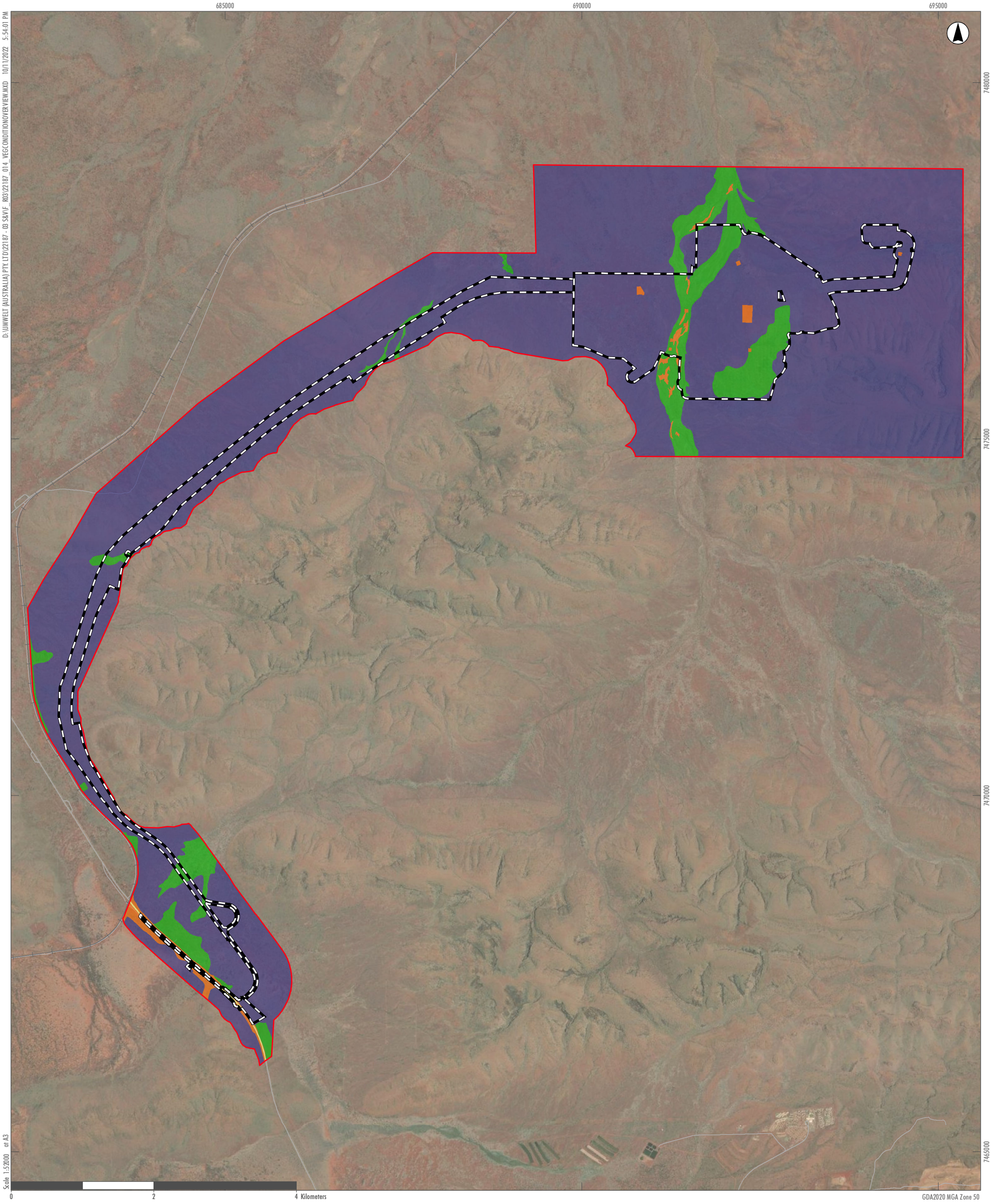
Table 5.11 presents the area (ha) of each VT and corresponding condition rating (as per EPA 2016b; **Appendix A**) mapped in the Study Area by the 2022 survey. An overview of vegetation condition mapping is presented in **Figure 5.10**, with detailed vegetation condition mapping, including locations of introduced flora taxa recorded in the Study Area, presented in **Appendix M**.

The condition of the vegetation in the Study Area was rated Good to Excellent. The majority of the vegetation (90.5 %) rated as Excellent, with no obvious signs of damage caused by human activities. The remainder of the vegetation was rated as Very Good and Good (8.2 % and 1.2 % respectively), with some historical mechanical disturbance, introduced flora taxa dominating the lower stratum in some flowlines, and otherwise low levels of introduced flora taxa across the Study Area. Areas where natural vegetation has been completely and apparently permanently removed, with no native taxa remaining were mapped as 'Cleared' (C) and not subjected to rating under the condition scale. Areas mapped as cleared included Great Northern Highway only, with small, potentially temporary cleared areas such as minor tracks and clearing associated with exploration, not mapped as cleared. Less than 1 % of the Study Area (4.6 ha) was mapped as cleared.

Occasional weeds only were present in VTs 2, 4, 6 and 9. There were higher levels of aggressive weed taxa including *Cenchrus ciliaris* and *Cenchrus setiger*, generally present in high numbers within flowlines in VT 10, and disturbed areas within VT 7 to a lesser extent. VT 10 was most impacted by disturbance with the majority of this VT (over 70 %) rated as Very Good.

Table 5.11 Vegetation Condition Ratings for VTs Described in the Study Area

VT	Excellent (ha)	Very Good (ha)	Good (ha)	Poor (ha)	Degraded (ha)	Completely Degraded (ha)	Cleared
1	1387.6	37.6	3.9	-	-	-	
2	355.1	27.3	-	-	-	-	
3	35.5	6.8	5.8	-	-	-	
4	94.6	0.7	-	-	-	-	
5	100.9	-	-	-	-	-	
6	315.8	0.8	-	-	-	-	
7	441.6	66.3	15.5	-	-	-	
8	61.9	4.1	2.9	-	-	-	
9	585.3	10.1	5.4	-	-	-	
10	48.9	155.3	11.3	-	-	-	
Cleared	-	-	-	-	-	-	4.6
Total	**3427.3**	**309.0**	**44.8**	**0**	**0**	**-**	**4.6**
Percentage of Study Area	**90.5**	**8.2**	**1.2**				**0.1**



Legend

- Study Area
- Proposed Development Envelope

Vegetation Condition

- Excellent
- Very Good
- Good
- Cleared

FIGURE 5.10

Overview of Vegetation Condition of the Study Area

6.0 Conclusions

The species diversity (328 taxa across the Study Area) is moderately diverse in comparison to other Pilbara flora studies conducted across the region and is commensurate with those recorded in nearby ranges; for example, Onshore Environmental (2011; 2012) reported totals of 479 and 386 flora taxa known to date at Area C and South Flank respectively, both study areas of which are located in relatively close proximity to the south of the Study Area. A total of 206 flora taxa, and 219 flora taxa were recorded by Onshore Environmental (2011) in their northern and southern study areas within Area C respectively during that particular survey. The species diversity of the Study Area is comprised of a number of annual, short-lived perennial and perennial forbs and small shrubs and grasses which may be associated with the large-scale burns which affected the Study Area within the last five years. The highest mean species richness per quadrat were recorded in VTs 10 (major and associated minor drainage lines), VT 4 (gorges and steep rocky gullies) and VT 7 (predominantly mulga woodlands).

A diversity of Vegetation Types (VTs) were recorded across the 3,785 ha study area, due to the variety of landforms and soil types present. No VTs are considered to represent any listed PEC or TEC, nor are they considered regionally significant vegetation for any other reason, and are likely to be represented elsewhere. The gorges, gullies and steep cliffs of VT4 could be considered locally significant in providing refuge and protection from significant repeated burning, however permanent water in the form of pools or creeks was not observed at time of survey. The significant taxa known from VT 4 are restricted to such gorge habitat, however these taxa and habitats have widespread regional extents. Three VTs (3, 5, and 8) have limited extents within the Study Area, however this is considered an artifact of the location and extent of the Study Area.

The potentially undescribed *Corchorus* sp. is considered taxonomically significant as it is not able to be matched to any other specimen within the WA Herbarium collection. The WA Herbarium has advised that a precautionary approach would also see it regarded as a plant of conservation significance, whilst noting that its poorly collected nature and potential geographical restriction make this difficult to formally assess (M. Hislop, *pers. comm*. June 2022). Six specimens of *Corchorus* sp. from the 2022 survey have been submitted for lodgement with the WA Herbarium to facilitate this assessment going forward.

The potentially undescribed entity *Euphorbia ferdinandi* s. lat is currently under review by the WA Herbarium, with a comparison to an Eastern Australia species of similar morphology underway. In response to consultation the WA Herbarium have advised in the interim to treat the entity as a plant of taxonomic significance (M. Hislop, *pers. comm.* August 2022).

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APPENDIX A

Vegetation Condition Scale for the Eremaean and Northern Botanical Provinces (EPA 2016b)

Condition Ranking	Description
Excellent (E)	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement
Very Good (VG)	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks
Good (G)	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds
Poor (P)	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds
Degraded (D)	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species
Completely Degraded (CD)	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs

APPENDIX B

Vascular Plant Taxa Omitted from and Amalgamated in the Classification Analysis

Action	Taxon	Data Source	Reasoning
Amalgamated	*Abutilon fraseri*	Rapallo	Taxon identified to differing levels between different surveys
	Abutilon fraseri subsp. *fraseri*	Umwelt	
Amalgamated	*Acacia aneura*	Rapallo/Umwelt	Potential for taxa not to be consistently identified due to inadequate material
	Acacia ?aneura	Umwelt	
	Acacia aptaneura	Rapallo/Umwelt	
Amalgamated	*Acacia acradenia*	Rapallo	Taxa not be consistently positively identified due to inadequate material; Inconsistencies in identifications between different surveys (potential misidentification of *A. acradenia*)
	Acacia ayersiana	Umwelt	
	Acacia ?ayersiana	Umwelt	
Amalgamated	*Acacia cowleana*	Rapallo/Umwelt	Taxa not consistently identified due to inadequate material; difficult to separate these entities in the field leading to potential misidentification (require juvenile growth)
	Acacia elachantha	Rapallo/Umwelt	
	Acacia ?elachantha	Umwelt	
Amalgamated	*Acacia pachyacra*	Rapallo/Umwelt	Potential for taxa not consistently identified due to inadequate material within and between datasets
	Acacia tenuissima	Rapallo/Umwelt	
Amalgamated	*Acacia hamersleyensis*	Umwelt	Taxa not consistently identified due to inadequate material
	Acacia ?hamersleyensis	Umwelt	
Amalgamated	*Androcalva luteiflora*	Umwelt	Taxa not consistently identified due to inadequate material; potential misidentification between surveys
	?Androcalva loxophylla	Umwelt	
Amalgamated	*Convolvulus clementii*	Rapallo	Inconsistencies in identifications between different surveys; potential misidentification of *Convolvulus clementii* as young individuals look very similar in a field environment
	Ipomoea polymorpha	Umwelt	
Amalgamated	*Corchorus lasiocarpus* subsp. *parvus*	Umwelt	Taxa not consistently identified due to inadequate material
	Corchorus ?lasiocarpus subsp. *parvus*	Umwelt	
Amalgamated	*Dysphania rhadinostachya* subsp. *inflata*	Rapallo	Subspecies not consistently identified due to inadequate material; potential misidentification of subspecies between different surveys
	Dysphania rhadinostachya	Umwelt	
	Dysphania ?rhadinostachya	Umwelt	
Amalgamated	*Eriachne pulchella* subsp. *dominii*	Umwelt	Inconsistencies in identification to subspecies between different surveys
	Eriachne pulchella subsp. *pulchella*	Rapallo	
Amalgamated	*Euphorbia coghlanii*	Rapallo	Taxa not consistently identified due to inadequate material; potential misidentification between surveys
	Euphorbia biconvexa	Umwelt	
	Euphorbia ?biconvexa	Umwelt	
Amalgamated	*Euphorbia* aff. *ferdinandi*	Rapallo	Considered to represent the same potentially undescribed taxon
	Euphorbia ?aff. ferdinandi subsp. *ferdinandi*	Umwelt	
Amalgamated	*Evolvulus alsinoides*	Umwelt	Variants could not be consistently identified due to inadequate material (requires flowering material to identify to variant level)
	Evolvulus alsinoides var. *decumbens*	Umwelt	
	Evolvulus alsinoides var *villosicalyx*	Rapallo/Umwelt	

Action	Taxon	Data Source	Reasoning
Amalgamated	*Glycine* sp.	Rapallo	Inconsistencies in identifications between different surveys
	Glycine canescens	Umwelt	
Amalgamated	*Grevillea wickhamii* subsp. *hispidula*	Umwelt	Subspecies not consistently identified due to inadequate material
	Grevillea wickhamii subsp. ?*hispidula*	Umwelt	
Amalgamated	*Iseilema macratherum*	Rapallo	Inconsistencies in identifications between different surveys
	Iseilema membranaceum	Umwelt	
Amalgamated	*Panicum decompositum*	Rapallo	Inconsistencies in identifications between different surveys; *P. effusum* consistently recorded during 2022 survey in same habitats
	Panicum effusum	Umwelt	
Amalgamated	*Polycarpaea corymbosa*	Rapallo	Taxon identified to differing levels between different surveys
	Polycarpaea corymbosa var. *corymbosa*	Umwelt	
Amalgamated	*Portulaca oleracea*	Rapallo	Taxon not consistently identified due to inadequate material
	Portulaca ?*oleracea*	Umwelt	
Amalgamated	*Ptilotus* ?*exaltatus*	Umwelt	Taxa not consistently identified due to juvenile material
	Ptilotus ?*carinatus*	Umwelt	
	Ptilotus exaltatus	Rapallo	
Amalgamated	*Ptilotus obovatus*	Rapallo	Taxon identified to differing levels between different surveys
	Ptilotus obovatus var. *obovatus*	Umwelt	
Amalgamated	*Scaevola parvifolia* subsp. *parvifolia*	Rapallo	Inconsistencies in identifications between different surveys. The two subspecies are difficult to tell apart in the field and there is an overlap in their ranges.
	Scaevola parvifolia subsp. *pilbarae*	Umwelt	
Amalgamated	*Senna ferraria*	Umwelt	Taxon not consistently identified due to inadequate material
	Senna ?*ferraria*	Umwelt	
Amalgamated	*Senna pleurocarpa* var. *angustifolia*	Umwelt	Variants potentially not consistently identified due to inadequate material
	Senna pleurocarpa var. *pleurocarpa*	Umwelt	
Amalgamated	*Sida* sp. L (A.M. Ashby 4202)	Umwelt	Taxon not consistently identified due to inadequate material
	Sida ?L (A.M. Ashby 4202)	Rapallo	
Amalgamated	*Themeda* sp. Mt Barricade (M.E. Trudgen	Umwelt	Taxa potentially not consistently identified within/between surveys
	Themeda triandra	Rapallo/Umwelt	
Amalgamated	*Tribulus macrocarpus*	Umwelt	Taxon not consistently identified due to inadequate material
	Tribulus ?*macrocarpus*	Umwelt	
Amalgamated	*Trichodesma zeylanicum* var. *zeylanicum*	Umwelt	Taxon identified to differing levels between different surveys
	Trichodesma zeylanicum	Rapallo	
Omitted	?*Enchylaena tomentosa*	Umwelt	Identification unclear due to poor material
Omitted	*Euphorbia* ?*trigonosperma*	Umwelt	Identification unclear due to poor material

Action	Taxon	Data Source	Reasoning
Omitted	Poaceae sp.	Umwelt	Identification unclear due to poor material
Taxon Change	*Acacia pachyacra* changed to *A. tenuissima* at Quadrat 09	Rapallo	Field collection confirmed different species to be present at this location
Taxon Change	*Acacia* sp. changed to *A. aneura* at Quadrat 03	Rapallo	Field collection confirmed different species to be present at this location
Taxon Change	*Acacia* ?*sibirica* changed to *A. aneura* at Quadrat 26	Rapallo	Field collection confirmed different species to be present at this location
Taxon Change	*Enneapogon lindleyanus* changed to *E. robustissimus* at Quadrat 26	Rapallo	Field collection confirmed different species to be present at this location

APPENDIX C

Results of Search of the Department of the Agriculture, Water and the Environment Species Profile and Threats (SPRAT) Database (DAWE 2021b)

Australian Government
Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 14-Nov-2021

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	10
Listed Migratory Species:	9

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	13
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	2
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	24
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Species		[Resource Information]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.		
Scientific Name	Threatened Category	Presence Text
BIRD		
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
MAMMAL		
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Breeding known to occur within area
Macrotis lagotis Greater Bilby [282]	Vulnerable	Species or species habitat likely to occur within area
Rhinonicteris aurantia (Pilbara form) Pilbara Leaf-nosed Bat [82790]	Vulnerable	Roosting known to occur within area
PLANT		

Scientific Name	Threatened Category	Presence Text
Thryptomene wittweri		
Mountain Thryptomene [16645]	Vulnerable	Species or species habitat likely to occur within area
REPTILE		
Liasis olivaceus barroni		
Olive Python (Pilbara subspecies) [66699]	Vulnerable	Species or species habitat likely to occur within area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Hirundo rustica		
Barn Swallow [662]		Species or species habitat may occur within area
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Chalcites osculans as Chrysococcyx osculans		
Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area
Charadrius veredus		
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area
Hirundo rustica		
Barn Swallow [662]		Species or species habitat may occur within area overfly marine area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area
Rostratula australis as Rostratula benghalensis (sensu lato)		
Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area

Extra Information

State and Territory Reserves		[Resource Information]
Protected Area Name	Reserve Type	State
Karijini	National Park	WA
Unnamed WA41696	5(1)(g) Reserve	WA

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Baralaba Train Load Out and Rail Loop	2012/6548	Controlled Action	Post-Approval
Brockman Railway	2011/5833	Controlled Action	Post-Approval
Cloud Break Open Pit Iron Ore Mine	2005/2205	Controlled Action	Post-Approval
construction of iron ore mine & associated infrastructure	2013/6945	Controlled Action	Completed
FerrAus Pilbara Project - mine & Rail Pilbara Region WA	2011/6036	Controlled Action	Post-Approval
Iron ore mine expansion, West Angelas Revised Project	2021/8923	Controlled Action	Assessment Approach
Jinidi Iron Ore Mine	2012/6299	Controlled Action	Post-Approval
Koodaideri Iron Ore Mine & Infrastructure Project, WA	2012/6422	Controlled Action	Post-Approval
Marillana Iron Ore Project	2011/5892	Controlled Action	Post-Approval
Phil's Creek Iron Ore Project	2009/5107	Controlled Action	Post-Approval
West Angelas Iron Ore Mine Deposits C, D and G, Pilbara, WA	2018/8299	Controlled Action	Post-Approval
Yandicoogina Junction South West and Oxbow Iron Ore Project	2011/5815	Controlled Action	Post-Approval
Not controlled action			
Baiting Efficacy Trial of Feral Cat Bait and PAPP Toxicant	2012/6381	Not Controlled Action	Completed
Development of iron ore resources in eastern Pilbara region, including port at P	2004/1562	Not Controlled Action	Completed
Development of the Hope Downs 4 Iron Ore Mine and Associated Infrastructure	2008/4636	Not Controlled Action	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
Iron Valley Iron Ore Project	2012/6458	Not Controlled Action	Completed
Lamb Creek Iron Ore Project, East Pilbara, WA	2012/6666	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Pilbara Bulk Ore Transport System Project, WA	2016/7637	Not Controlled Action	Completed
Railway Iron Ore Project, to develop and operate mine, plant and supporting infrastructure, Central Pilbara, WA	2009/5005	Not Controlled Action	Completed
Roy Hill Iron Ore Project	2008/4624	Not Controlled Action	Completed
Yandicoogina Pocket and Billiard South, Iron ore mine, WA	2014/7343	Not Controlled Action	Completed
Referral decision			
Baiting Efficiency of Feral cat bait and PAPP Toxicant	2012/6363	Referral Decision	Completed
Iron ore mine, Hope Downs 2 Proposal	2021/9035	Referral Decision	Referral Publication

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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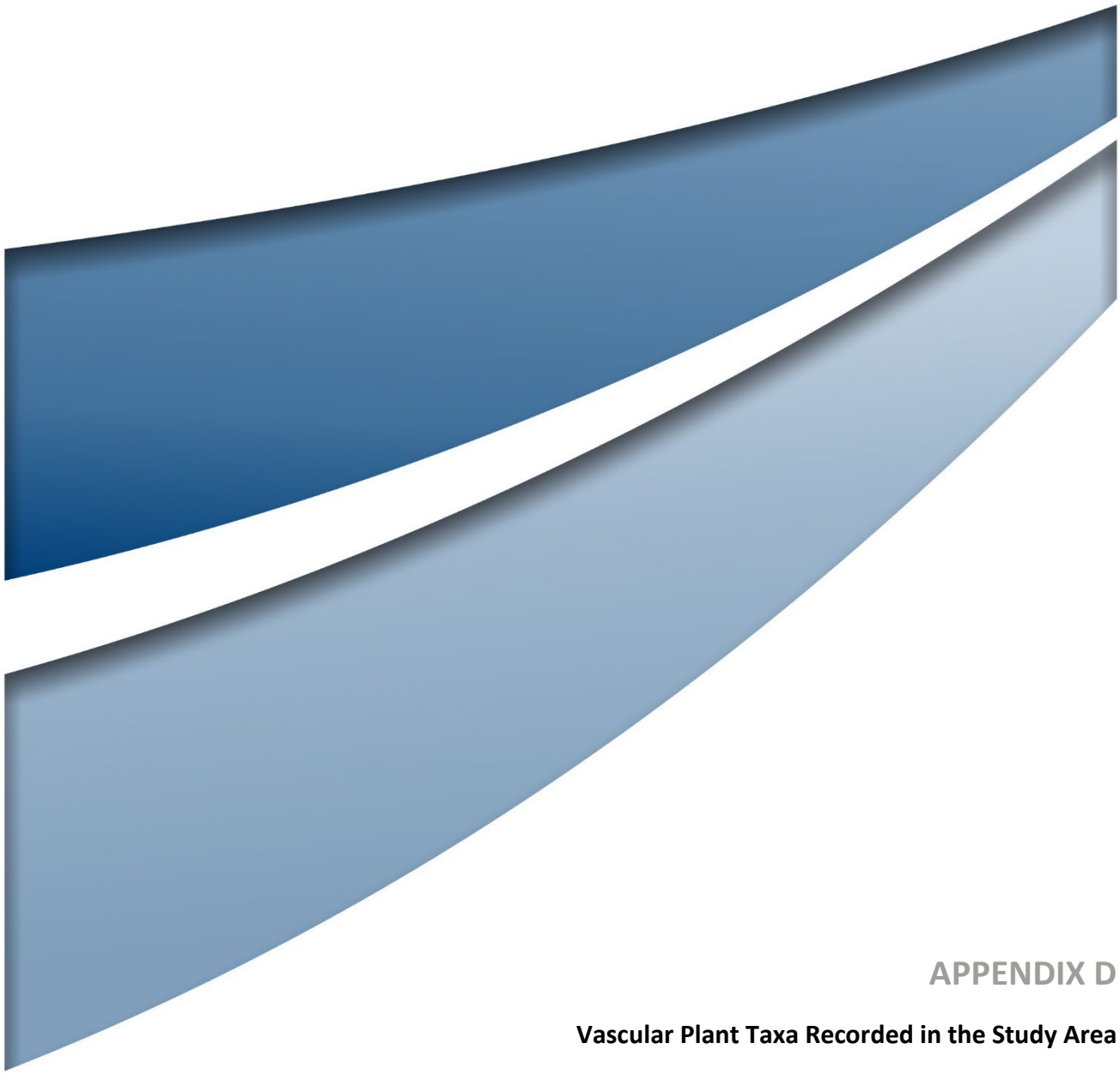


APPENDIX D

Vascular Plant Taxa Recorded in the Study Area

Family	Taxon
Aizoaceae	*Trianthema glossostigmum*
Amaranthaceae	*Alternanthera nana*
	Amaranthus cuspidifolius
	Amaranthus undulatus
	Gomphrena canescens subsp. *canescens*
	Gomphrena cunninghamii
	Gomphrena kanisii
	Ptilotus astrolasius
	Ptilotus calostachyus
	Ptilotus ?carinatus
	Ptilotus clementii
	Ptilotus exaltatus
	Ptilotus fusiformis
	Ptilotus helipteroides
	Ptilotus obovatus var. *obovatus*
	Ptilotus rotundifolius
	Ptilotus schwartzii var. *schwartzii*
Apocynaceae	*Cynanchum pedunculatum*
	Cynanchum viminale subsp. *australe*
	Vincetoxicum flexuosum
	Vincetoxicum lineare
Araliaceae	*Astrotricha hamptonii*
	Trachymene oleracea subsp. *oleracea*
Asteraceae	**Bidens bipinnata*
	Leiocarpa semicalva subsp. *semicalva*
	Olearia xerophila
	Peripleura obovata
	Pluchea dentex
	Pluchea tetranthera
	Pterocaulon serrulatum var. *velutinum*
	Pterocaulon sphacelatum
	Streptoglossa bubakii
	Streptoglossa decurrens
Boraginaceae	*Euploca cunninghamii*
	Euploca pachyphylla
	Euploca tanythrix
	Trichodesma zeylanicum
Brassicaceae	*Lepidium pedicellosum*
Capparaceae	*Capparis lasiantha*
	Capparis mitchellii

Family	Taxon
Capparaceae cont.	*Capparis spinosa* subsp. *nummularia*
Caryophyllaceae	*Polycarpaea corymbosa* var. *corymbosa*
	Polycarpaea holtzei
	Polycarpaea longiflora
Celastraceae	*Maytenus* sp. Mt Windell (S. van Leeuwen 846)
	Stackhousia sp. swollen gynophore (W.R. Barker 2041)
Chenopodiaceae	*Dysphania rhadinostachya*
	?*Enchylaena tomentosa*
	Maireana planifolia
	Maireana villosa
	Rhagodia eremaea
	Rhagodia sp. Hamersley (M. Trudgen 17794) (P3)
	Salsola australis
	Sclerolaena cornishiana
	Sclerolaena tetragona
Cleomaceae	*Areocleome oxalidea*
	Arivela viscosa
Commelinaceae	*Commelina ensifolia*
Convolvulaceae	*Bonamia erecta*
	Bonamia pilbarensis
	Duperreya commixta
	Evolvulus alsinoides var. *decumbens*
	Evolvulus alsinoides var. *villosicalyx*
	Ipomoea polymorpha
	Polymeria ambigua
Cucurbitaceae	*Cucumis variabilis*
Cyperaceae	*Bulbostylis barbata*
	Cyperus cunninghamii subsp. *cunninghamii*
	Fimbristylis dichotoma
	Fimbristylis simulans
Euphorbiaceae	*Euphorbia ferdinandi* s. lat. (potentially underscribed)
	Euphorbia australis var. hispidula
	Euphorbia australis var. subtomentosa
	Euphorbia biconvexa
	Euphorbia drummondii
	Euphorbia tannensis subsp. *eremophila*
	Euphorbia trigonosperma
Fabaceae	*Acacia adoxa* var. *adoxa*
	Acacia adsurgens
	Acacia ancistrocarpa

Family	Taxon
Fabaceae cont.	*Acacia aneura*
	Acacia aptaneura
	Acacia atkinsiana
	Acacia ayersiana
	Acacia bivenosa
	Acacia cowleana
	Acacia dictyophleba
	Acacia elachantha
	Acacia hamersleyensis
	Acacia hilliana
	Acacia inaequilatera
	Acacia maitlandii
	Acacia marramamba
	Acacia minyura
	Acacia monticola
	Acacia pachyacra
	Acacia pruinocarpa
	Acacia pyrifolia var. *pyrifolia*
	Acacia rhodophloia x *sibirica*
	Acacia sericophylla
	Acacia sibirica
	Acacia steedmanii subsp. *borealis*
	Acacia synchronicia
	Acacia tenuissima
	Acacia tetragonophylla
	Acacia tumida var. *pilbarensis*
	Crotalaria medicaginea var. neglecta
	Crotalaria novae-hollandiae DC. subsp. *novae-hollandiae*
	Cullen leucochaites
	Glycine canescens
	Gompholobium oreophilum
	Indigofera fractiflexa subsp. *fractiflexa*
	Indigofera georgei
	Indigofera linnaei
	Indigofera monophylla
	Indigofera rugosa
	Isotropis iophyta
	Mirbelia viminalis
	Petalostylis labicheoides
	Rhynchosia minima

Family	Taxon
Fabaceae cont.	*Senna artemisioides* subsp. *helmsii*
	Senna artemisioides subsp. *oligophylla*
	Senna artemisioides subsp. x *artemisioides*
	Senna ferraria
	Senna glaucifolia
	Senna glutinosa subsp. *glutinosa*
	Senna glutinosa subsp. *pruinosa*
	Senna glutinosa subsp. x *luerssenii*
	Senna notabilis
	Senna pleurocarpa var. *angustifolia*
	Senna pleurocarpa var. *pleurocarpa*
	Senna sericea
	Senna stricta
	Senna symonii
	Senna venusta
	?*Swainsona decurrens*
	Tephrosia densa
	Tephrosia oxalidea
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)
	Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)
	Tephrosia sp. Newman (A.A. Mitchell PRP 29)
	Tephrosia sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)
	Tephrosia virens
	Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)
Goodeniaceae	*Dampiera candicans*
	Goodenia cusackiana
	Goodenia microptera
	Goodenia muelleriana
	Goodenia nuda
	Goodenia prostrata
	Goodenia stellata
	Goodenia stobbsiana
	Goodenia triodiophila
	Scaevola amblyanthera var. *centralis*
	Scaevola browniana subsp. *browniana*
	Scaevola parvifolia subsp. *pilbarae*
	Scaevola spinescens
Gyrostemonaceae	*Codonocarpus cotinifolius*
Lamiaceae	*Clerodendrum floribundum* var. *angustifolium*
	Newcastelia clavipetala

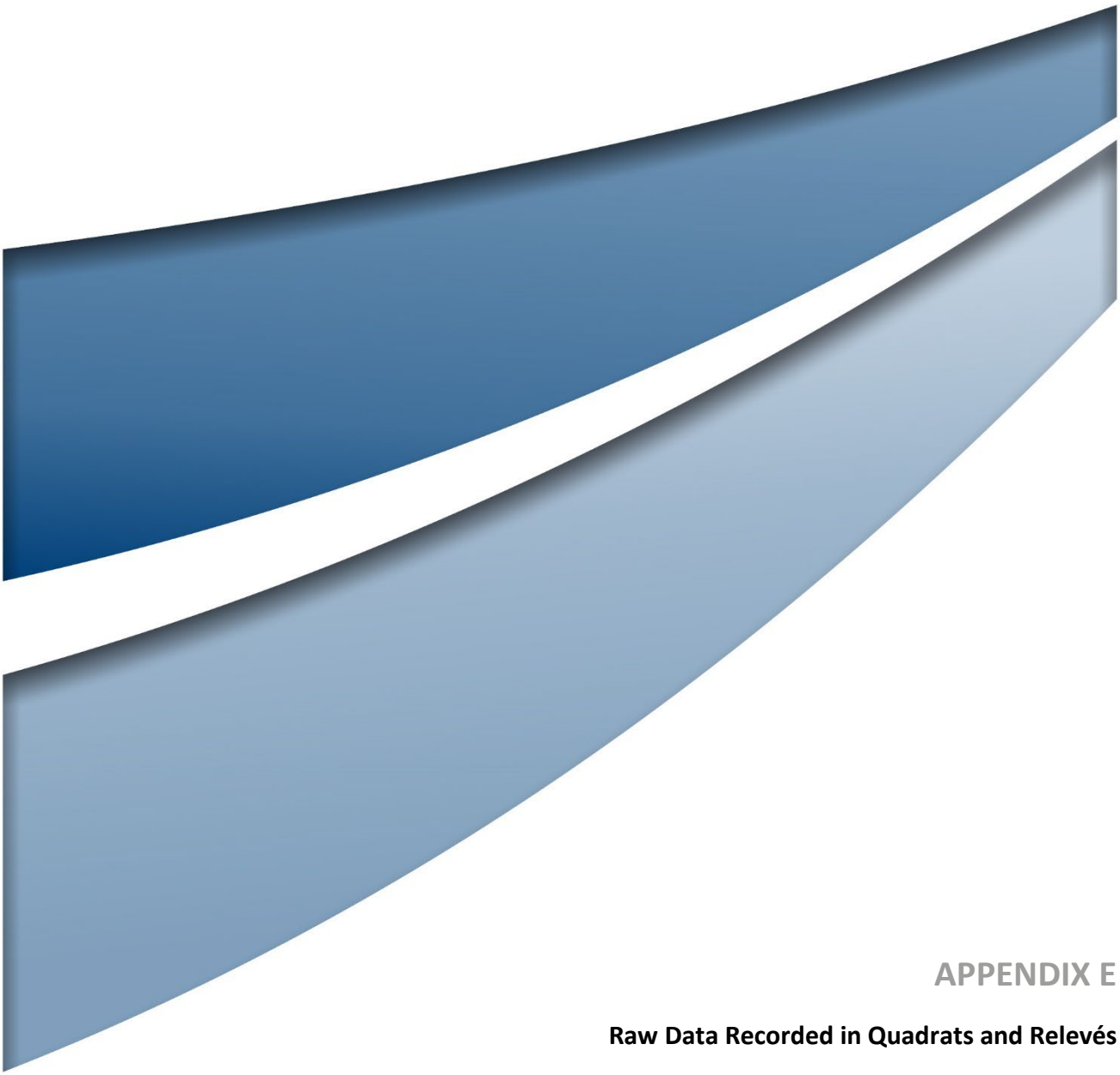
Family	Taxon
Lamiaceae cont.	*Prostanthera albiflora*
	Teucrium teucriiflorum
Lauraceae	*Cassytha capillaris*
Loranthaceae	*Amyema bifurcata*
	Diplatia grandibractea
	Lysiana murrayi
Malvaceae	*Abutilon amplum*
	Abutilon cunninghamii
	Abutilon fraseri subsp. *fraseri*
	Abutilon lepidum
	Abutilon macrum
	Abutilon otocarpum
	Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)
	?*Androcalva loxophylla*
	Androcalva luteiflora
	Brachychiton acuminatus
	Corchorus crozophorifolius
	Corchorus incanus subsp. *lithophilus*
	Corchorus laniflorus
	Corchorus lasiocarpus subsp. *parvus*
	Corchorus sp. (potentially undescribed)
	Corchorus sp. (sterile)
	Corchorus tridens
	Gossypium australe
	Gossypium robinsonii
	Hibiscus burtonii
	Hibiscus coatesii
	Hibiscus leptocladus
	Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
	Hibiscus sturtii var. *campylochlamys*
	Hibiscus sturtii var. *platychlamys*
	**Malvastrum americanum*
	Melhania oblongifolia
	Seringia exastia (T)
	Sida arenicola
	Sida cardiophylla
	Sida echinocarpa
	Sida ectogama
	Sida fibulifera
	Sida platycalyx

Family	Taxon
Malvaceae cont.	*Sida* sp. Articulation below (A.A. Mitchell PRP 1605)
	Sida sp. dark green fruits (S. van Leeuwen 2260)
	Sida sp. Excedentifolia (J.L. Egan 1925)
	Sida sp. L (A.M. Ashby 4202)
	Sida sp. Pilbara (A.A. Mitchell PRP 1543)
	Sida sp. Shovelanna Hill (S. van Leeuwen 3842)
	Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)
	Sida sp. Supplejack Station (T.S. Henshall 2345)
	Triumfetta leptacantha
	Triumfetta maconochieana
	Waltheria indica
Menispermaceae	*Tinospora smilacina*
Moraceae	*Ficus brachypoda*
Myrtaceae	*Calytrix carinata*
	Corymbia deserticola subsp. *deserticola*
	Corymbia ferriticola
	Corymbia hamersleyana
	Eucalyptus gamophylla
	Eucalyptus kingsmillii
	Eucalyptus leucophloia subsp. *leucophloia*
	Eucalyptus xerothermica
Nyctaginaceae	*Boerhavia burbidgeana*
	Boerhavia coccinea
	Boerhavia repleta
Oleaceae	*Jasminum didymum* subsp. *lineare*
Phyllanthaceae	*Dendrophyllanthus erwinii*
	Nellica maderaspatensis
	Notoleptopus decaisnei
Plantaginaceae	*Stemodia grossa*
Poaceae	*Amphipogon sericeus*
	Aristida burbidgeae
	Aristida contorta
	Aristida holathera var. *holathera*
	Aristida inaequiglumis
	Aristida jerichoensis var. *subspinulifera* (P3)
	Aristida lazaridis (P2)
	Aristida obscura
	Aristida pruinosa
	Bothriochloa ewartiana
	**Cenchrus ciliaris*

Family	Taxon
Poaceae cont.	**Cenchrus setiger*
	Chrysopogon fallax
	Cymbopogon ambiguus
	Cymbopogon obtectus
	Dactyloctenium radulans
	Digitaria ammophila
	Digitaria brownii
	Digitaria ctenantha
	Enneapogon caerulescens
	Enneapogon lindleyanus
	Enneapogon polyphyllus
	Enneapogon robustissimus
	Eragrostis cumingii
	Eragrostis eriopoda
	Eragrostis setifolia
	Eragrostis tenellula
	Eriachne aristidea
	Eriachne lanata
	Eriachne mucronata
	Eriachne pulchella subsp. *dominii*
	Eriachne sp. Dugald River (B.K. Simon+ 3007)
	Eriachne tenuiculmis
	Eulalia aurea
	Iseilema membranaceum
	Mnesithea formosa
	Panicum effusum
	Paraneurachne muelleri
	Paspalidium clementii
	Paspalidium rarum
	Paspalidium tabulatum
	Perotis rara
	Schizachyrium fragile
	Setaria surgens
	**Setaria verticillata*
	Sporobolus australasicus
	Themeda sp. Mt Barricade (M.E. Trudgen 2471)
	Themeda triandra
	Tragus australianus
	Triodia biflora
	Triodia melvillei

Family	Taxon
Poaceae cont.	*Triodia pungens*
	Triodia vanleeuwenii
	Triodia wiseana
	Tripogonella loliiformis
	Urochloa occidentalis var. *ciliata*
Polygalaceae	*Polygala glaucifolia*
Portulacaceae	*Portulaca* ?*oleracea*
	**Portulaca pilosa*
Proteaceae	*Grevillea berryana*
	Grevillea pyramidalis subsp. *leucadendron*
	Grevillea wickhamii subsp. *hispidula*
	Hakea chordophylla
	Hakea loreus subsp. *loreus*
Pteridaceae	*Cheilanthes brownii*
	Cheilanthes contigua
	Cheilanthes sieberi subsp. *sieberi*
Rubiaceae	*Dolichocarpa crouchiana*
	Psydrax latifolia
	Psydrax rigidula
	Psydrax suaveolens
	Spermacoce brachystema
	Synaptantha tillaeacea var. *tillaeacea*
Santalaceae	*Anthobolus leptomerioides*
	Santalum lanceolatum
Sapindaceae	*Atalaya hemiglauca*
	Dodonaea coriacea
	Dodonaea lanceolata var. *lanceolata*
	Dodonaea pachyneura
	Dodonaea petiolaris
	Dodonaea viscosa subsp. *mucronata*
Scrophulariaceae	*Eremophila forrestii* subsp. *forrestii*
	Eremophila fraseri subsp. *fraseri*
	Eremophila jucunda subsp. *pulcherrima*
	Eremophila lanceolata
	Eremophila latrobei subsp. *filiformis*
	Eremophila latrobei × *forrestii*
	Eremophila longifolia
	Eremophila naaykensii (P3)
	Eremophila petrophila subsp. *petrophila*
Solanaceae	*Nicotiana benthamiana*

Family	Taxon
Solanaceae cont.	*Solanum cleistogamum*
	Solanum ferocissimum
	Solanum gabrielae
	Solanum lasiophyllum
	Solanum phlomoides
Surianaceae	*Stylobasium spathulatum*
Thymelaeaceae	*Pimelea forrestiana*
Violaceae	*Afrohybanthus aurantiacus*
Zygophyllaceae	*Tribulus astrocarpus*
	Tribulus macrocarpus
	Tribulus suberosus
	**Tribulus terrestris*



APPENDIX E

Raw Data Recorded in Quadrats and Relevés

Site Name:	C01
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	14/03/2022
GPS Location:	GDA94 Zone 50 695066.75E 7477598.34N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Other, Undulating plain (other)
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	E
Soil Type:	Clay Loam
Soil Colour:	Brown, Orange (other)
Rock Outcrop:	Ironstone, <2% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone, Quartz
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years
Habitat:	Low open woodland over open shrubland over open hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.3	0.1
Acacia aptaneura	0.9	0.1
Acacia atkinsiana	2.1	0.1
Acacia bivenosa	1.2	7
Acacia cowleana	1.5	0.1
Acacia monticola	1.8	0.1
Acacia synchronicia	0.3	0.1
Acacia tetragonophylla	1.4	1.5
Aristida contorta	0.3	1
Capparis lasiantha	0.4	0.1
Cassytha capillaris		0.1
Corchorus lasiocarpus subsp. *parvus*	0.5	0.1
Cymbopogon ambiguus	0.9	0.2
Dampiera candicans	0.2	0.1
Dodonaea lanceolata var. *lanceolata*	0.6	0.2
Duperreya commixta		0.01
Eriachne mucronata	0.4	1
Eucalyptus leucophloia subsp. *leucophloia*	7	10
Goodenia microptera	0.1	0.1
Goodenia muelleriana	0.25	0.1
Goodenia stobbsiana	0.1	0.1
Gossypium robinsonii	1.1	0.5
Hibiscus burtonii	0.3	0.1
Hibiscus coatesii	0.3	0.1
Indigofera monophylla	0.15	0.1
Jasminum didymum subsp. *lineare*	1.1	0.1
Paraneurachne muelleri	0.4	0.2
Pluchea dentex	0.2	0.1
Psydrax suaveolens	0.9	0.1
Ptilotus astrolasius	0.4	0.1
Ptilotus calostachyus	0.2	0.1
Ptilotus ?exaltatus	0.05	0.1
Ptilotus rotundifolius	0.2	0.1

Rhynchosia minima	0.3	0.1
Santalum lanceolatum	1.8	1.5
Senna glutinosa subsp. *glutinosa*	0.8	0.1
Senna glutinosa subsp. *x luerssenii*	0.9	0.5
Senna stricta	0.6	1
Sida arenicola	0.8	0.1
Sida sp. Articulation below (A.A. Mitchell PRP 1605)	0.5	0.1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	0.25	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.5	0.1
Solanum lasiophyllum	0.4	0.1
Streptoglossa bubakii	0.2	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.7	1
Triodia pungens	0.4	10
Triodia vanleeuwenii	0.6	15
Triodia wiseana	0.8	1.5

PHOTOS

Site Name:	C02
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	15/03/2022
GPS Location:	GDA94 Zone 50 682864.53E 7470751.5N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Flat
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	(other) - track nearby
Fire:	5-10 Years
Habitat:	Low open mallee woodland over tall sparse shrubland over open hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia atkinsiana	1.5	5
Acacia bivenosa	1.5	0.2
Acacia dictyophleba	0.3	0.1
Acacia tenuissima	1.5	0.2
Corymbia deserticola subsp. *deserticola*	3	0.5
Cymbopogon ambiguus	0.8	0.1
Duperreya commixta		0.2
Eremophila forrestii subsp. *forrestii*	0.8	1
Eucalyptus gamophylla	4	12
Eucalyptus leucophloia subsp. *leucophloia*	5	4
Euphorbia tannensis subsp. *eremophila*	0.2	0.1
Evolvulus alsinoides	0.15	0.1
Hibiscus burtonii	0.4	0.1
Hibiscus sturtii var. *campylochlamys*	0.5	0.1
Indigofera georgei	0.5	0.2
Paraneurachne muelleri	0.4	0.1
Ptilotus rotundifolius	1	2
Rhynchosia minima		0.1
Senna artemisioides subsp. *oligophylla*	1	1
Senna glutinosa subsp. *x luerssenii*	0.9	1
Sida echinocarpa	0.6	0.1
Sida echinocarpa		0.1
Sida sp. L (A.M. Ashby 4202)	0.2	0.1
Solanum lasiophyllum	0.8	0.1
Tephrosia sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)	0.01	0.1
Triodia pungens	0.5	17
Triodia vanleeuwenii	0.3	1

PHOTOS

Site Name:	C03
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	16/03/2022
GPS Location:	GDA94 Zone 50 694872.82E 7477202.99N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Mid Slope
Slope Class:	Gently Inclined (3 degrees)
Aspect:	NW
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Isolated trees over sparse low shrubland over sparse hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.25	0.1
Acacia cowleana		
Acacia hilliana		
Acacia monticola	0.6	0.1
Amphipogon sericeus	0.25	1
Aristida holathera var. *holathera*	0.2	0.1
Clerodendrum floribundum var. *angustifolium*		
Codonocarpus cotinifolius	0.25	0.1
Corchorus incanus subsp. *lithophilus*	0.3	0.1
Corymbia deserticola subsp. *deserticola*	4	2
Corymbia hamersleyana		
Cucumis variabilis	0.02	0.1
Dodonaea coriacea		
Eucalyptus leucophloia subsp. *leucophloia*		0.1
Fimbristylis simulans	0.07	1
Goodenia stobbsiana	0.15	1
Goodenia triodiophila	0.3	0.1
Hakea chordophylla	1.2	0.5
Hibiscus coatesii	0.15	0.1
Hibiscus sturtii var. *platychlamys*	0.25	0.1
Ptilotus astrolasius		
Ptilotus astrolasius	0.1	0.1
Ptilotus calostachyus	0.5	2
Santalum lanceolatum		
Schizachyrium fragile	0.2	0.1
Senna artemisioides subsp. *oligophylla*	0.8	0.1
Senna ?*ferraria*	0.4	0.1
Senna glutinosa subsp. *x luerssenii*	0.8	0.1
Seringia exastia (T)		0.1
Sida arenicola	0.8	0.1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	0.3	0.1
Solanum lasiophyllum	0.5	0.1
Solanum phlomoides	0.9	0.1

Trachymene oleracea subsp. *oleracea*	0.01	0.1
Triodia vanleeuwenii	0.2	10
Triodia wiseana	0.25	1

PHOTOS

Site Name:	C04
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	16/03/2022
GPS Location:	GDA94 Zone 50 694846.81E 7476696.72N
Orientation:	90/180
Vegetation Type:	2
Landform Type:	Mid Slope
Slope Class:	Gently Inclined (3 degrees)
Aspect:	NW
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Isolated trees over isolated low shrubs over open hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.2	0.2
Acacia hilliana	0.3	1
Aristida holathera var. *holathera*	0.5	0.1
Dolichocarpa crouchiana	0.1	0.1
Eucalyptus leucophloia subsp. *leucophloia*	6	1
Euphorbia australis var. *hispidula*	0.1	0.1
Fimbristylis simulans	0.07	0.2
Goodenia stobbsiana	0.2	0.2
Goodenia triodiophila	0.3	0.1
Hakea chordophylla	1.8	1
Hibiscus sturtii var. *campylochlamys*	0.25	0.1
Paraneurachne muelleri	0.4	0.1
Paspalidium clementii	0.15	0.1
Ptilotus astrolasius	0.3	0.1
Ptilotus calostachyus	0.8	1
Ptilotus rotundifolius	0.6	0.1
Senna artemisioides subsp. *oligophylla*	0.3	0.1
Senna glaucifolia	0.7	0.1
Senna glutinosa subsp. *glutinosa*	0.4	0.1
Senna glutinosa subsp. *pruinosa*	0.7	0.1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	0.4	0.1
Solanum phlomoides	0.3	0.1
Triodia vanleeuwenii	0.2	15
Triodia wiseana	0.3	0.5

PHOTOS

Site Name:	C05
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	16/03/2022
GPS Location:	GDA94 Zone 50 682816.6E 7471439.63N
Orientation:	90/180
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	20-50%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - VG - Very Good
Disturbance:	(other) - old tracks on edge
Fire:	>10 Years
Habitat:	Low open woodland over sparse low shrubland over sparse hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.4	0.1
Abutilon macrum		
Acacia ancistrocarpa	2	1
Acacia aneura	2.5	1
Acacia aptaneura	2.5	7
Acacia inaequilatera	1.5	0.2
Acacia pruinocarpa	3	1
Acacia pyrifolia var. *pyrifolia*	2	0.2
Anthobolus leptomerioides	2	0.1
Aristida holathera var. *holathera*	0.4	1
Aristida inaequiglumis	0.9	2
Arivela viscosa	0.05	0.1
Boerhavia coccinea	0.2	0.2
Capparis lasiantha	1	0.1
Corymbia deserticola subsp. *deserticola*	6	2
Cucumis variabilis	0.05	0.1
Duperreya commixta		0.1
?*Enchylaena tomentosa*	0.3	0.3
Enneapogon polyphyllus	0.07	0.1
Enneapogon robustissimus	0.4	0.5
Eragrostis eriopoda	0.4	0.1
Eremophila forrestii subsp. *forrestii*	1	0.5
Eremophila longifolia	2	0.2
Eulalia aurea	0.6	0.1
Evolvulus alsinoides	0.1	0.1
Gossypium australe	0.04	0.1
Hibiscus burtonii	0.2	0.1
Hibiscus sturtii var. *platychlamys*	0.3	0.1
Perotis rara	0.07	0.1
?*Pterocaulon* sp.	0.04	0.1
Pterocaulon sphacelatum	0.5	0.2
Ptilotus astrolasius	0.8	1
Ptilotus ?*exaltatus*	0.5	0.1
Ptilotus obovatus var. *obovatus*	0.5	0.1

Rhynchosia minima	0.2	0.1
Sclerolaena cornishiana	0.2	0.1
Senna artemisioides subsp. *helmsii*	0.9	0.1
Senna artemisioides subsp. *oligophylla*	1.3	1
Senna glutinosa subsp. *x luerssenii*	1.2	0.5
Senna notabilis	0.04	0.1
Sida sp. L (A.M. Ashby 4202)	0.25	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.5	0.1
Tribulus macrocarpus	0.25	0.1
Tribulus suberosus	0.6	1

PHOTOS

Site Name:	C06
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	17/03/2022
GPS Location:	GDA94 Zone 50 682495.74E 7471506.85N
Orientation:	90/180
Vegetation Type:	9
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	>10 Years
Habitat:	Low open woodland over tall shrubland over hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia aptaneura	2.5	0.5
Acacia atkinsiana	2.5	15
Acacia pruinocarpa		
Acacia tenuissima	0.8	0.1
Anthobolus leptomerioides	1.5	0.2
Aristida holathera var. *holathera*	0.3	0.5
Aristida inaequiglumis	0.5	0.2
Boerhavia coccinea	0.1	0.1
Duperreya commixta		0.2
Enneapogon polyphyllus	0.15	0.5
Eremophila forrestii subsp. *forrestii*	1	0.1
Eremophila longifolia	0.4	0.1
Eriachne mucronata		
Eucalyptus gamophylla	4	2
Eucalyptus leucophloia subsp. *leucophloia*	6	1
Euphorbia tannensis subsp. *eremophila*	0.5	0.2
Evolvulus alsinoides		
Goodenia microptera	0.3	0.1
Goodenia stobbsiana	0.07	0.1
Hibiscus burtonii	0.5	0.1
Hibiscus coatesii	1.1	0.1
Indigofera monophylla	0.3	0.1
Paraneurachne muelleri	0.5	0.1
Ptilotus astrolasius	0.8	0.5
Ptilotus calostachyus	0.9	0.2
Ptilotus rotundifolius	1.1	1
Rhynchosia minima		
Scaevola parvifolia subsp. *pilbarae*		0.2
Senna artemisioides subsp. *oligophylla*	0.8	0.2
Senna glutinosa subsp. *x luerssenii*	1.8	0.5
Sida arenicola	0.4	0.1
Sida sp. L (A.M. Ashby 4202)	0.5	
Solanum lasiophyllum	0.5	0.2
Triodia pungens	0.6	2

Triodia vanleeuwenii	0.3	30
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	C07
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	17/03/2022
GPS Location:	GDA94 Zone 50 682677.34E 7473210.23N
Orientation:	90/180
Vegetation Type:	9
Landform Type:	Drainage Line
Slope Class:	Gently Inclined (3 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	10-20%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	>10 Years
Habitat:	Woodland over tall shrubland over closed tussock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon macrum	0.9	0.2
Abutilon otocarpum	0.5	0.5
Acacia ancistrocarpa	4	12
Acacia atkinsiana	1.6	1
Acacia bivenosa	1.3	0.1
Acacia cowleana	7	1
Acacia dictyophleba	1.9	0.5
Acacia maitlandii	1.2	0.1
Acacia monticola	1.2	0.2
Acacia tenuissima	1.6	0.1
Afrohybanthus aurantiacus	0.8	0.5
?*Androcalva loxophylla*	0.1	0.1
Anthobolus leptomerioides	1.2	0.5
Boerhavia coccinea	0.2	0.1
Bonamia erecta	0.7	1
Capparis lasiantha	1	0.1
Chrysopogon fallax	1.4	5
Corchorus lasiocarpus subsp. *parvus*	0.3	0.5
Corymbia hamersleyana	9	3
Cymbopogon obtectus	1.1	2
Duperreya commixta		1
Eremophila longifolia	2	0.5
Eucalyptus gamophylla	9	10
Eulalia aurea	1	30
Evolvulus alsinoides	0.15	0.2
Glycine canescens		0.1
Goodenia microptera	0.4	0.1
Goodenia stellata	0.2	0.3
Gossypium robinsonii	1.7	2
Hakea loreus subsp. *loreus*	1.2	0.1
Hibiscus sturtii var. *platychlamys*	0.6	0.2
Indigofera georgei	0.4	0.1
Jasminum didymum subsp. *lineare*		0.5
Paraneurachne muelleri	0.6	1

Pterocaulon sphacelatum	0.7	0.3
Ptilotus astrolasius	1	2
Ptilotus calostachyus	0.4	0.1
Rhynchosia minima	0.2	0.5
Santalum lanceolatum	1.5	1
Scaevola parvifolia subsp. *pilbarae*	0.5	0.2
Senna artemisioides subsp. *oligophylla*	1.3	0.5
Seringia exastia (T)	0.8	1
Sida sp. L (A.M. Ashby 4202)	0.2	1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.6	0.1
Solanum lasiophyllum	0.4	0.1
Tephrosia densa	1	0.2
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.9	10
Triodia pungens	0.5	2
Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)	0.1	0.2
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	C08
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	17/03/2022
GPS Location:	GDA94 Zone 50 682858.18E 7473080.24N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Other, Undulating plain (other)
Slope Class:	Gently Inclined (3 degrees)
Aspect:	W
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years
Habitat:	Sparse low woodland over isolated shrubs over hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia atkinsiana	1.8	2
Acacia bivenosa	1.2	0.1
Acacia dictyophleba	1.2	1
Aristida holathera var. *holathera*	0.4	0.1
Capparis lasiantha	0.25	0.1
Chrysopogon fallax	1	1
Cymbopogon ambiguus	0.9	0.1
Eriachne mucronata	0.4	0.2
Eucalyptus gamophylla	4	2
Eucalyptus leucophloia subsp. *leucophloia*	8	1.5
Gossypium australe	0.2	0.1
Grevillea wickhamii subsp. ?*hispidula*	0.7	0.1
Hakea loreus subsp. *loreus*	0.2	0.1
Indigofera monophylla	0.4	0.1
Paraneurachne muelleri	0.4	0.1
Ptilotus calostachyus	0.6	0.1
Ptilotus rotundifolius	0.9	1
Scaevola parvifolia subsp. *pilbarae*	0.4	0.1
Senna artemisioides subsp. *oligophylla*	0.2	0.1
Senna glutinosa subsp. *pruinosa*	1.3	0.2
Senna glutinosa subsp. *x luerssenii*	1.1	0.5
Sida echinocarpa	0.2	0.1
Triodia pungens	0.6	1
Triodia vanleeuwenii	0.3	20

PHOTOS

Site Name:	C09
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	18/03/2022
GPS Location:	GDA94 Zone 50 683353.41E 7473736.1N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Mid Slope
Slope Class:	Moderately Inclined (10 degrees)
Aspect:	NE
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 2-10% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm, 200-600mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None, (other) - wallaby poo
Fire:	>10 Years
Habitat:	Sparse low woodland over sparse shrubland over closed grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.6	1.1
Acacia ancistrocarpa	2.2	0.2
Acacia dictyophleba	1.5	0.5
Acacia inaequilatera	2	2
Acacia monticola	2.5	3
Acacia pruinocarpa	1.5	0.1
?*Androcalva loxophylla*	0.05	0.1
Aristida holathera var. *holathera*	0.4	0.1
Corymbia hamersleyana		
Cymbopogon ambiguus	1	0.1
Dampiera candicans	0.6	2
Eriachne mucronata	0.4	10
Eucalyptus leucophloia subsp. *leucophloia*	5	5
Goodenia triodiophila	0.3	0.1
Gossypium robinsonii		
Grevillea wickhamii subsp. *hispidula*	1.5	2
Hakea chordophylla	1.5	0.5
Hibiscus coatesii	0.8	0.1
Indigofera monophylla	0.4	0.1
Paraneurachne muelleri	0.4	0.5
Perotis rara	0.1	0.2
Petalostylis labicheoides		
Ptilotus astrolasius	0.5	0.2
Ptilotus calostachyus	1.1	1.5
Ptilotus clementii	0.2	0.1
Ptilotus rotundifolius	0.9	0.5
Senna artemisioides subsp. *oligophylla*	0.8	0.1
Senna glaucifolia	1.5	0.1
Senna glutinosa subsp. *glutinosa*	2	2
Senna glutinosa subsp. *pruinosa*	1.3	1
Senna glutinosa subsp. *x luerssenii*	0.1	0.1
Seringia exastia (T)	0.4	1
Solanum lasiophyllum	0.8	0.1

Solanum phlomoides	0.3	0.1
Tephrosia oxalidea	0.01	0.1
Triodia wiseana	1	40

PHOTOS

Site Name:	C10
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	18/03/2022
GPS Location:	GDA94 Zone 50 689488.03E 7478587.75N
Orientation:	90/180
Vegetation Type:	9
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	20-50%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	>10 Years
Habitat:	Low sparse woodland over tall open shrubland over open grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia ancistrocarpa	1.5	0.2
Acacia aptaneura	3	2
Acacia atkinsiana	2.5	20
Acacia pruinocarpa	2	0.5
Acacia tenuissima	0.4	0.1
Anthobolus leptomerioides		
Aristida holathera var. *holathera*	0.4	1
Aristida inaequiglumis	1.5	2
Boerhavia coccinea	0.1	0.1
Corchorus lasiocarpus subsp. *parvus*	0.6	0.1
Corymbia deserticola subsp. *deserticola*	9	3
Corymbia hamersleyana	6	1.5
Cymbopogon obtectus	0.8	0.1
Digitaria ammophila	0.3	0.2
Digitaria brownii	0.8	1
Duperreya commixta		1
Enneapogon polyphyllus	0.7	1
Enneapogon robustissimus	0.9	2
Eragrostis eriopoda	0.4	0.5
Eriachne mucronata	0.3	0.1
Eucalyptus gamophylla	4	1.5
Eucalyptus leucophloia subsp. *leucophloia*	5	4
Evolvulus alsinoides	0.1	0.1
Goodenia microptera	0.3	0.1
Goodenia stobbsiana	0.15	0.1
Hibiscus burtonii	0.7	0.2
Hibiscus coatesii		
Hibiscus sturtii var. *platychlamys*	0.5	0.1
Indigofera monophylla	0.5	0.1
Jasminum didymum subsp. *lineare*		0.1
Maireana villosa	2	0.1
Panicum effusum	0.25	0.1
Paraneurachne muelleri	0.4	3
Psydrax latifolia		

Ptilotus astrolasius	0.6	1
Ptilotus calostachyus	1	1
Ptilotus ?exaltatus	0.9	0.5
Santalum lanceolatum	2	0.2
Scaevola parvifolia subsp. *pilbarae*	0.3	1
Senna artemisioides subsp. *oligophylla*	1.1	0.1
Sida cardiophylla	0.3	0.1
Sida echinocarpa	0.2	0.1
Solanum lasiophyllum	0.4	0.1
Triodia wiseana	1	15
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	C11
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	18/03/2022
GPS Location:	GDA94 Zone 50 688929.7E 7477533.13N
Orientation:	90/180
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Sizes:	2-6mm, 6-20mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - VG - Very Good
Disturbance:	Exotic Weeds
Fire:	>10 Years
Habitat:	Low woodland over tall shrubland over closed tussock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon macrum	1.3	0.5
Abutilon otocarpum	0.8	1
Acacia aneura	3	3
Acacia aptaneura	5	13
Acacia pruinocarpa	2.5	5
Acacia tenuissima	2.5	0.1
Alternanthera nana	0.15	0.1
Anthobolus leptomerioides	0.9	0.1
Aristida holathera var. *holathera*	0.4	8
Aristida inaequiglumis	1.8	10
Arivela viscosa	0.2	2
**Bidens bipinnata*	0.5	1
Boerhavia coccinea	0.1	2
Boerhavia repleta	0.2	0.2
**Cenchrus setiger*	0.5	0.1
Chrysopogon fallax	1.8	15
Clerodendrum floribundum var. *angustifolium*	1.4	0.1
Corymbia deserticola subsp. *deserticola*	2	0.2
Corymbia hamersleyana	6	1
Cucumis variabilis		2
Dactyloctenium radulans	0.2	0.1
Digitaria ctenantha	0.2	0.1
Dodonaea petiolaris	1.2	0.2
Duperreya commixta		3
Enneapogon polyphyllus	0.7	25
Enneapogon robustissimus	1.2	10
Eremophila longifolia	2.5	3
Eucalyptus leucophloia subsp. *leucophloia*	3	0.1
Eucalyptus xerothermica	4	0.5
Eulalia aurea	1	0.1
Euphorbia biconvexa	0.4	0.2
Evolvulus alsinoides var. *villosicalyx*	0.2	0.3
Glycine canescens		0.1
Gomphrena canescens subsp. *canescens*	0.2	0.1
Goodenia stellata	0.1	0.5

Hibiscus burtonii	0.5	1
Hibiscus sturtii var. *platychlamys*	1	0.5
Indigofera georgei		0.1
Isotropis iophyta	0.5	0.1
Maireana villosa	0.6	1
**Malvastrum americanum*	1	0.5
Melhania oblongifolia	1	0.1
Perotis rara	0.2	2
Pterocaulon sphacelatum	1.3	8
Ptilotus astrolasius	0.8	2
Ptilotus calostachyus	0.8	0.5
Ptilotus helipteroides	0.1	0.1
Rhynchosia minima	0.2	0.3
Senna artemisioides subsp. *oligophylla*	0.9	0.2
Senna glaucifolia	1.4	0.2
Senna notabilis		0.1
Sida sp. L (A.M. Ashby 4202)	0.2	3
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1.6	0.2
Streptoglossa decurrens	1.4	0.5
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	1.6	20
Tribulus macrocarpus	0.2	0.1
Triodia pungens	0.5	0.5

PHOTOS

Site Name:	C12
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	19/03/2022
GPS Location:	GDA94 Zone 50 690248.24E 7478356.06N
Orientation:	90/180
Vegetation Type:	9
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	20-50%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	>10 Years
Habitat:	Low open woodland over tall shrubland over closed tall hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.5	0.2
Acacia aneura	3.5	12
Acacia aptaneura	3.5	11
Acacia atkinsiana	3.5	1
Acacia pruinocarpa	3	1
Acacia sibirica	3.5	10
Alternanthera nana	0.15	0.1
Aristida holathera var. *holathera*	0.5	1
**Bidens bipinnata*		
Boerhavia coccinea	0.1	0.1
Boerhavia repleta	0.2	0.2
Corchorus lasiocarpus subsp. *parvus*	0.3	0.1
Corymbia deserticola subsp. *deserticola*	7	2
Cucumis variabilis		0.2
Cymbopogon obtectus	1.2	0.1
Digitaria brownii	0.9	0.1
Duperreya commixta		5
Enneapogon polyphyllus	0.6	12
Eremophila forrestii subsp. *forrestii*	1.5	0.1
Eremophila latrobei subsp. *filiformis*	1.5	1
Eucalyptus leucophloia subsp. *leucophloia*	3	0.5
Euphorbia australis var. *hispidula*	0.01	0.1
Euphorbia tannensis subsp. *eremophila*	0.1	0.1
Euploca cunninghamii	0.3	0.5
Evolvulus alsinoides var. *decumbens*	0.2	0.1
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1
Goodenia microptera	0.4	0.1
Goodenia muelleriana	0.3	0.1
Goodenia stobbsiana	0.3	0.2
Hibiscus burtonii	1.2	5
Hibiscus sturtii var. *platychlamys*	0.6	1
Indigofera monophylla	0.5	5
Maireana villosa	0.6	0.5
Panicum effusum	0.4	0.5

Paraneurachne muelleri	0.7	15
Peripleura obovata	0.9	2
Polygala glaucifolia	0.01	0.1
Psydrax latifolia	2	0.5
Psydrax suaveolens	4	0.5
Pterocaulon sphacelatum	1.2	2
Ptilotus astrolasius	0.7	1
Ptilotus calostachyus	1.3	0.5
Ptilotus ?exaltatus	0.7	0.1
Rhynchosia minima	0.1	0.1
Scaevola parvifolia subsp. *pilbarae*	0.3	0.1
Senna notabilis	0.15	0.1
Sida echinocarpa	0.5	2
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1.2	0.1
Solanum ferocissimum	0.15	0.5
Solanum lasiophyllum	0.5	0.1
Solanum phlomoides	1	0.1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.3	0.1
Triodia pungens	0.7	0.1
Triodia wiseana	1.5	50
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	C13
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	19/03/2022
GPS Location:	GDA94 Zone 50 690820.11E 7476485.2N
Orientation:	90/180
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	(other) - tracks nearby
Fire:	>10 Years
Habitat:	Isolated trees over tall open shrubland over open tussock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon lepidum	0.7	0.1
Abutilon otocarpum	0.3	0.1
Acacia aneura	3	2
Acacia aptaneura	8	6
Acacia ayersiana	2.5	0.3
Acacia pruinocarpa	3.5	5
Aristida holathera var. *holathera*	0.4	5
Aristida inaequiglumis	1.5	1
Arivela viscosa	0.1	0.1
**Bidens bipinnata*	0.1	0.1
Boerhavia coccinea	0.2	0.2
Capparis lasiantha	1.1	0.2
Chrysopogon fallax	1.4	1
Dodonaea petiolaris	2	4
Duperreya commixta		0.2
Enneapogon polyphyllus	0.4	1
Enneapogon robustissimus	0.8	0.2
Eremophila fraseri subsp. *fraseri*	2.5	7
Eremophila latrobei subsp. *filiformis*	1.7	0.5
Eriachne mucronata	0.5	0.5
Eulalia aurea	0.9	0.1
Evolvulus alsinoides	0.1	0.1
Gomphrena canescens subsp. *canescens*	0.2	0.1
Hibiscus burtonii	0.7	1
Hibiscus sturtii var. *platychlamys*	0.5	0.5
Maireana villosa	0.7	1
Melhania oblongifolia	0.4	0.1
Paraneurachne muelleri	0.4	1.5
Psydrax suaveolens	1.5	0.1
Pterocaulon sphacelatum	0.9	0.1
Ptilotus astrolasius	0.6	0.5
Ptilotus ?exaltatus	0.8	0.1
Santalum lanceolatum	2.5	0.2
Sclerolaena cornishiana	0.3	0.1

Senna artemisioides subsp. *helmsii*	1.3	0.5
Senna artemisioides subsp. *oligophylla*	0.2	0.1
Senna glaucifolia	1.2	0.1
Sida ectogama	1.8	0.5
Sida sp. L (A.M. Ashby 4202)	0.3	0.5
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1.5	0.1
Solanum cleistogamum	0.7	0.1
Solanum lasiophyllum	0.8	0.1
Streptoglossa decurrens	1.4	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	1.2	7
Triodia pungens	0.5	2

PHOTOS

Site Name:	C14
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	19/03/2022
GPS Location:	GDA94 Zone 50 690269.77E 7477051.54N
Orientation:	90/180
Vegetation Type:	9
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	20-50%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	(other) - old track through quadrat
Fire:	<5 Years
Habitat:	Isolated trees and mallees over open hummock grassland over low shrubs

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon lepidum	0.5	0.1
Abutilon otocarpum	0.5	0.1
Acacia ancistrocarpa	2.5	1
Acacia aptaneura	0.9	0.1
Acacia atkinsiana	1.5	1
Acacia ?elachantha	2	0.2
Acacia pruinocarpa	2	1
Alternanthera nana	0.1	0.1
Anthobolus leptomerioides	2	0.2
Aristida holathera var. *holathera*	0.4	2
Aristida inaequiglumis	1.2	1
Arivela viscosa	0.1	0.1
Capparis lasiantha	0.9	0.1
Corymbia deserticola subsp. *deserticola*	6	2
Corymbia hamersleyana	4	0.5
Cucumis variabilis		0.1
Cymbopogon obtectus	0.9	0.3
Dodonaea petiolaris	1.2	0.5
Duperreya commixta		1
Enneapogon polyphyllus	0.5	1
Eucalyptus gamophylla	2	3
Eulalia aurea	0.9	0.5
Gossypium australe	1.5	0.2
Gossypium robinsonii	1.8	0.5
Hibiscus burtonii	0.8	0.1
Hibiscus sturtii var. *platychlamys*	0.8	0.5
Indigofera monophylla	0.5	1
Panicum effusum	0.6	0.2
Paraneurachne muelleri	0.4	1
Psydrax suaveolens	0.9	0.1
Pterocaulon sphacelatum	0.5	0.1
Ptilotus astrolasius	0.6	1
Ptilotus calostachyus	1	0.1
Ptilotus rotundifolius	1.1	0.2

Rhynchosia minima	0.5	0.5
Senna artemisioides subsp. *helmsii*	0.7	1
Senna glaucifolia	1.2	0.2
Senna glutinosa subsp. *glutinosa*	1.5	0.2
Sida echinocarpa	1	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.9	0.1
Sida sp. Supplejack Station (T.S. Henshall 2345)	0.4	0.2
Solanum cleistogamum	0.4	0.1
Solanum lasiophyllum	0.4	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	1.1	1
Triodia pungens	0.5	7

PHOTOS

Site Name:	C15
Site Type:	QUADRAT
Dimensions:	25m x 100m
Survey Date:	20/03/2022
GPS Location:	GDA94 Zone 50 690902.98E 7474806.1N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Drainage Line
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	20-50%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	(other) - track nearby
Fire:	<5 Years
Habitat:	Low open woodland over closed tall shrubland over low shrubs and grasses

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon macrum	0.8	0.1
Acacia adoxa var. *adoxa*	0.4	0.1
Acacia ancistrocarpa	0.4	0.2
Acacia atkinsiana	0.8	2
Acacia monticola	1.5	10
Acacia tenuissima	0.6	0.1
Acacia tumida var. *pilbarensis*	2.5	45
Afrohybanthus aurantiacus	0.7	2
?*Androcalva loxophylla*	0.15	0.1
Aristida holathera var. *holathera*	0.7	4
Bonamia erecta	0.6	0.4
Corchorus incanus subsp. *lithophilus*	0.4	0.1
Corymbia hamersleyana	7	1
Dampiera candicans	0.3	0.1
Dodonaea lanceolata var. *lanceolata*	1.5	1
Duperreya commixta		0.5
Eriachne mucronata	0.6	2
Eucalyptus leucophloia subsp. *leucophloia*	7	2
Evolvulus alsinoides	0.1	0.1
Fimbristylis simulans	0.1	0.1
Goodenia microptera	0.4	0.1
Goodenia stobbsiana	0.2	0.1
Goodenia triodiophila	0.4	0.1
Hibiscus sturtii var. *campylochlamys*	0.7	7
Indigofera monophylla	0.5	0.3
Jasminum didymum subsp. *lineare*		0.5
Paraneurachne muelleri	0.6	3
Ptilotus astrolasius	0.8	2
Ptilotus calostachyus	1.1	1
Santalum lanceolatum	2.2	0.5
Scaevola parvifolia subsp. *pilbarae*	0.3	1
Senna artemisioides subsp. *oligophylla*	0.9	0.1
Senna glutinosa subsp. *glutinosa*	1.8	0.5
Senna glutinosa subsp. *pruinosa*	1	0.1

Senna glutinosa subsp. *x luerssenii*	1.3	0.2
Seringia exastia (T)	0.6	1.5
Sida arenicola	1.5	0.3
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1.5	0.1
Solanum lasiophyllum	0.7	0.2
Tephrosia densa	0.9	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	1.5	1
Triodia pungens	0.8	6
Triodia vanleeuwenii	0.3	2
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	C16
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	20/03/2022
GPS Location:	GDA94 Zone 50 690825.79E 7475206.9N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Lower Slope
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	E
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Low open woodland over sparse shrubland over open hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia ancistrocarpa	1.1	0.1
Acacia tenuissima	0.9	0.1
Acacia tumida var. *pilbarensis*	1.1	0.1
Amphipogon sericeus	0.3	0.1
Aristida holathera var. *holathera*	0.6	0.2
Capparis lasiantha	1	0.5
Clerodendrum floribundum var. *angustifolium*	0.8	0.1
Eriachne mucronata	0.4	0.1
Eucalyptus gamophylla	3	3
Eucalyptus leucophloia subsp. *leucophloia*	8	6
Euploca pachyphylla	0.3	0.1
Evolvulus alsinoides	0.1	0.1
Goodenia microptera	0.2	0.1
Goodenia triodiophila	0.3	0.1
Hibiscus coatesii	0.3	0.1
Indigofera monophylla	0.4	1
Paraneurachne muelleri	0.4	2
Ptilotus astrolasius	0.5	1
Ptilotus calostachyus	1	1
Ptilotus rotundifolius	0.9	1
Scaevola parvifolia subsp. *pilbarae*	0.4	0.3
Senna artemisioides subsp. *helmsii*	0.5	0.2
Senna artemisioides subsp. *oligophylla*	1	0.5
Senna glutinosa subsp. *pruinosa*	1.1	0.1
Senna glutinosa subsp. *x luerssenii*	1.2	0.5
Seringia exastia (T)	0.5	1.5
Sida arenicola	1.1	0.1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	0.6	0.1
Solanum lasiophyllum	0.7	0.1
Triodia pungens	0.4	0.1
Triodia vanleeuwenii	0.3	15

PHOTOS

Site Name:	C17
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	20/03/2022
GPS Location:	GDA94 Zone 50 691240.76E 7475863.77N
Orientation:	90/180
Vegetation Type:	10
Landform Type:	Other, Flow Line (other)
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	N
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	2-10%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - G - Good
Disturbance:	Exotic Weeds
Fire:	<5 Years
Habitat:	low open woodland over sparse shrubland over hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon macrum	0.7	0.1
Acacia aptaneura	3	0.5
Acacia maitlandii	0.5	0.1
Acacia pyrifolia var. *pyrifolia*	1.5	2
Acacia tumida var. *pilbarensis*	1.8	0.5
Afrohybanthus aurantiacus	0.8	1
Alternanthera nana	0.2	0.1
Aristida holathera var. *holathera*	0.5	5.2
Aristida inaequiglumis	1.2	0.2
Arivela viscosa	0.2	0.2
Atalaya hemiglauca	2.5	0.2
**Bidens bipinnata*	0.2	0.5
Boerhavia coccinea	0.15	0.5
**Cenchrus setiger*	0.8	7
Chrysopogon fallax	1.2	0.2
Clerodendrum floribundum var. *angustifolium*	1.4	0.2
Corchorus crozophorifolius	0.4	0.4
Corchorus lasiocarpus subsp. *parvus*	0.5	0.5
Corymbia hamersleyana	8	6
Crotalaria medicaginea var. *neglecta*	0.25	0.2
Cucumis variabilis		0.5
Enneapogon polyphyllus	0.5	3
Enneapogon robustissimus	0.9	1
Eragrostis eriopoda	0.5	1
Eremophila longifolia	1.6	0.1
Eriachne mucronata	0.4	2
Eulalia aurea	0.9	0.5
Euphorbia australis var. *subtomentosa*	0.2	0.2
Euphorbia biconvexa	0.5	0.1
Euploca cunninghamii	0.3	3
Euploca pachyphylla	0.4	0.7
Evolvulus alsinoides	0.1	0.1
Evolvulus alsinoides var. *decumbens*	0.2	0.1

Gomphrena canescens subsp. *canescens*	0.25	0.2
Goodenia microptera	0.3	0.1
Gossypium australe	0.9	0.3
Gossypium robinsonii	1.8	2
Grevillea wickhamii subsp. ?*hispidula*	1.2	0.1
Indigofera georgei	1	0.1
Indigofera monophylla	0.7	0.2
Jasminum didymum subsp. *lineare*		0.2
Maireana villosa	0.4	0.1
Melhania oblongifolia	0.8	0.1
Nellica maderaspatensis	0.2	0.1
Paraneurachne muelleri	0.8	1
Paspalidium rarum	0.25	0.1
Perotis rara	0.15	0.2
Polymeria ambigua	0.1	0.5
Pterocaulon sphacelatum	1.2	0.2
Ptilotus astrolasius		
Ptilotus ?*carinatus*	0.2	0.1
Rhynchosia minima	0.3	0.3
Scaevola amblyanthera var. *centralis*		
Senna artemisioides subsp. *helmsii*	0.9	0.1
Senna artemisioides subsp. *oligophylla*	1.2	0.5
Senna ?*ferraria*	1.3	1
Senna glaucifolia	1.2	0.3
Senna glutinosa subsp. *x luerssenii*	1.2	0.1
Senna notabilis		
Setaria surgens	0.4	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1.4	0.2
Streptoglossa decurrens	1.2	0.4
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.4	0.1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.6	5
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	1.5	3
Trichodesma zeylanicum	0.4	0.1
Triodia pungens	0.7	18
Vincetoxicum lineare		0.2
Waltheria indica	0.4	0.5

PHOTOS

Site Name:	C18
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	20/03/2022
GPS Location:	GDA94 Zone 50 690390.11E 7475864.84N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Lower Slope
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	NE
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, <2% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Isolated trees over isolated tall shrubs over hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.3	0.1
Acacia adsurgens	0.8	0.1
Acacia atkinsiana	0.4	1
Acacia bivenosa	1	0.1
Acacia hilliana	0.3	0.3
Acacia inaequilatera	4	2
Acacia tenuissima	1	0.1
Acacia tumida var. *pilbarensis*	1.3	0.7
Amphipogon sericeus	0.3	0.1
Aristida holathera var. *holathera*	0.3	0.1
Clerodendrum floribundum var. *angustifolium*	1.3	0.1
Corchorus lasiocarpus subsp. *parvus*	0.6	0.1
Corymbia deserticola subsp. *deserticola*	1.1	0.5
Digitaria brownii	0.9	0.1
Duperreya commixta		0.1
Eremophila fraseri subsp. *fraseri*	0.4	0.1
Eucalyptus leucophloia subsp. *leucophloia*	7	2
Fimbristylis simulans	0.07	1
Goodenia stobbsiana	0.25	0.2
Goodenia triodiophila	0.3	0.1
Hakea chordophylla	0.4	0.1
Hibiscus coatesii	0.1	0.1
Indigofera monophylla	0.3	0.5
Paraneurachne muelleri	0.3	1
Psydrax rigidula		
Ptilotus astrolasius	0.5	0.1
Ptilotus calostachyus	1	1.5
Ptilotus ?*carinatus*	0.05	0.1
Ptilotus rotundifolius	1.2	1
?*Ptilotus* sp.	0.02	0.1
Senna glutinosa subsp. *glutinosa*	1.6	0.2
Senna glutinosa subsp. *pruinosa*	0.9	0.5
Sida arenicola	1.2	0.1

Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1.2	0.1
Solanum lasiophyllum	0.7	0.1
Triodia pungens		
Triodia vanleeuwenii	0.2	25

PHOTOS

Site Name:	C19
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	21/03/2022
GPS Location:	GDA94 Zone 50 692214.16E 7475218.37N
Orientation:	90/180
Vegetation Type:	10
Landform Type:	Other, Flow Line (other)
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	W
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	20-50%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	Exotic Weeds
Fire:	<5 Years
Habitat:	Low open woodland over tall shrubland over grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon lepidum	0.8	0.1
Acacia adoxa var. *adoxa*	0.3	0.2
Acacia bivenosa	0.45	0.1
Acacia pruinocarpa	1.8	0.2
Acacia pyrifolia var. *pyrifolia*	0.4	0.7
Acacia tumida var. *pilbarensis*	2.5	12
Afrohybanthus aurantiacus	0.7	1
Alternanthera nana	0.25	0.4
Androcalva luteiflora	1	2
Aristida holathera var. *holathera*	0.4	1.5
Arivela viscosa	0.15	1
Boerhavia coccinea	0.05	2
Bonamia erecta	0.6	3.5
**Cenchrus setiger*	0.7	0.1
Corchorus crozophorifolius	0.6	0.1
Corchorus lasiocarpus subsp. *parvus*	0.5	0.2
Corymbia hamersleyana	10	10
Crotalaria medicaginea var. *neglecta*	0.3	0.3
Cucumis variabilis		0.2
Cymbopogon ambiguus	1.2	0.1
Digitaria ctenantha	0.3	0.1
Dodonaea lanceolata var. *lanceolata*	1.1	0.1
Duperreya commixta		1
Enneapogon lindleyanus	0.6	0.1
Enneapogon polyphyllus	0.4	6
Enneapogon robustissimus	0.75	1
Eragrostis eriopoda	0.6	2
Eremophila longifolia	1.2	2
Eriachne aristidea	0.25	0.1
Eriachne mucronata	0.5	2
Eriachne pulchella subsp. *dominii*	0.2	0.2
Eriachne tenuiculmis	0.5	0.1
Eucalyptus gamophylla	3	4

Eucalyptus leucophloia subsp. *leucophloia*		
Euphorbia australis var. *subtomentosa*	0.05	0.1
Euphorbia ?*biconvexa*	0.05	0.1
Euploca cunninghamii	0.2	0.5
Euploca pachyphylla	0.3	0.2
Evolvulus alsinoides	0.08	0.1
Evolvulus alsinoides var. *decumbens*	0.2	0.1
Gomphrena canescens subsp. *canescens*	0.15	0.5
Goodenia microptera	0.3	0.1
Goodenia stellata	0.25	0.1
Goodenia stobbsiana	0.4	0.1
Gossypium australe	0.9	0.2
Gossypium robinsonii	2	3
Grevillea wickhamii subsp. ?*hispidula*	3	10
Hibiscus coatesii	0.4	0.1
Hibiscus sturtii var. *campylochlamys*	0.3	0.2
Hibiscus sturtii var. *platychlamys*	0.3	1
Indigofera monophylla	0.3	3
Jasminum didymum subsp. *lineare*		1
Leiocarpa semicalva subsp. *semicalva*	0.4	0.1
**Malvastrum americanum*	0.5	0.1
Melhania oblongifolia	0.7	1
Nellica maderaspatensis	0.4	0.1
Notoleptopus decaisnei	0.2	0.1
Paraneurachne muelleri	0.45	3
Perotis rara	0.05	0.5
Polymeria ambigua	0.08	0.3
Portulaca ?*oleracea*	0.05	0.1
Ptilotus astrolasius	0.45	8
Ptilotus calostachyus	0.5	0.5
Ptilotus ?*carinatus*	0.05	0.5
Ptilotus helipteroides	0.15	0.5
Rhynchosia minima		0.2
Santalum lanceolatum	1.5	0.5
Scaevola parvifolia subsp. *pilbarae*	0.45	0.5
Scaevola spinescens	0.6	0.2
Senna artemisioides subsp. *oligophylla*	0.5	0.5
Senna glaucifolia	0.45	1
Senna glutinosa subsp. *glutinosa*	0.75	0.1
Senna glutinosa subsp. *pruinosa*	1.2	0.4
Senna glutinosa subsp. *x luerssenii*	1.2	0.1
Seringia exastia (T)	0.5	1
Setaria surgens	0.35	0.1
**Setaria verticillata*	0.5	0.1
Sida echinocarpa	0.6	0.2
Sida sp. L (A.M. Ashby 4202)	0.3	2.5
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1.6	0.5
Solanum phlomoides	0.4	0.1
Streptoglossa decurrens	0.45	0.5
Stylobasium spathulatum	1.2	0.1
Tephrosia densa	0.6	5
Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)	0.45	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	1.7	16
Tribulus macrocarpus	0.15	0.1

Trichodesma zeylanicum	0.05	0.1
Triodia pungens	0.7	15
Triodia vanleeuwenii	0.5	0.1
Triodia wiseana	0.5	0.1
Vincetoxicum lineare		0.3
Waltheria indica	0.5	0.2

PHOTOS

Site Name:	C20
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	21/03/2022
GPS Location:	GDA94 Zone 50 693450.65E 7478092.08N
Orientation:	90/180
Vegetation Type:	2
Landform Type:	Upper Slope
Slope Class:	Gently Inclined (3 degrees)
Aspect:	NW
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, <2% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Isolated trees over sparse low shrubland over hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.3	0.1
Acacia ancistrocarpa	0.5	0.1
Acacia atkinsiana	0.4	0.1
Acacia cowleana	0.3	0.1
Acacia hilliana	0.3	1
Amphipogon sericeus	0.3	0.1
Aristida holathera var. *holathera*	0.3	0.1
Clerodendrum floribundum var. *angustifolium*	1.5	0.1
Corchorus incanus subsp. *lithophilus*	0.5	0.2
Corymbia deserticola subsp. *deserticola*		
Corymbia hamersleyana	7	0.5
Eriachne mucronata	0.4	0.2
Eucalyptus leucophloia subsp. *leucophloia*		
Euploca cunninghamii	0.25	0.2
Fimbristylis simulans	0.1	0.2
Gompholobium oreophilum	0.4	1
Goodenia stobbsiana	0.1	0.3
Goodenia triodiophila	0.3	0.1
Hakea chordophylla	4	2
Hibiscus sturtii var. *campylochlamys*	0.4	0.1
Indigofera monophylla	0.3	0.2
Jasminum didymum subsp. *lineare*		
Paraneurachne muelleri		
Ptilotus calostachyus	0.8	0.5
Santalum lanceolatum		
Scaevola parvifolia subsp. *pilbarae*	0.2	0.2
Senna glutinosa subsp. *glutinosa*	0.8	0.5
Senna glutinosa subsp. *pruinosa*	0.2	0.1
Senna glutinosa subsp. *x luerssenii*		
Seringia exastia (T)	0.3	0.2
Solanum lasiophyllum	0.4	0.1
Triodia vanleeuwenii	0.2	20
Triodia wiseana	0.3	5

PHOTOS

Site Name:	C21
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	21/03/2022
GPS Location:	GDA94 Zone 50 693479.41E 7477255.27N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Lower Slope
Slope Class:	Gently Inclined (3 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years
Habitat:	Isolated trees over sparse shrubland over hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.3	0.1
Acacia ancistrocarpa	1.8	1
Acacia atkinsiana	0.8	0.1
Acacia bivenosa	1	0.4
Acacia dictyophleba	1.2	0.3
Acacia pruinocarpa		
Acacia tumida var. *pilbarensis*	0.8	0.1
Afrohybanthus aurantiacus	0.4	0.1
Capparis lasiantha	1.1	0.5
Cymbopogon obtectus	0.6	0.1
Duperreya commixta		0.1
Eriachne mucronata	0.45	0.4
Eucalyptus leucophloia subsp. *leucophloia*	9	3
Euphorbia australis var. *hispidula*	0.05	0.1
Fimbristylis dichotoma	0.05	0.1
Fimbristylis simulans	0.05	0.1
Hakea chordophylla	3	2
Indigofera monophylla	0.6	0.5
Paraneurachne muelleri	0.4	0.2
Ptilotus astrolasius	0.5	0.1
Ptilotus rotundifolius	0.6	1
Senna artemisioides subsp. *oligophylla*	0.6	0.1
Senna glutinosa subsp. *glutinosa*	1.1	0.1
Senna glutinosa subsp. *pruinosa*	1	0.5
Senna glutinosa subsp. *x luerssenii*	1.2	1
Senna symonii	0.8	0.2
Solanum lasiophyllum	0.7	0.1
Triodia vanleeuwenii	0.4	30
Triodia wiseana	0.9	1

PHOTOS

Site Name:	C22
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	21/03/2022
GPS Location:	GDA94 Zone 50 693416.65E 7476762.65N
Vegetation Type:	2
Landform Type:	Lower Slope
Slope Class:	Gently Inclined (3 degrees)
Aspect:	N
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Isolated trees over isolated shrubs over open hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.3	0.5
Acacia ancistrocarpa	0.7	0.1
Acacia hilliana	0.3	0.3
Corymbia deserticola subsp. *deserticola*	2	0.2
Cymbopogon ambiguus	1.1	0.1
Eriachne mucronata	0.4	0.1
Eucalyptus leucophloia subsp. *leucophloia*	1.5	0.5
Evolvulus alsinoides	0.1	0.1
Fimbristylis simulans	0.1	0.3
Gompholobium oreophilum	0.6	0.2
Goodenia stobbsiana	0.2	0.2
Goodenia triodiophila	0.3	0.1
Hakea chordophylla	4	2
Hibiscus coatesii	0.3	0.1
Paraneurachne muelleri	0.3	0.2
Ptilotus calostachyus	1	0.5
Senna artemisioides subsp. *oligophylla*	0.4	0.1
Senna glaucifolia	0.9	0.1
Senna glutinosa subsp. *glutinosa*	0.6	0.1
Senna glutinosa subsp. *pruinosa*	0.9	0.2
Sida arenicola	1.1	0.1
Solanum lasiophyllum	0.5	0.1
Triodia vanleeuwenii	0.15	15
Triodia wiseana	0.5	1

PHOTOS

Site Name:	C23
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	21/03/2022
GPS Location:	GDA94 Zone 50 694615.12E 7475974.34N
Orientation:	90/180
Vegetation Type:	6
Landform Type:	Crest
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 20-50% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Low open woodland over sparse shrubland over open hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adsurgens	0.7	0.1
Acacia ?hamersleyensis	0.6	0.1
Acacia tenuissima	0.6	0.1
Acacia tumida var. *pilbarensis*	0.5	0.1
Aristida holathera var. *holathera*	0.4	0.1
Codonocarpus cotinifolius	1.2	0.5
Corymbia hamersleyana	3	1
Eriachne mucronata	0.35	0.2
Eucalyptus kingsmillii	1.5	1
Eucalyptus leucophloia subsp. *leucophloia*	2.5	2
Goodenia muelleriana	0.35	0.1
Goodenia stobbsiana	0.3	1.5
Goodenia triodiophila	0.3	0.3
Hibiscus coatesii	0.8	0.1
Paraneurachne muelleri	0.4	0.6
Ptilotus calostachyus	0.7	0.3
Scaevola browniana subsp. *browniana*	0.2	0.1
Senna artemisioides subsp. *helmsii*	0.1	0.1
Senna artemisioides subsp. *oligophylla*	0.6	0.1
Senna glutinosa subsp. *glutinosa*	1.2	0.5
Senna glutinosa subsp. *pruinosa*	1.3	0.1
Sida sp. Excedentifolia (J.L. Egan 1925)	0.3	1
Solanum phlomoides	1.1	0.2
Triodia wiseana	0.25	0.15

PHOTOS

Site Name:	C24
Site Type:	QUADRAT
Dimensions:	25m x 100m
Survey Date:	22/03/2022
GPS Location:	GDA94 Zone 50 694263.1E 7475775.2N
Orientation:	90/180
Vegetation Type:	4
Landform Type:	Other, Gorge (other)
Slope Class:	Very Steep (37 degrees)
Aspect:	W
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, >50% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm, 200-600mm, 600-2000mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years
Habitat:	low woodland over shrubland over open grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia pruinocarpa	12	4
Acacia tumida var. *pilbarensis*	2	0.2
Aristida burbidgeae	0.5	5
Arivela viscosa	0.6	0.2
Astrotricha hamptonii	2.5	1
**Bidens bipinnata*	0.1	0.1
Brachychiton acuminatus	8	0.2
Bulbostylis barbata	0.03	0.1
Capparis mitchellii	0.9	0.4
Capparis spinosa subsp. *nummularia*	0.3	0.1
Clerodendrum floribundum var. *angustifolium*	1.5	0.1
Corchorus laniflorus	1.2	3
Corymbia ferriticola	6	17
Cucumis variabilis		0.1
Cymbopogon ambiguus	0.9	3
Cynanchum pedunculatum		0.5
Cyperus cunninghamii subsp. *cunninghamii*	0.7	0.1
Dodonaea pachyneura	1.2	0.1
Dodonaea viscosa subsp. *mucronata*	2.2	0.5
Duperreya commixta		0.6
Eremophila naaykensii (P3)	5	2
Eremophila petrophila subsp. *petrophila*	0.5	0.1
Eriachne mucronata	0.4	2
Eucalyptus leucophloia subsp. *leucophloia*	1.5	0.4
Euphorbia trigonosperma	0.25	0.1
Evolvulus alsinoides		
Ficus brachypoda	10	8
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)	1.1	0.3
Jasminum didymum subsp. *lineare*		1
Olearia xerophila	0.4	0.1
Paspalidium clementii	0.2	0.1
Paspalidium tabulatum	0.3	0.1

Pimelea forrestiana	1.3	0.2
Prostanthera albiflora	1.5	5
Psydrax latifolia	1.5	0.3
Pterocaulon serrulatum var. *velutinum*	0.5	0.1
Pterocaulon sphacelatum	0.8	0.5
Ptilotus astrolasius	0.6	2
Santalum lanceolatum	2	0.2
Senna ferraria	1.1	0.1
Senna venusta		
Sida sp. Shovelanna Hill (S. van Leeuwen 3842)	0.6	0.1
Solanum cleistogamum	0.3	0.2
Solanum gabrielae	0.6	0.1
Tinospora smilacina		0.4
Triodia biflora	1.2	1
Triodia pungens	0.8	10
Triumfetta maconochieana	0.5	0.1

PHOTOS

Site Name:	C25
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	22/03/2022
GPS Location:	GDA94 Zone 50 686503.49E 7476641.79N
Orientation:	90/180
Vegetation Type:	2
Landform Type:	Upper Slope
Slope Class:	Gently Inclined (3 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 20-50% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm, 200-600mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	isolated trees over sparse shrubland over hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.3	0.3
Acacia aptaneura	2.5	0.2
Acacia hilliana	0.5	4
Acacia pyrifolia var. *pyrifolia*	1.2	0.5
Aristida holathera var. *holathera*	0.4	0.1
Corchorus lasiocarpus subsp. *parvus*	0.4	0.1
Corymbia hamersleyana	3	0.6
Cymbopogon ambiguus	0.9	0.1
Dampiera candicans	0.3	0.1
Eremophila jucunda subsp. *pulcherrima*	1.1	0.2
Eriachne mucronata	0.3	4
Eucalyptus leucophloia subsp. *leucophloia*	6	2
Gompholobium oreophilum	0.4	0.1
Goodenia stobbsiana	0.25	0.3
Goodenia triodiophila	0.3	0.1
Grevillea wickhamii subsp. ?*hispidula*	2	0.2
Hakea chordophylla	3.5	0.4
Hibiscus sturtii var. *campylochlamys*	0.3	0.1
Indigofera monophylla	0.3	0.2
Paraneurachne muelleri	0.4	0.2
Petalostylis labicheoides	2	0.2
Ptilotus calostachyus	0.8	0.3
Senna artemisioides subsp. *oligophylla*	0.3	0.1
Senna glaucifolia	2.5	0.5
Senna glutinosa subsp. *glutinosa*	1.3	0.2
Senna glutinosa subsp. *pruinosa*	0.8	0.5
Seringia exastia (T)	0.2	0.2
Sida cardiophylla	0.4	0.1
Sida sp. Articulation below (A.A. Mitchell PRP 1605)	1.1	0.1
Solanum phlomoides	0.5	0.1
Triodia vanleeuwenii	0.3	10
Triodia wiseana	0.9	15

PHOTOS

Site Name:	C26
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	22/03/2022
GPS Location:	GDA94 Zone 50 686365.83E 7476227.28N
Orientation:	90/180
Vegetation Type:	2
Landform Type:	Lower Slope
Slope Class:	Gently Inclined (3 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 10-20% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Isolated trees over sparse low shrubland over open hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.4	0.2
Acacia atkinsiana	0.5	0.1
Acacia hilliana	0.3	6
Acacia pyrifolia var. *pyrifolia*	1.1	0.2
Acacia tenuissima	0.3	0.1
Androcalva luteiflora	0.1	0.1
Aristida holathera var. *holathera*	0.4	0.2
Aristida inaequiglumis		
Corchorus lasiocarpus subsp. *parvus*	0.5	2
Corymbia deserticola subsp. *deserticola*	5	0.2
Corymbia hamersleyana	4	0.3
Enneapogon polyphyllus	0.3	0.3
Eriachne mucronata	0.3	3
Eucalyptus leucophloia subsp. *leucophloia*	6	0.1
Fimbristylis simulans	0.1	0.1
Gompholobium oreophilum	0.4	0.1
Goodenia stobbsiana	0.2	0.4
Goodenia triodiophila	0.3	0.1
Gossypium robinsonii		
Grevillea wickhamii subsp. ?*hispidula*	2	0.1
Hakea chordophylla	1.5	0.3
Indigofera monophylla	0.4	0.3
Paraneurachne muelleri	0.4	1
Petalostylis labicheoides	1.3	0.2
Ptilotus calostachyus	0.9	0.1
Santalum lanceolatum		
Senna artemisioides subsp. *oligophylla*	0.6	0.1
Senna glutinosa subsp. *glutinosa*	0.6	0.2
Senna glutinosa subsp. *pruinosa*	1.2	0.2
Seringia exastia (T)	0.4	4
Triodia vanleeuwenii	0.2	6
Triodia wiseana	0.4	8

PHOTOS

Site Name:	C27
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	23/03/2022
GPS Location:	GDA94 Zone 50 686559.06E 7475717.43N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Other, Outwash (other)
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	N
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Sparse low trees over sparse low shrubland over open hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.4	0.5
Acacia ancistrocarpa	1.3	0.5
Acacia atkinsiana	1.7	2
Acacia bivenosa	1	0.1
Acacia pruinocarpa		
Acacia tumida var. *pilbarensis*	0.8	0.1
Aristida contorta	0.3	0.1
Aristida holathera var. *holathera*	0.6	1
Aristida inaequiglumis	1.2	0.1
Bonamia erecta	0.5	1.5
Corchorus lasiocarpus subsp. *parvus*	0.8	0.5
Corymbia deserticola subsp. *deserticola*	3.5	1
Dampiera candicans	0.6	0.1
Duperreya commixta		
Eragrostis eriopoda	0.3	0.1
Eriachne mucronata	0.3	0.2
Eucalyptus gamophylla	2	6
Euploca pachyphylla	0.4	0.1
Evolvulus alsinoides	0.15	0.1
Gompholobium oreophilum	0.8	1
Goodenia microptera	0.6	0.1
Grevillea wickhamii subsp. ?*hispidula*	1.5	0.3
Hakea chordophylla		
Hibiscus sturtii var. *campylochlamys*	0.3	0.1
Hibiscus sturtii var. *platychlamys*	0.7	0.1
Indigofera monophylla	0.5	0.3
Jasminum didymum subsp. *lineare*		0.1
Paraneurachne muelleri	0.4	2
Ptilotus astrolasius	0.7	0.1
Ptilotus calostachyus	0.9	1
Ptilotus ?*carinatus*	0.1	0.1
Ptilotus rotundifolius	0.9	0.2
Scaevola parvifolia subsp. *pilbarae*	0.4	0.5

Scaevola spinescens		
Senna artemisioides subsp. *helmsii*	0.7	0.1
Senna artemisioides subsp. *oligophylla*	0.5	1
Senna glutinosa subsp. *x luerssenii*	1.3	0.1
Seringia exastia (T)	0.3	1.5
Sida arenicola	2.2	0.5
Sida cardiophylla	1.4	0.5
Sida echinocarpa	1.7	1
Sida sp. L (A.M. Ashby 4202)	0.3	0.5
Solanum lasiophyllum	0.6	0.1
Tephrosia densa	0.5	0.4
Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)	0.3	0.1
Triodia pungens	0.5	10
Triodia vanleeuwenii	0.2	9

PHOTOS

Site Name:	C28
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	23/03/2022
GPS Location:	GDA94 Zone 50 687731.96E 7477440.68N
Orientation:	90/180
Vegetation Type:	9
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	N
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone, Quartz
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	>10 Years
Habitat:	Tall open shrubland over sparse shrubland over sparse grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.2	0.1
Acacia ancistrocarpa	3.5	2
Acacia atkinsiana	3.5	7
Acacia pruinocarpa	4	1.5
Acacia tumida var. *pilbarensis*	2.5	0.2
Afrohybanthus aurantiacus	0.5	0.5
Alternanthera nana	0.2	0.1
Androcalva luteiflora	0.1	0.1
Anthobolus leptomerioides	1.1	0.1
Aristida holathera var. *holathera*	0.6	2
Aristida inaequiglumis	1	0.2
Chrysopogon fallax	0.9	0.1
Codonocarpus cotinifolius	2.3	0.2
Corchorus lasiocarpus subsp. *parvus*	0.6	1
Cymbopogon ambiguus	1	0.1
Duperreya commixta		0.2
Enneapogon polyphyllus	0.3	0.1
Eragrostis eriopoda	0.5	0.2
Eremophila forrestii subsp. *forrestii*	1.3	0.2
Eremophila longifolia	1.2	0.1
Eriachne mucronata	0.4	3
Eucalyptus gamophylla		
Eucalyptus leucophloia subsp. *leucophloia*	3	0.5
Eulalia aurea	0.8	0.1
Evolvulus alsinoides	0.1	0.1
Goodenia microptera	0.05	0.1
Goodenia stobbsiana	0.15	0.1
Gossypium australe	1.2	0.5
Hakea chordophylla	1.2	0.1
Hibiscus burtonii	0.25	0.1
Hibiscus coatesii	0.4	0.5
Hibiscus sturtii var. *platychlamys*	0.5	0.2
Indigofera monophylla	0.5	1.5

Maireana villosa	0.5	0.1
Paraneurachne muelleri	0.4	3
Psydrax latifolia		
Ptilotus astrolasius	0.5	3
Ptilotus calostachyus	0.9	1
Ptilotus ?carinatus	0.05	0.1
Ptilotus rotundifolius	0.9	0.5
Senna artemisioides subsp. *helmsii*	0.3	0.1
Senna artemisioides subsp. *oligophylla*	0.8	1
Senna glaucifolia	1.1	0.7
Senna glutinosa subsp. *x luerssenii*	1.1	0.2
Seringia exastia (T)	0.3	1
Sida echinocarpa	0.5	0.1
Sida sp. L (A.M. Ashby 4202)	0.3	0.1
Solanum lasiophyllum	0.9	0.5
Tribulus suberosus	1.6	0.2
Triodia pungens	0.8	4
Triodia wiseana	0.6	8

PHOTOS

Site Name:	C29
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	23/03/2022
GPS Location:	GDA94 Zone 50 689610.18E 7476537.7N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Other, washout (other)
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	N
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone, Quartz
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	(other) - track nearby
Fire:	<5 Years
Habitat:	sparse mallee woodland over tall open shrubland over hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia atkinsiana	2.5	6
Acacia inaequilatera	1.4	0.1
Acacia monticola	2.5	0.5
Corymbia deserticola subsp. *deserticola*	4	1
Corymbia hamersleyana	3	0.5
Duperreya commixta		0.2
Enneapogon polyphyllus		
Eriachne mucronata	0.4	0.5
Eucalyptus gamophylla	3	10
Eucalyptus leucophloia subsp. *leucophloia*	4	0.1
Eulalia aurea	0.9	0.1
Hakea chordophylla	1.2	0.1
Hibiscus sturtii var. *campylochlamys*	0.3	0.2
Hibiscus sturtii var. *platychlamys*	1.5	1
Indigofera monophylla	0.3	1
Jasminum didymum subsp. *lineare*		0.1
Paraneurachne muelleri	0.5	4
Ptilotus astrolasius	0.4	0.1
Ptilotus calostachyus	0.7	1.5
Ptilotus rotundifolius	0.9	0.2
Rhynchosia minima		0.1
Scaevola parvifolia subsp. *pilbarae*	0.4	0.1
Senna artemisioides subsp. *helmsii*	0.3	0.1
Senna artemisioides subsp. *oligophylla*	1.5	1
Senna glutinosa subsp. *glutinosa*	1.3	0.2
Senna glutinosa subsp. *x luerssenii*	1.1	0.6
Sida arenicola	2.5	0.2
Sida cardiophylla	0.6	0.1
Sida echinocarpa	0.5	0.2
Solanum lasiophyllum		
Tephrosia densa	0.5	0.1
Triodia pungens	0.5	12
Triodia vanleeuwenii	0.2	8

PHOTOS

Site Name:	C30
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	04/04/2022
GPS Location:	GDA94 Zone 50 685302.91E 7474990.24N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Drainage Line
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	NW
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	20-50%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Low open woodland over tall open shrubland over hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.8	0.3
Acacia atkinsiana	0.7	0.5
Acacia bivenosa		
Acacia dictyophleba	0.6	0.2
Acacia monticola	2	12
Afrohybanthus aurantiacus	0.7	0.5
Androcalva luteiflora	0.1	0.1
Aristida holathera var. *holathera*	0.5	0.2
Aristida inaequiglumis	1.6	0.1
Arivela viscosa	0.1	0.1
Bonamia erecta	0.5	5.5
Corchorus lasiocarpus subsp. *parvus*	0.8	4
Corymbia hamersleyana	6	5
Duperreya commixta		0.3
Eriachne mucronata	0.5	0.2
Eucalyptus gamophylla	3	3
Eulalia aurea	1.1	1
Euploca cunninghamii	0.2	0.1
Gompholobium oreophilum	0.6	0.1
Goodenia microptera	0.2	0.1
Goodenia stellata	0.1	0.1
Goodenia stobbsiana	0.3	0.1
Gossypium robinsonii	1.8	0.1
Grevillea wickhamii subsp. ?*hispidula*	2	0.1
Hibiscus coatesii	0.4	0.1
Hibiscus sturtii var. *campylochlamys*	0.6	2
Hibiscus sturtii var. *platychlamys*	0.6	0.2
Indigofera monophylla	0.5	0.4
Jasminum didymum subsp. *lineare*		0.2
Paraneurachne muelleri	0.5	4
Perotis rara	0.1	0.1
Ptilotus astrolasius	0.7	0.1
Ptilotus calostachyus	1	0.2

Ptilotus ?*carinatus*	0.05	0.1
Ptilotus rotundifolius	0.8	0.1
Rhynchosia minima		0.5
Santalum lanceolatum	2	0.4
Scaevola parvifolia subsp. *pilbarae*	0.4	0.1
Senna artemisioides subsp. *oligophylla*	1.1	1
Senna glutinosa subsp. *pruinosa*	0.9	0.5
Senna notabilis	0.1	0.1
Seringia exastia (T)	0.4	0.3
Sida arenicola	1.8	2
Sida cardiophylla	1.8	1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.9	0.1
Solanum lasiophyllum	0.3	0.1
Tephrosia densa	0.4	0.1
Tephrosia oxalidea	0.15	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	1.1	8
Triodia pungens	1.5	15
Triodia vanleeuwenii	0.3	2
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	C31
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	04/04/2022
GPS Location:	GDA94 Zone 50 685976.53E 7475494N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	NW
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Isolated trees over sparse low shrubland over open hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia atkinsiana	0.7	2
Acacia pyrifolia var. *pyrifolia*	0.5	0.1
Acacia tenuissima	0.4	0.1
Acacia tumida var. *pilbarensis*	0.5	0.1
Afrohybanthus aurantiacus	0.4	0.1
Amphipogon sericeus	0.4	1
Aristida contorta	0.3	1
Capparis lasiantha	0.8	0.1
Codonocarpus cotinifolius		
Corchorus lasiocarpus subsp. *parvus*	0.5	0.1
Corymbia deserticola subsp. *deserticola*		
Cymbopogon obtectus	0.6	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.4	0.5
Eragrostis eriopoda	0.4	0.1
Eremophila longifolia	0.5	0.1
Eriachne mucronata	0.5	0.5
Eucalyptus gamophylla	2.5	2
Eucalyptus leucophloia subsp. *leucophloia*	8	3
Eulalia aurea	0.8	1
Goodenia triodiophila	0.2	0.1
Hakea chordophylla		
Hibiscus sturtii var. *campylochlamys*	0.4	0.1
Indigofera monophylla	0.3	1
Jasminum didymum subsp. *lineare*		0.1
Paraneurachne muelleri	0.5	0.5
Ptilotus astrolasius	0.3	0.2
Ptilotus calostachyus	0.8	0.3
Ptilotus ?exaltatus	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.4	0.2
Ptilotus rotundifolius	0.8	0.2
Senna artemisioides subsp. *helmsii*	0.8	0.2
Senna artemisioides subsp. *oligophylla*	1	2

Senna glutinosa subsp. *pruinosa*	0.9	0.1
Senna glutinosa subsp. *x luerssenii*	1.2	0.5
Sida arenicola	1.6	0.5
Sida cardiophylla	0.8	0.1
Solanum lasiophyllum	0.5	0.1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.1	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.9	0.1
Triodia pungens	0.5	6
Triodia vanleeuwenii	0.25	5
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	C32
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	05/04/2022
GPS Location:	GDA94 Zone 50 691535.34E 7476026.29N
Orientation:	90/180
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	Exotic Weeds, (other) - track nearby
Fire:	> 10 Years
Habitat:	Low open woodland over tall open shrubland over open grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon lepidum	0.5	0.3
Abutilon otocarpum	0.3	0.1
Acacia ancistrocarpa	1.7	0.4
Acacia aneura	5	5
Acacia aptaneura	0.6	0.1
Acacia atkinsiana	1.3	0.5
Acacia ayersiana	7	4
Acacia pruinocarpa	3.5	3
Acacia sibirica		
Acacia tumida var. *pilbarensis*		
Afrohybanthus aurantiacus	0.8	3
Alternanthera nana	0.2	0.1
Anthobolus leptomerioides	1.1	0.2
Aristida inaequiglumis	1.3	1
Aristida obscura	0.35	8
Arivela viscosa	0.05	0.1
**Bidens bipinnata*	0.15	0.2
Boerhavia coccinea	0.05	0.2
Cheilanthes sieberi subsp. *sieberi*	0.3	0.1
Chrysopogon fallax	0.9	0.1
Clerodendrum floribundum var. *angustifolium*		
Corymbia deserticola subsp. *deserticola*	4.5	1
Cucumis variabilis	0.02	0.1
Dodonaea petiolaris	1.2	0.4
Duperreya commixta		0.1
Enneapogon polyphyllus	0.35	1
Eremophila forrestii subsp. *forrestii*	1.2	0.4
Eremophila fraseri subsp. *fraseri*		
Eriachne mucronata	0.4	4
Eucalyptus leucophloia subsp. *leucophloia*	4	0.5
Euphorbia australis var. *hispidula*	0.02	0.1
Euphorbia biconvexa	0.3	0.1
Evolvulus alsinoides	0.15	0.1
Goodenia microptera	0.25	0.1

Gossypium australe		0.1
Hakea chordophylla	0.8	0.1
Hibiscus burtonii	0.6	1
Hibiscus coatesii	0.4	0.1
Hibiscus sturtii var. *platychlamys*	0.6	0.1
Maireana villosa	0.3	0.5
Paspalidium clementii	0.1	0.1
Perotis rara	0.1	0.1
Psydrax suaveolens	1.2	0.2
Ptilotus astrolasius	0.5	0.5
Ptilotus obovatus var. *obovatus*	0.4	0.1
Senna artemisioides subsp. *helmsii*	1.4	2
Senna artemisioides subsp. *oligophylla*	1.2	0.2
Senna glaucifolia	1.4	0.1
Senna glutinosa subsp. *glutinosa*	1.3	0.1
Senna glutinosa subsp. *x luerssenii*	1.5	2
Senna notabilis	0.05	0.1
**Setaria verticillata*	0.3	0.1
Sida ectogama	0.6	0.1
Sida sp. dark green fruits (S. van Leeuwen 2260)	0.7	0.1
Sida sp. L (A.M. Ashby 4202)	0.2	0.5
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.8	0.2
Solanum lasiophyllum	0.6	0.1
Solanum phlomoides	0.3	0.1
Sporobolus australasicus	0.1	0.1
Streptoglossa decurrens	0.5	0.1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.1	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.8	1
Tribulus suberosus	0.9	0.1
Trichodesma zeylanicum	0.1	0.1
Triodia pungens	1.1	2
Triodia vanleeuwenii	0.2	0.2

PHOTOS

Site Name:	C33
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	05/04/2022
GPS Location:	GDA94 Zone 50 690740.33E 7476199.24N
Orientation:	90/180
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	20-50%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	Exotic Weeds
Fire:	> 10 Years
Habitat:	Tall open woodland over tall open shrubland over open grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.5	0.2
Abutilon otocarpum	0.6	0.3
Acacia ancistrocarpa	1.2	0.2
Acacia aneura	3.5	1
Acacia aptaneura	3.5	8
Acacia atkinsiana	4	2
Acacia ayersiana	4	0.5
Acacia pruinocarpa	4	7
Alternanthera nana	0.1	0.1
Anthobolus leptomerioides	1.2	0.1
Aristida inaequiglumis	1.2	1
Aristida obscura	0.4	6
Arivela viscosa	0.3	0.2
**Bidens bipinnata*	0.1	0.2
Boerhavia coccinea	0.1	0.2
**Cenchrus setiger*	0.4	0.1
Cheilanthes sieberi subsp. *sieberi*	0.3	0.1
Chrysopogon fallax	1.1	1
Corchorus lasiocarpus subsp. *parvus*	0.5	0.1
Corymbia deserticola subsp. *deserticola*	2	0.2
Dodonaea petiolaris	1.2	2
Duperreya commixta		0.5
Enneapogon polyphyllus	0.4	4
Enneapogon robustissimus	1	0.1
Eremophila fraseri subsp. *fraseri*	1.5	1
Eremophila latrobei subsp. *filiformis*	0.6	0.1
Eriachne mucronata	0.4	3
Eulalia aurea	0.8	0.1
Euphorbia biconvexa	0.25	0.1
Evolvulus alsinoides	0.1	0.1
Glycine canescens		0.1
Gomphrena canescens subsp. *canescens*	0.4	0.2
Gomphrena kanisii	0.4	0.1
Gossypium australe	0.5	0.2

Hibiscus burtonii	1.1	0.2
Hibiscus coatesii	0.4	0.1
Hibiscus sturtii var. *platychlamys*	0.4	0.2
Indigofera georgei	0.5	0.2
Isotropis iophyta	0.5	0.2
Jasminum didymum subsp. *lineare*		0.1
Maireana villosa	0.3	0.2
Melhania oblongifolia	0.4	0.1
Paraneurachne muelleri	0.4	3
Perotis rara	0.1	0.1
Psydrax suaveolens	0.9	0.1
Pterocaulon sphacelatum	0.9	0.2
Ptilotus astrolasius	0.5	3
Ptilotus obovatus var. *obovatus*	0.2	0.1
Santalum lanceolatum	2	0.1
Sclerolaena cornishiana	0.3	0.3
Senna artemisioides subsp. *helmsii*	1.3	3
Senna glaucifolia	1.1	0.2
Senna glutinosa subsp. *glutinosa*	1.1	0.1
Senna notabilis	0.1	0.1
Setaria surgens	0.3	0.1
Sida sp. Articulation below (A.A. Mitchell PRP 1605)	1.2	0.3
Sida sp. L (A.M. Ashby 4202)	0.5	0.2
Solanum cleistogamum	0.4	0.1
Solanum lasiophyllum	0.5	0.2
Solanum phlomoides	0.5	0.1
Spermacoce brachystema	0.15	0.1
Streptoglossa decurrens	0.9	0.5
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.9	1
Tribulus ?*macrocarpus*		
Tribulus macrocarpus	0.1	0.1
Triodia pungens	0.8	5

PHOTOS

Site Name:	C34
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	05/04/2022
GPS Location:	GDA94 Zone 50 690746.41E 7475621.46N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	N
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years
Habitat:	Isolated trees over tall open shrubland over open hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.7	0.1
Acacia ancistrocarpa	2.2	2
Acacia aptaneura	2.5	0.2
Acacia atkinsiana	3	10
Acacia inaequilatera	2	1
Afrohybanthus aurantiacus	0.4	0.2
Amphipogon sericeus	0.4	0.1
Androcalva luteiflora	0.1	0.1
Aristida holathera var. *holathera*	0.5	0.3
Aristida obscura	0.35	0.5
Bonamia erecta		
Corymbia deserticola subsp. *deserticola*	4	1
Cymbopogon obtectus	0.7	0.2
Dodonaea petiolaris	1.5	0.1
Eragrostis eriopoda	0.3	0.1
Eremophila fraseri subsp. *fraseri*	0.7	0.1
Eriachne mucronata	0.5	1
Eucalyptus gamophylla	2.5	0.5
Eucalyptus leucophloia subsp. *leucophloia*		
Euphorbia australis var. *hispidula*	0.2	0.1
Fimbristylis dichotoma	0.12	0.1
Hakea loreus subsp. *loreus*	1.5	0.2
Hibiscus sturtii var. *platychlamys*	0.4	0.1
Indigofera monophylla	0.5	0.2
Paraneurachne muelleri	0.5	2
Ptilotus astrolasius	0.5	1
Ptilotus calostachyus	0.8	1
Ptilotus rotundifolius	1	0.2
Santalum lanceolatum	2.5	0.1
Senna artemisioides subsp. *helmsii*	1	0.1
Senna artemisioides subsp. *oligophylla*	0.5	0.1
Senna glutinosa subsp. *glutinosa*	1.2	0.1
Senna glutinosa subsp. *pruinosa*	1.1	0.1
Senna glutinosa subsp. *x luerssenii*	1.3	0.1
Seringia exastia (T)	0.6	0.5
Sida arenicola	2	0.1

Solanum lasiophyllum	0.5	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.9	0.2
Trichodesma zeylanicum	1.2	0.1
Triodia pungens	0.9	15
Triodia vanleeuwenii	0.4	3

PHOTOS

Site Name:	C35
Site Type:	QUADRAT
Dimensions:	100m x 25m
Survey Date:	06/04/2022
GPS Location:	GDA94 Zone 50 694596.85E 7474935.33N
Orientation:	110/200
Vegetation Type:	4
Landform Type:	Rocky Gully (other)
Slope Class:	Moderately Inclined (10 degrees)
Aspect:	S
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 20-50% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm, 200-600mm, 600-2000mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years
Habitat:	Low open woodland over tall sparse shrubland over hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	1.6	0.1
Acacia hamersleyensis	2.2	0.2
Acacia pyrifolia var. *pyrifolia*	1.3	0.5
Acacia tumida var. *pilbarensis*	1.6	0.1
Afrohybanthus aurantiacus	0.3	0.1
Amaranthus cuspidifolius	0.05	0.1
Aristida burbidgeae	0.5	2
Arivela viscosa	0.1	0.1
Capparis spinosa subsp. *nummularia*	0.25	0.1
Cheilanthes brownii	0.05	0.1
Cheilanthes sieberi subsp. *sieberi*	0.1	0.1
Corchorus laniflorus	0.8	0.2
Corymbia hamersleyana	5	2
Cucumis variabilis	0.05	0.1
Cymbopogon ambiguus	0.6	0.3
Cynanchum pedunculatum		0.1
Cyperus cunninghamii subsp. *cunninghamii*	0.3	0.1
Diplatia grandibractea		0.2
Dodonaea viscosa subsp. *mucronata*	1.4	1.5
Duperreya commixta		0.1
Enneapogon robustissimus	0.6	0.1
Eriachne mucronata	0.6	1
Eucalyptus leucophloia subsp. *leucophloia*	7	5
Euphorbia trigonosperma	0.05	0.1
Evolvulus alsinoides	0.1	0.1
Gossypium robinsonii	2.2	1
Grevillea wickhamii subsp. ?*hispidula*	1.8	0.2
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)	0.6	0.1
Indigofera fractiflexa subsp. *fractiflexa*	0.25	0.1
Jasminum didymum subsp. *lineare*		0.1
Pterocaulon sphacelatum	0.3	0.1
Ptilotus astrolasius	0.3	0.1

Rhynchosia minima		0.1
Santalum lanceolatum	2.2	0.3
Senna glutinosa subsp. *glutinosa*	0.6	0.1
Senna venusta	0.7	0.1
Sida sp. Shovelanna Hill (S. van Leeuwen 3842)	0.15	0.1
Solanum cleistogamum	0.4	0.1
Stylobasium spathulatum	1.3	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.9	0.1
Trichodesma zeylanicum	0.05	0.1
Triodia biflora	0.5	5
Triodia pungens	0.5	10
Triumfetta maconochieana	1.2	0.1

PHOTOS

Site Name:	C36
Site Type:	QUADRAT
Dimensions:	100m x 25m
Survey Date:	06/04/2022
GPS Location:	GDA94 Zone 50 693242.75E 7475766.83N
Orientation:	90/180
Vegetation Type:	4
Landform Type:	Drainage Line
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	W
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm, 200-600mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	Exotic Weeds, (other) - old track in vicinity.
Fire:	5-10 Years
Habitat:	Isolated trees over tall open shrubland over low herbs and grasses

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	2.2	1.5
Acacia adsurgens	1.5	0.1
Acacia atkinsiana	1.8	0.2
Acacia inaequilatera	1.4	0.1
Acacia monticola	1.8	1
Acacia pyrifolia var. *pyrifolia*	1.3	0.2
Acacia tumida var. *pilbarensis*	1.2	0.5
Afrohybanthus aurantiacus	0.4	0.1
Alternanthera nana	0.2	0.1
Androcalva luteiflora	1.2	0.2
Aristida burbidgeae	0.5	0.2
Arivela viscosa	0.1	0.2
**Bidens bipinnata*	0.1	0.5
Boerhavia coccinea	0.1	0.1
Boerhavia repleta	0.02	0.1
Capparis spinosa subsp. *nummularia*	0.3	0.1
Clerodendrum floribundum var. *angustifolium*		
Corchorus laniflorus	0.7	0.5
Corchorus lasiocarpus subsp. *parvus*	0.5	0.4
Corymbia hamersleyana	6	3
Crotalaria medicaginea var. *neglecta*	0.1	0.1
Cucumis variabilis		1
Cymbopogon ambiguus	0.8	0.5
Cynanchum pedunculatum		0.1
Cyperus cunninghamii subsp. *cunninghamii*	0.3	0.1
Digitaria ammophila	0.2	0.1
Dodonaea viscosa subsp. *mucronata*	1.2	0.3
Duperreya commixta		1
Enneapogon lindleyanus	0.4	0.1
Enneapogon polyphyllus	0.3	0.1
Eriachne mucronata	0.35	1
Eriachne tenuiculmis	0.3	0.2
Eucalyptus leucophloia subsp. *leucophloia*	6	1
Euphorbia tannensis subsp. *eremophila*	0.8	0.1

Euphorbia trigonosperma	0.2	0.1
Evolvulus alsinoides	0.2	0.1
Glycine canescens		0.1
Gomphrena cunninghamii	0.2	0.2
Gossypium robinsonii	3	6
Grevillea wickhamii subsp. ?*hispidula*	2	4
Hakea chordophylla	4.5	0.2
Indigofera monophylla	0.4	0.2
Jasminum didymum subsp. *lineare*		1
Leiocarpa semicalva subsp. *semicalva*	0.3	0.1
Melhania oblongifolia	0.8	0.1
Nellica maderaspatensis	0.3	0.4
Paspalidium clementii	0.12	0.1
Perotis rara	0.1	0.1
Polycarpaea longiflora	0.25	0.1
Pterocaulon sphacelatum	0.4	0.3
Ptilotus astrolasius	0.4	0.5
Ptilotus fusiformis	0.15	0.1
Rhynchosia minima	0.1	0.1
Santalum lanceolatum		1
Senna artemisioides subsp. *oligophylla*	0.6	0.2
Senna glutinosa subsp. *glutinosa*	0.6	0.2
Senna venusta	0.2	0.1
Setaria surgens	0.15	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.9	0.1
Solanum lasiophyllum	0.3	0.1
Solanum phlomoides	0.4	0.1
Stylobasium spathulatum	1.1	0.2
Tephrosia densa	0.8	1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.9	4
Tinospora smilacina		0.1
Trichodesma zeylanicum	0.05	0.1
Triodia biflora	0.9	2
Triodia pungens	0.7	3
Triodia wiseana	0.8	5

PHOTOS

Site Name:	C37
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	06/04/2022
GPS Location:	GDA94 Zone 50 694905.61E 7475344.16N
Orientation:	90/180
Vegetation Type:	6
Landform Type:	Upper Slope
Slope Class:	Very Steep (37 degrees)
Aspect:	S
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, >50% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years
Habitat:	Low open woodland over isolated shrubs over closed hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia hamersleyensis	5	0.1
Afrohybanthus aurantiacus	0.3	1
Cassytha capillaris		0.2
Cheilanthes brownii	0.05	0.1
Cheilanthes sieberi subsp. *sieberi*	0.03	0.1
Clerodendrum floribundum var. *angustifolium*	0.15	0.1
Codonocarpus cotinifolius	0.5	0.1
Corymbia hamersleyana	4	4
Cymbopogon ambiguus	0.5	0.1
Cynanchum pedunculatum		0.1
Dodonaea viscosa subsp. *mucronata*	1.5	1
Eriachne mucronata	0.3	5
Eucalyptus kingsmillii	2	3
Eucalyptus leucophloia subsp. *leucophloia*	4	5
Hakea chordophylla	1.6	0.2
Pimelea forrestiana	1.1	0.2
Sida sp. Shovelanna Hill (S. van Leeuwen 3842)	0.25	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.3	0.1
Triodia biflora	1.1	35
Triodia wiseana	1.1	15

PHOTOS

Site Name:	C38
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	07/04/2022
GPS Location:	GDA94 Zone 50 692644.85E 7477334.12N
Orientation:	90/180
Vegetation Type:	9
Landform Type:	Flat
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	2-10%
CF Sizes:	2-6mm, 6-20mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years
Habitat:	Isolated trees over sparse tall shrubland over grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon macrum	1.1	0.1
Abutilon otocarpum	0.8	0.1
Acacia adoxa var. *adoxa*	0.6	0.2
Acacia adsurgens	1.1	0.2
Acacia ancistrocarpa	1.6	0.3
Acacia aptaneura	2.2	0.5
Acacia atkinsiana	1.9	0.5
Acacia pruinocarpa		
Acacia tumida var. *pilbarensis*	3.5	2
Afrohybanthus aurantiacus	0.6	0.2
Androcalva luteiflora	0.1	0.1
Aristida holathera var. *holathera*	0.45	1
Aristida inaequiglumis	1.3	0.5
Arivela viscosa	0.1	0.1
Boerhavia coccinea	0.2	0.1
Bonamia erecta	0.4	2
Chrysopogon fallax	1.1	1
Corymbia deserticola subsp. *deserticola*	4.5	1
Digitaria brownii	0.9	0.1
Dodonaea coriacea	0.8	0.1
Duperreya commixta		0.3
Enneapogon polyphyllus	0.4	0.5
Enneapogon robustissimus	0.6	0.3
Eragrostis eriopoda	0.45	0.1
Eremophila longifolia	0.6	0.2
Eucalyptus gamophylla	2.5	2
Eulalia aurea	0.7	0.3
Euphorbia australis var. *hispidula*	0.2	0.1
Euphorbia biconvexa	0.3	0.1
Evolvulus alsinoides	0.1	0.1
Gomphrena canescens subsp. *canescens*	0.2	0.1
Goodenia microptera	0.3	0.1
Goodenia stobbsiana	0.4	0.1
Gossypium robinsonii	0.9	0.1

Hibiscus burtonii	0.8	0.1
Hibiscus sturtii var. *platychlamys*	0.5	0.2
Indigofera georgei	0.9	0.2
Indigofera monophylla	0.4	0.1
Isotropis iophyta	0.3	0.1
Jasminum didymum subsp. *lineare*		0.2
Melhania oblongifolia	0.7	0.1
Notoleptopus decaisnei	0.1	0.1
Paraneurachne muelleri	0.4	1
Perotis rara	0.1	0.1
Ptilotus astrolasius	0.5	0.5
Ptilotus calostachyus	0.9	0.2
Scaevola parvifolia subsp. *pilbarae*	0.3	0.5
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *oligophylla*	0.9	0.2
Senna artemisioides subsp. *x artemisioides*	1.1	0.2
Senna glutinosa subsp. *glutinosa*	0.9	0.1
Senna notabilis	0.05	0.1
Seringia exastia (T)	0.5	1.5
Sida cardiophylla		
Sida sp. L (A.M. Ashby 4202)	0.5	1
Solanum lasiophyllum	0.6	0.2
Tephrosia densa	0.4	0.3
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.8	6
Triodia pungens	0.7	15
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	C39
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	07/04/2022
GPS Location:	GDA94 Zone 50 691211.82E 7476736.22N
Orientation:	90/180
Vegetation Type:	9
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Isolated trees over low sparse shrubland over open hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia ancistrocarpa	0.7	0.1
Acacia inaequilatera	3	4
Alternanthera nana	0.2	0.1
Amaranthus cuspidifolius	0.3	0.1
Anthobolus leptomerioides		
Aristida holathera var. *holathera*	0.4	1
Arivela viscosa	0.1	0.1
Boerhavia coccinea	0.1	0.1
Crotalaria medicaginea var. *neglecta*	0.3	0.1
Duperreya commixta		0.2
Eragrostis eriopoda	0.4	0.5
Eremophila fraseri subsp. *fraseri*	0.7	0.1
Eremophila longifolia	0.8	0.1
Eriachne mucronata	0.5	0.3
Evolvulus alsinoides	0.1	0.1
Gomphrena canescens subsp. *canescens*	0.3	0.2
Goodenia microptera	0.3	0.1
Gossypium robinsonii		
Grevillea wickhamii subsp. ?*hispidula*	0.25	0.1
Hakea chordophylla	1.3	0.2
Hakea loreus subsp. *loreus*	0.8	0.1
Hibiscus burtonii	0.8	0.1
Hibiscus coatesii	0.05	0.1
Hibiscus sturtii var. *platychlamys*	0.7	0.1
Paraneurachne muelleri	0.4	1
Ptilotus astrolasius	0.5	0.3
Ptilotus ?*carinatus*	0.05	0.1
Senna artemisioides subsp. *helmsii*	0.7	0.5
Senna artemisioides subsp. *oligophylla*	0.8	0.1
Senna glaucifolia	0.9	0.2
Senna glutinosa subsp. *x luerssenii*	0.9	0.1
Sida cardiophylla	1.1	0.1
Sida echinocarpa	0.9	0.2
Sida sp. L (A.M. Ashby 4202)	0.2	0.1

Solanum lasiophyllum	0.5	0.1
Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)		
Tribulus macrocarpus	0.02	0.1
Triodia pungens	0.4	12
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	C40
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	08/04/2022
GPS Location:	GDA94 Zone 50 693324.36E 7476023.41N
Orientation:	90/180
Vegetation Type:	6
Landform Type:	Mid Slope
Slope Class:	Steep (23 degrees)
Aspect:	SE
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 10-20% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years
Habitat:	Low open woodland over isolated low shrubs over hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.4	0.1
Acacia hamersleyensis	3	0.4
Cassytha capillaris		0.1
Cheilanthes brownii	0.05	0.1
Corymbia hamersleyana	4	1
Dodonaea coriacea	0.3	0.1
Dodonaea viscosa subsp. *mucronata*	0.8	0.2
Eriachne mucronata	0.4	0.5
Eucalyptus leucophloia subsp. *leucophloia*	4	3
Fimbristylis dichotoma	0.05	0.1
Goodenia triodiophila	0.3	0.1
Grevillea wickhamii subsp. ?*hispidula*	1.6	0.1
Hakea chordophylla	2	0.2
Jasminum didymum subsp. *lineare*		0.1
Mirbelia viminalis	0.8	0.2
Psydrax latifolia	0.4	0.1
Scaevola browniana subsp. *browniana*	0.3	0.1
Senna glutinosa subsp. *glutinosa*	1.2	0.1
Solanum lasiophyllum	0.5	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.6	0.1
Triodia wiseana	0.4	30

PHOTOS

Site Name:	C41
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	08/04/2022
GPS Location:	GDA94 Zone 50 687487.82E 7477012.09N
Orientation:	90/180
Vegetation Type:	2
Landform Type:	Other, foothill (other)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Low open woodland over low open shrubland over open hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.4	0.3
Acacia hilliana	0.3	4
Acacia inaequilatera	2.5	0.1
Acacia maitlandii		
Acacia pruinocarpa	0.8	0.1
Corchorus lasiocarpus subsp. *parvus*	0.4	0.2
Corymbia hamersleyana	3	0.5
Eriachne mucronata	0.4	0.3
Eriachne pulchella subsp. *dominii*	0.1	0.1
Eucalyptus leucophloia subsp. *leucophloia*	4	1
Fimbristylis dichotoma	0.15	0.1
Goodenia stobbsiana	0.2	0.1
Goodenia triodiophila	0.4	0.1
Hakea chordophylla	2.5	0.5
Indigofera monophylla	0.3	0.4
Petalostylis labicheoides	1.8	0.2
Polycarpaea holtzei	0.01	0.1
**Portulaca pilosa*		
Ptilotus calostachyus	0.3	0.1
Ptilotus ?*carinatus*	0.01	0.1
Ptilotus rotundifolius	0.8	0.3
Schizachyrium fragile	0.03	0.1
Senna artemisioides subsp. *oligophylla*	0.4	0.1
Senna glaucifolia	2.2	0.1
Senna glutinosa subsp. *glutinosa*	0.7	0.3
Senna glutinosa subsp. *pruinosa*	0.5	0.2
Seringia exastia (T)	0.4	0.2
Sida arenicola	0.9	0.1
Sida cardiophylla	0.6	0.1
Solanum phlomoides	0.3	0.1
Tephrosia oxalidea	0.1	0.1
Triodia vanleeuwenii	0.3	6
Triodia wiseana	0.4	0.2

PHOTOS

Site Name:	C42
Site Type:	QUADRAT
Dimensions:	100m x 25m
Survey Date:	09/04/2022
GPS Location:	GDA94 Zone 50 695072.6E 7476655.93N
Orientation:	80/170
Vegetation Type:	4
Landform Type:	Other, Gully (other)
Slope Class:	Moderately Inclined (10 degrees)
Aspect:	E
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, >50% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm, 200-600mm, 600-2000mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	Exotic Weeds
Fire:	<5 Years
Habitat:	Low open woodland over open tall shrubland over tussock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon lepidum	0.3	0.1
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	1.3	0.4
Acacia hamersleyensis	2.5	0.3
Acacia maitlandii	1.5	0.3
Acacia monticola	3	1
Acacia pruinocarpa	1.2	0.2
Acacia pyrifolia var. *pyrifolia*	0.6	0.1
Afrohybanthus aurantiacus	0.4	0.2
Amaranthus undulatus	0.06	0.1
Aristida burbidgeae	0.5	0.5
Aristida obscura	0.2	0.1
Arivela viscosa	0.02	0.1
**Bidens bipinnata*		
Bulbostylis barbata		
Capparis mitchellii	0.2	0.1
Capparis spinosa subsp. *nummularia*	1.2	0.2
**Cenchrus ciliaris*	0.4	0.1
Cheilanthes brownii	0.1	0.1
Clerodendrum floribundum var. *angustifolium*	1.5	0.2
Corchorus laniflorus	0.8	2
Corchorus lasiocarpus subsp. *parvus*	0.6	0.2
Corymbia ferriticola	4	1
Corymbia hamersleyana	4	0.4
Cucumis variabilis		0.2
Cullen leucochaites	2.5	0.2
Cymbopogon ambiguus	0.9	3
Cynanchum pedunculatum		0.5
Cyperus cunninghamii subsp. *cunninghamii*	0.25	0.1
Dodonaea pachyneura	1.2	0.5
Duperreya commixta		0.3
Enneapogon lindleyanus	0.4	0.3
Enneapogon polyphyllus	0.4	0.5
Eragrostis tenellula	0.2	0.1

Eremophila jucunda subsp. *pulcherrima*	0.5	0.1
Eriachne mucronata	0.4	1.5
Eucalyptus leucophloia subsp. *leucophloia*	8	5
Euphorbia biconvexa	0.15	0.1
Euphorbia trigonosperma	0.05	0.1
Ficus brachypoda	4	3
Gomphrena cunninghamii	0.2	1
Goodenia stobbsiana	0.3	0.1
Gossypium australe	0.7	0.1
Gossypium robinsonii	2.5	2
Grevillea wickhamii subsp. ?*hispidula*	2	0.2
Hakea chordophylla	2	0.2
Jasminum didymum subsp. *lineare*		1
Nellica maderaspatensis	0.4	0.4
Paraneurachne muelleri	0.4	0.2
Paspalidium clementii	0.15	0.1
Pluchea dentex	0.4	0.2
Polycarpaea longiflora	0.3	0.2
Ptilotus astrolasius	0.5	0.1
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *oligophylla*	0.5	0.1
Senna ferraria	1.5	0.2
Senna glutinosa subsp. *glutinosa*	1.2	0.3
Senna venusta	0.4	0.1
Sida sp. Shovelanna Hill (S. van Leeuwen 3842)	0.6	1
Solanum cleistogamum	0.4	0.1
Solanum gabrielae	0.3	0.1
Solanum lasiophyllum	0.3	0.1
Stemodia grossa	0.3	0.1
Stylobasium spathulatum	1.5	0.5
Teucrium teucriiflorum	0.8	0.5
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.6	10
Tinospora smilacina		1
Triodia pungens	0.5	1
Triodia wiseana	0.4	2
Tripogonella loliiformis	0.05	0.1
Triumfetta maconochieana	0.3	0.1
Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)	0.1	0.1

PHOTOS

Site Name:	C43
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	09/04/2022
GPS Location:	GDA94 Zone 50 692119.75E 7478456.31N
Orientation:	90/180
Vegetation Type:	10
Landform Type:	Drainage Line
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	N
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	<2%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - G - Good
Disturbance:	Exotic Weeds, (other) - Cows
Fire:	<5 Years
Habitat:	Low open woodland over tall open shrubland over tussock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon amplum	1.2	0.1
Acacia ancistrocarpa	1.1	0.2
Acacia dictyophleba	1.6	0.3
Acacia pyrifolia var. *pyrifolia*	1.5	1
Acacia sericophylla	1.7	0.1
Acacia tumida var. *pilbarensis*	1.7	0.5
Afrohybanthus aurantiacus	0.5	0.5
Alternanthera nana	0.2	1
Androcalva luteiflora	1.5	2
Aristida contorta	0.3	0.2
Aristida holathera var. *holathera*	0.4	0.5
Aristida inaequiglumis	1.3	0.5
Arivela viscosa	0.3	0.3
Atalaya hemiglauca	1.5	1
**Bidens bipinnata*	0.2	0.1
Boerhavia coccinea	0.25	0.1
Boerhavia repleta	0.2	0.5
Bonamia erecta	0.5	0.3
Capparis lasiantha	0.5	0.1
**Cenchrus ciliaris*	0.7	5
Chrysopogon fallax	0.8	0.5
Corymbia hamersleyana	11	10
Crotalaria medicaginea var. *neglecta*	0.4	0.3
Cucumis variabilis		0.5
Dodonaea lanceolata var. *lanceolata*	0.9	0.2
Duperreya commixta		0.5
Enneapogon lindleyanus	0.4	0.4
Eragrostis eriopoda	0.4	0.5
Eremophila longifolia	1.5	2
Eucalyptus xerothermica	9	1
Eulalia aurea	0.6	2
Euphorbia biconvexa	0.3	0.1
Euploca cunninghamii	0.3	0.1

Evolvulus alsinoides	0.2	0.1
Evolvulus alsinoides var. *decumbens*	0.15	0.1
Glycine canescens		0.1
Gomphrena canescens subsp. *canescens*	0.3	1
Goodenia microptera	0.4	0.1
Goodenia stellata	0.15	0.1
Gossypium australe	0.7	0.1
Gossypium robinsonii	2	2
Grevillea wickhamii subsp. ?*hispidula*	1.7	2
Hibiscus sturtii var. *platychlamys*	0.7	0.3
Indigofera georgei	0.6	0.2
Indigofera monophylla	0.4	2
Isotropis iophyta	0.9	0.1
Jasminum didymum subsp. *lineare*		1
**Malvastrum americanum*	0.6	0.1
Melhania oblongifolia	0.4	0.1
Paraneurachne muelleri	0.4	0.5
Perotis rara	0.1	0.2
Polymeria ambigua	0.2	0.3
Pterocaulon sphacelatum	0.5	0.5
Ptilotus calostachyus	0.8	0.2
Ptilotus ?*exaltatus*	0.05	0.1
Ptilotus obovatus var. *obovatus*	0.4	0.2
Rhynchosia minima		0.2
Salsola australis	0.5	0.1
Santalum lanceolatum	1.6	0.4
Scaevola amblyanthera var. *centralis*	0.25	0.1
Senna artemisioides subsp. *oligophylla*	0.5	0.2
Setaria surgens	0.3	0.2
**Setaria verticillata*	0.4	0.1
Sida echinocarpa	0.8	0.2
Sida sp. L (A.M. Ashby 4202)	0.2	0.3
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.9	0.2
Solanum phlomoides	0.3	0.1
Tephrosia densa	0.8	3
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.9	7
Tribulus macrocarpus	0.1	0.1
Trichodesma zeylanicum	0.6	0.1
Triodia pungens	0.6	0.8
Waltheria indica	0.6	0.2

PHOTOS

Site Name:	C44
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	09/04/2022
GPS Location:	GDA94 Zone 50 694512.09E 7477652.09N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Lower Slope
Slope Class:	Gently Inclined (3 degrees)
Aspect:	S
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, <2% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone, ironstone gravel - almost like laterite (other)
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	(other) - track and monitoring bore nearby.
Fire:	<5 Years
Habitat:	Low open woodland over isolated shrubs over open hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.4	0.1
Acacia aptaneura		
Acacia atkinsiana	1.2	0.5
Acacia bivenosa	1.1	0.2
Acacia inaequilatera		
Acacia synchronicia	0.3	0.1
Acacia tetragonophylla	1.2	0.3
Acacia tumida var. *pilbarensis*	1.3	0.1
Aristida contorta	0.3	0.5
Aristida holathera var. *holathera*	0.4	0.1
Capparis lasiantha	0.9	0.1
Corchorus crozophorifolius		
Dodonaea lanceolata var. *lanceolata*	1.1	0.1
Duperreya commixta		0.1
Eriachne lanata	0.4	1
Eriachne mucronata	0.4	1
Eucalyptus leucophloia subsp. *leucophloia*	7	8
Eulalia aurea	0.4	0.1
Euphorbia australis var. *hispidula*	0.01	0.1
Goodenia microptera	0.4	0.1
Goodenia stobbsiana	0.3	0.2
Goodenia triodiophila	0.4	0.1
Gossypium australe	0.6	0.1
Gossypium robinsonii		
Grevillea wickhamii subsp. ?*hispidula*	1.9	0.1
Hakea loreus subsp. *loreus*	2.1	0.1
Hibiscus coatesii	0.2	0.1
Jasminum didymum subsp. *lineare*		
Paraneurachne muelleri	0.45	0.4
Ptilotus astrolasius	0.4	0.5
Ptilotus calostachyus	0.9	0.2
Ptilotus ?*carinatus*	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.4	0.1

Santalum lanceolatum	1.8	0.1
Senna artemisioides subsp. *helmsii*	0.2	0.1
Senna artemisioides subsp. *oligophylla*	0.4	0.1
Senna glutinosa subsp. *glutinosa*		
Senna glutinosa subsp. *pruinosa*	0.9	0.1
Senna glutinosa subsp. *x luerssenii*	1.5	0.3
Seringia exastia (T)	0.35	0.3
Sida arenicola	1.7	0.3
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	0.5	0.2
Solanum lasiophyllum	0.4	0.1
Solanum phlomoides		
Themeda sp. Mt Barricade (M.E. Trudgen 2471)		
Triodia pungens	0.3	10
Triodia vanleeuwenii	0.2	2
Triodia wiseana	0.3	0.1

PHOTOS

Site Name:	C45
Site Type:	QUADRAT
Dimensions:	25m x 100m
Survey Date:	09/04/2022
GPS Location:	GDA94 Zone 50 693079.42E 7477947.61N
Orientation:	90/180
Vegetation Type:	10
Landform Type:	Drainage Line
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	W
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm, 200-600mm
CF Types:	Ironstone, Quartz
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Isolated trees over tall shrubland over open tussock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon cunninghamii	0.5	0.1
Acacia adoxa var. *adoxa*	0.4	0.2
Acacia adsurgens	1.1	0.1
Acacia ancistrocarpa	1.6	0.1
Acacia bivenosa	0.7	0.1
Acacia monticola	1.5	0.5
Acacia pyrifolia var. *pyrifolia*	1.5	0.8
Acacia tumida var. *pilbarensis*	2	15
Afrohybanthus aurantiacus	0.5	0.2
Androcalva luteiflora	1.3	2
Aristida holathera var. *holathera*	0.4	0.2
Aristida inaequiglumis	0.8	0.3
Aristida obscura	0.25	0.1
Bonamia pilbarensis	0.1	0.1
Cassytha capillaris		0.3
Corchorus lasiocarpus subsp. *parvus*	0.8	0.1
Corymbia hamersleyana	8	4
Cymbopogon ambiguus	0.9	0.2
Digitaria brownii	0.5	0.1
Dodonaea lanceolata var. *lanceolata*	1.2	0.5
Duperreya commixta		0.2
Enneapogon polyphyllus	0.3	0.1
Eriachne mucronata	0.4	0.5
Eucalyptus leucophloia subsp. *leucophloia*	7	0.5
Eulalia aurea	0.6	0.1
Evolvulus alsinoides	0.1	0.1
Evolvulus alsinoides var. *decumbens*	0.2	0.1
Goodenia stobbsiana	0.3	0.1
Goodenia triodiophila	0.3	0.1
Gossypium australe	0.6	0.1
Gossypium robinsonii	2.5	3
Grevillea wickhamii subsp. ?*hispidula*	1.5	0.1
Hakea chordophylla	1.2	0.1

Hibiscus sturtii var. *campylochlamys*	0.4	0.1
Hibiscus sturtii var. *platychlamys*	0.6	0.1
Indigofera monophylla	0.4	0.2
Isotropis iophyta	0.5	0.1
Jasminum didymum subsp. *lineare*		0.2
Melhania oblongifolia	0.8	0.1
Paraneurachne muelleri	0.4	1
Ptilotus astrolasius	0.4	0.2
Ptilotus calostachyus	0.8	0.2
Ptilotus ?carinatus	0.05	0.1
Santalum lanceolatum	2	1
Senna artemisioides subsp. *oligophylla*	0.4	0.1
Senna glutinosa subsp. *glutinosa*	0.6	0.1
Senna glutinosa subsp. *x luerssenii*	0.3	0.1
Senna notabilis	0.2	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.8	0.1
Solanum phlomoides	0.4	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.9	10
Triodia pungens	0.4	2
Triodia vanleeuwenii	0.2	0.1
Triodia wiseana	0.5	0.2

PHOTOS

Site Name:	C46
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	10/04/2022
GPS Location:	GDA94 Zone 50 692602.48E 7477523.5N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Low Rise (other)
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	NW
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years
Habitat:	Isolated trees over sparse tall shrubland over hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia ancistrocarpa	2.5	4
Acacia atkinsiana	2.1	2
Acacia inaequilatera		
Amphipogon sericeus	0.3	0.1
Androcalva luteiflora	0.2	0.1
Aristida holathera var. *holathera*	0.4	0.1
Codonocarpus cotinifolius	6	0.3
Corymbia deserticola subsp. *deserticola*		
Goodenia microptera	0.3	0.1
Goodenia stobbsiana		
Hakea chordophylla	1.6	0.2
Hakea loreus subsp. *loreus*	4	0.5
Hibiscus coatesii	0.4	0.1
Indigofera monophylla	0.5	0.3
Paraneurachne muelleri	0.4	0.5
Ptilotus calostachyus	0.8	0.1
Senna glutinosa subsp. *pruinosa*		
Senna glutinosa subsp. *x luerssenii*	1.1	0.1
Senna notabilis	0.01	0.1
Seringia exastia (T)	0.3	0.5
Sida arenicola	1.2	0.1
Solanum lasiophyllum	0.6	0.1
Trianthema glossostigmum	0.02	0.1
Triodia vanleeuwenii	0.25	18

PHOTOS

Site Name:	C47
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	10/04/2022
GPS Location:	GDA94 Zone 50 692935.4E 7476756.37N
Orientation:	90/180
Vegetation Type:	2
Landform Type:	Lower Slope
Slope Class:	Gently Inclined (3 degrees)
Aspect:	NW
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - VG - Very Good
Disturbance:	(other) - mine rehab track
Fire:	5-10 Years
Habitat:	Isolated trees over low sparse shrubland over hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.6	0.2
Acacia adsurgens	1.3	0.3
Acacia ancistrocarpa		
Acacia atkinsiana	1.8	0.5
Acacia bivenosa	1.2	0.1
Acacia elachantha		
Acacia hilliana	0.4	2
Aristida holathera var. *holathera*	0.3	0.2
Aristida inaequiglumis		
Clerodendrum floribundum var. *angustifolium*		
Corymbia deserticola subsp. *deserticola*	5	1.5
Cucumis variabilis		0.1
Cymbopogon ambiguus	0.8	0.1
Digitaria brownii	0.4	0.1
Duperreya commixta		0.1
Eucalyptus leucophloia subsp. *leucophloia*		
Fimbristylis dichotoma	0.2	0.1
Fimbristylis simulans	0.1	0.1
Goodenia stobbsiana	0.25	0.5
Goodenia triodiophila	0.5	0.1
Hakea chordophylla	4	1
Jasminum didymum subsp. *lineare*		0.1
Ptilotus calostachyus	0.7	0.1
Schizachyrium fragile	0.07	0.1
Senna artemisioides subsp. *oligophylla*	0.4	0.1
Senna glaucifolia	0.8	0.1
Senna glutinosa subsp. *glutinosa*	1.1	0.2
Senna glutinosa subsp. *pruinosa*	0.9	0.2
Sida arenicola		
Solanum lasiophyllum		
Solanum phlomoides	0.5	0.1
Trichodesma zeylanicum	0.4	0.1
Triodia vanleeuwenii	0.3	25

Triodia wiseana	0.5	0.5

PHOTOS

Site Name:	C48
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	10/04/2022
GPS Location:	GDA94 Zone 50 694413.27E 7476472.46N
Orientation:	90/180
Vegetation Type:	6
Landform Type:	Mid Slope
Slope Class:	Steep (23 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, >50% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm, 200-600mm, 600-2000mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Low open woodland over shrubland over hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia pyrifolia var. *pyrifolia*	1.1	0.2
Aristida holathera var. *holathera*	0.3	0.1
**Bidens bipinnata*	0.1	0.1
Boerhavia coccinea	0.2	0.1
Cheilanthes brownii	0.1	0.1
Codonocarpus cotinifolius	1.8	0.1
Corchorus laniflorus	0.2	0.1
Corymbia hamersleyana	4	1
Cymbopogon ambiguus	0.8	0.1
Dolichocarpa crouchiana	0.1	0.1
Enneapogon polyphyllus	0.2	0.1
Eremophila jucunda subsp. *pulcherrima*	0.5	0.2
Eriachne mucronata	0.3	2
Eriachne pulchella subsp. *dominii*	0.1	0.1
Eucalyptus leucophloia subsp. *leucophloia*	6	5
Euphorbia trigonosperma	0.15	0.1
Fimbristylis dichotoma	0.1	0.1
Gomphrena cunninghamii	0.2	0.1
Goodenia stobbsiana	0.3	0.1
Gossypium robinsonii	1.5	0.5
Grevillea wickhamii subsp. ?*hispidula*	1.5	0.5
Hakea chordophylla	3	0.1
Jasminum didymum subsp. *lineare*		0.1
Paraneurachne muelleri	0.4	0.5
Polycarpaea longiflora	0.3	0.1
Ptilotus astrolasius	0.4	0.5
Ptilotus calostachyus	0.8	0.1
Ptilotus rotundifolius	0.05	0.1
Schizachyrium fragile	0.05	0.1
Senna glutinosa subsp. *glutinosa*	0.8	0.3
Sida echinocarpa	0.6	0.1
Sida sp. Excedentifolia (J.L. Egan 1925)	0.3	0.1
Sida sp. Shovelanna Hill (S. van Leeuwen 3842)	0.3	0.2
Solanum lasiophyllum	0.4	0.1

Solanum phlomoides	0.4	0.1
Tinospora smilacina		0.1
Triodia pungens	0.3	0.1
Triodia wiseana	0.4	15
Triumfetta maconochieana	0.4	0.1

PHOTOS

Site Name:	C49
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	11/04/2022
GPS Location:	GDA94 Zone 50 690256.71E 7476182.17N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Lower Slope
Slope Class:	Gently Inclined (3 degrees)
Aspect:	NE
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone, Quartz
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Isolated mallee trees over sparse shrubland over hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon lepidum	0.4	0.1
Acacia adoxa var. *adoxa*	0.4	1
Acacia atkinsiana	0.8	5
Acacia bivenosa	0.9	0.1
Acacia inaequilatera	3.5	0.5
Amphipogon sericeus	0.3	0.1
Androcalva luteiflora	0.15	0.1
Aristida holathera var. *holathera*	0.4	0.1
Arivela viscosa	0.1	0.1
Boerhavia coccinea	0.2	0.1
Corchorus lasiocarpus subsp. *parvus*	0.4	0.2
Dodonaea petiolaris	0.1	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.3	0.1
Eucalyptus gamophylla	2.5	3
Eucalyptus leucophloia subsp. *leucophloia*	8	0.1
Evolvulus alsinoides	0.1	0.1
Fimbristylis simulans	0.15	0.1
Hakea chordophylla	1.3	0.1
Hibiscus sturtii var. *campylochlamys*	0.3	0.1
Indigofera monophylla	0.5	1
Jasminum didymum subsp. *lineare*	0.2	0.1
Paraneurachne muelleri	0.4	0.3
Ptilotus astrolasius	0.5	1
Ptilotus calostachyus	0.9	5
Ptilotus ?*carinatus*	0.1	0.1
Ptilotus rotundifolius	0.9	0.5
Scaevola parvifolia subsp. *pilbarae*	0.3	0.1
Schizachyrium fragile	0.05	0.1
Sclerolaena cornishiana	0.3	0.1
Senna artemisioides subsp. *oligophylla*	0.4	0.1
Senna glaucifolia	0.9	0.5
Senna glutinosa subsp. *glutinosa*	1.2	1

Senna glutinosa subsp. *pruinosa*	0.7	0.2
Senna glutinosa subsp. *x luerssenii*	0.9	0.1
Seringia exastia (T)	0.5	1.5
Sida arenicola	1.2	0.5
Sida cardiophylla	0.6	0.1
Triodia pungens	0.4	2
Triodia vanleeuwenii	0.2	15

PHOTOS

Site Name:	C50
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	11/04/2022
GPS Location:	GDA94 Zone 50 682655.38E 7472471.01N
Orientation:	90/180
Vegetation Type:	9
Landform Type:	Drainage Line
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	W
Soil Type:	Sandy Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	2-10%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years
Habitat:	Low open woodland over tall shrubland over tussock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.5	0.1
Acacia atkinsiana	4	4
Acacia cowleana	4	2
Acacia dictyophleba	1.5	0.5
Acacia monticola	4	2
Acacia steedmanii subsp. *borealis*	1.2	1
Acacia tenuissima		
Acacia tumida var. *pilbarensis*	0.5	0.1
Afrohybanthus aurantiacus	0.8	3
Alternanthera nana	0.25	0.1
Androcalva luteiflora	0.15	0.1
Anthobolus leptomerioides	1.5	0.1
Aristida holathera var. *holathera*	0.3	0.2
Aristida inaequiglumis	0.9	0.5
Boerhavia coccinea	0.05	0.1
Bonamia erecta	0.4	0.1
Chrysopogon fallax	1.1	0.1
Corchorus sp. (Potentially undescribed)	0.4	0.1
Corymbia deserticola subsp. *deserticola*	5	2
Cymbopogon obtectus	0.8	0.1
Digitaria brownii	0.8	0.5
Duperreya commixta		0.1
Enneapogon polyphyllus	0.3	0.1
Enneapogon robustissimus	0.8	0.5
Eragrostis eriopoda	0.5	2
Eucalyptus gamophylla	5	7
Eulalia aurea	0.7	8
Euphorbia australis var. *hispidula*	0.1	0.1
Euphorbia tannensis subsp. *eremophila*	0.8	0.1
Evolvulus alsinoides	0.1	0.1
Glycine canescens		0.1
Goodenia microptera	0.25	0.1
Goodenia stobbsiana	0.2	0.1

Hibiscus burtonii	0.8	0.1
Hibiscus coatesii	0.5	0.1
Hibiscus sturtii var. *platychlamys*	0.5	0.2
Indigofera georgei	0.5	0.1
Isotropis iophyta	0.8	1
Jasminum didymum subsp. *lineare*		0.1
Maireana villosa	0.3	0.1
Paraneurachne muelleri	0.5	4
Perotis rara	0.1	0.1
Psydrax suaveolens	2.1	0.2
Pterocaulon sphacelatum	0.3	0.1
Ptilotus astrolasius	0.6	1
Ptilotus calostachyus	0.8	0.1
Ptilotus ?carinatus	0.05	0.1
Rhynchosia minima		0.1
Scaevola parvifolia subsp. *pilbarae*	0.3	0.3
Senna artemisioides subsp. *oligophylla*	1.1	0.3
Senna glutinosa subsp. *x luerssenii*	0.9	0.1
Senna notabilis	0.1	0.1
Seringia exastia (T)	0.5	1
Sida cardiophylla	0.4	0.5
Sida sp. L (A.M. Ashby 4202)	0.8	0.2
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.8	0.1
Solanum cleistogamum	0.3	0.1
Solanum lasiophyllum	0.7	0.1
Tephrosia densa	0.4	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.9	2
Triodia pungens	0.4	7
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	C51
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	11/04/2022
GPS Location:	GDA94 Zone 50 688022.85E 7476842.66N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	E
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone, Quartz
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Isolated trees over sparse low shrubland over open hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia atkinsiana	0.7	2
Acacia bivenosa	0.9	0.1
Acacia inaequilatera	2.2	0.5
Acacia pruinocarpa	0.9	0.1
Acacia tenuissima	0.3	0.1
Amphipogon sericeus	0.4	0.1
Aristida inaequiglumis	1.1	0.1
Aristida obscura	0.3	0.1
Bonamia erecta	0.4	0.6
Corchorus lasiocarpus subsp. *parvus*	0.5	0.2
Enneapogon polyphyllus	0.35	0.1
Eragrostis eriopoda	0.4	0.3
Eriachne mucronata	0.4	0.3
Eucalyptus gamophylla	2.5	0.5
Eucalyptus leucophloia subsp. *leucophloia*	7	1.5
Eulalia aurea	0.6	0.1
Euphorbia australis var. *hispidula*	0.02	0.1
Euphorbia tannensis subsp. *eremophila*	0.2	0.1
Goodenia microptera	0.3	0.1
Goodenia stobbsiana	0.2	0.1
Hakea loreus subsp. *loreus*	0.8	0.1
Hibiscus sturtii var. *campylochlamys*	0.4	0.1
Indigofera monophylla	0.4	0.2
Paraneurachne muelleri	0.4	0.1
Ptilotus astrolasius	0.4	0.2
Ptilotus calostachyus	1	0.1
Ptilotus ?*carinatus*		
Ptilotus rotundifolius	0.8	0.1
Scaevola parvifolia subsp. *pilbarae*	0.3	0.1
Schizachyrium fragile	0.05	0.1
Senna artemisioides subsp. *oligophylla*	0.4	0.1
Senna glutinosa subsp. *x luerssenii*	0.9	0.3
Seringia exastia (T)	0.5	1

Sida arenicola	1.5	0.5
Sida cardiophylla	0.4	0.1
Sida echinocarpa	1.2	0.3
Solanum lasiophyllum	0.7	0.1
Triodia pungens	0.4	6
Triodia vanleeuwenii		8

PHOTOS

Site Name:	C52
Site Type:	QUADRAT
Dimensions:	25m x 100m
Survey Date:	12/04/2022
GPS Location:	GDA94 Zone 50 694892.92E 7475906.42N
Orientation:	70/160
Vegetation Type:	4
Landform Type:	Other, Breakaway (other)
Slope Class:	Precipitous (60 degrees)
Aspect:	NE
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, >50% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm, 200-600mm, 600-2000mm
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	Exotic Weeds
Fire:	<5 Years
Habitat:	Low open woodland over open shrubland over open grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia aptaneura	4	0.5
Amaranthus undulatus	0.1	0.3
Aristida burbidgeae	0.5	2
Aristida contorta	0.4	0.1
Arivela viscosa	0.1	0.1
Astrotricha hamptonii	1.8	1
**Bidens bipinnata*	0.1	0.1
Brachychiton acuminatus	2.1	0.2
Bulbostylis barbata	0.03	0.1
Capparis mitchellii	1.6	0.1
Capparis spinosa subsp. *nummularia*	0.8	0.5
Cheilanthes sieberi subsp. *sieberi*	0.2	0.1
Clerodendrum floribundum var. *angustifolium*	0.2	0.1
Corchorus laniflorus	1.3	7
Corymbia ferriticola	4	6
Cucumis variabilis		0.1
Cymbopogon ambiguus	1	1
Cynanchum pedunculatum		0.5
Cynanchum viminale subsp. *australe*	1.1	1.5
Cyperus cunninghamii subsp. *cunninghamii*	0.3	1
Dodonaea viscosa subsp. *mucronata*	0.9	1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.3	0.1
Eremophila naaykensii (P3)	1.8	2
Eremophila petrophila subsp. *petrophila*	2.1	0.2
Eriachne mucronata	0.3	5
Eucalyptus leucophloia subsp. *leucophloia*	5	0.1
Evolvulus alsinoides	0.1	0.1
Ficus brachypoda	3.5	2
Gomphrena cunninghamii	0.2	1
Goodenia stobbsiana	0.3	0.1
Hibiscus coatesii	1.1	0.3
Jasminum didymum subsp. *lineare*		0.1
Newcastelia clavipetala	0.8	0.2

Paspalidium clementii	0.05	0.1
Perotis rara	0.15	0.1
Psydrax latifolia	2.1	0.5
Pterocaulon sphacelatum	0.4	2
Ptilotus astrolasius	0.6	0.5
Senna venusta	0.1	0.1
Sida sp. Shovelanna Hill (S. van Leeuwen 3842)	0.2	0.5
Solanum cleistogamum	0.4	0.3
Solanum gabrielae	0.5	0.3
Tinospora smilacina		0.2
Triodia pungens	0.7	2
Triodia wiseana	0.6	3
Triumfetta leptacantha	0.7	2
Triumfetta maconochieana	0.4	0.2

PHOTOS

Site Name:	C53
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	12/04/2022
GPS Location:	GDA94 Zone 50 683571.1E 7474477.38N
Orientation:	90/180
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	Exotic Weeds
Fire:	>10 Years
Habitat:	Low open woodland over open shrubland over open tussock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.4	0.1
Abutilon otocarpum	0.45	0.1
Acacia aneura	6	2
Acacia aptaneura	9	4
Acacia ?ayersiana	2.5	1
Acacia bivenosa	1.2	0.1
Acacia pruinocarpa	3.5	1
Alternanthera nana	0.25	0.1
Anthobolus leptomerioides	2.7	0.2
Aristida inaequiglumis	1.3	3
Aristida obscura	0.3	2
Arivela viscosa	0.3	0.1
**Bidens bipinnata*	0.15	0.1
Boerhavia coccinea	0.1	0.1
Boerhavia repleta	0.25	0.1
Bothriochloa ewartiana	0.8	0.1
Cheilanthes sieberi subsp. *sieberi*	0.25	0.1
Chrysopogon fallax	1.1	0.3
Cucumis variabilis		0.1
Cymbopogon obtectus	1.1	0.1
Dactyloctenium radulans	0.15	0.1
Digitaria brownii	0.7	0.5
Digitaria ctenantha	0.8	0.1
Duperreya commixta		0.2
Enneapogon lindleyanus	0.3	0.1
Enneapogon polyphyllus	0.3	0.5
Enneapogon robustissimus	0.8	1
Eremophila forrestii subsp. *forrestii*	1.3	0.3
Eremophila latrobei subsp. *filiformis*	1.4	0.1
Eriachne mucronata	0.3	0.3
Euphorbia australis var. *hispidula*	0.05	0.1
Euphorbia biconvexa	0.05	0.1
Evolvulus alsinoides var. *villosicalyx*	0.15	0.1
Glycine canescens		0.1

Hibiscus burtonii	0.7	0.2
Hibiscus coatesii	0.3	0.1
Hibiscus sturtii var. *platychlamys*	0.45	0.2
Indigofera monophylla	0.3	0.1
Iseilema membranaceum	0.1	0.1
Maireana villosa	0.5	0.7
**Malvastrum americanum*	0.4	0.2
Paraneurachne muelleri	0.45	0.2
Perotis rara	0.15	0.1
Portulaca ?oleracea	0.05	0.1
Psydrax suaveolens	2.5	0.1
Pterocaulon sphacelatum	0.3	0.1
Ptilotus astrolasius	0.45	0.5
Ptilotus ?exaltatus	0.05	0.1
Ptilotus helipteroides	0.05	0.1
Ptilotus obovatus var. *obovatus*	0.2	0.1
Salsola australis	0.25	0.1
Sclerolaena cornishiana	0.4	0.2
Senna artemisioides subsp. *helmsii*	1.2	3
Senna artemisioides subsp. *oligophylla*	1.3	0.1
Senna glutinosa subsp. *x luerssenii*	0.4	0.1
Senna notabilis	0.2	0.1
Sida ectogama	1.2	0.2
Sida sp. L (A.M. Ashby 4202)	0.3	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.45	0.1
Solanum cleistogamum	0.45	0.1
Solanum phlomoides	0.5	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	1.1	1
Tribulus macrocarpus	0.1	0.1
Tribulus suberosus	1.3	0.2
Triodia pungens	0.5	1

PHOTOS

Site Name:	C54
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	12/04/2022
GPS Location:	GDA94 Zone 50 685509.61E 7467868.05N
Orientation:	90/180
Vegetation Type:	9
Landform Type:	Flat
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	>10 Years
Habitat:	Isolated trees over sparse tall shrubland over grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.6	0.1
Acacia ancistrocarpa	4	1
Acacia aneura		
Acacia aptaneura	4	3
Acacia cowleana	0.8	0.1
Acacia dictyophleba	2.2	0.2
Acacia minyura	1.8	1
Acacia pachyacra	2.5	0.3
Acacia tenuissima	2.5	0.3
Alternanthera nana	0.2	0.2
Anthobolus leptomerioides	1.2	0.1
Aristida contorta	0.3	0.1
Aristida holathera var. *holathera*	0.4	0.2
Aristida inaequiglumis	0.9	4
Codonocarpus cotinifolius	1.5	0.2
Cucumis variabilis		0.1
Cymbopogon obtectus	0.7	0.1
Digitaria brownii	0.6	0.2
Duperreya commixta		0.3
Enneapogon robustissimus	0.8	0.2
Eragrostis eriopoda	0.4	0.1
Eremophila longifolia	2.1	0.3
Eriachne mucronata	0.4	0.1
Eulalia aurea	0.9	1
Euphorbia australis var. *hispidula*	0.3	0.1
Euphorbia tannensis subsp. *eremophila*	0.6	0.1
Hakea loreus subsp. *loreus*	5	1
Hibiscus burtonii	0.8	0.2
Hibiscus sturtii var. *platychlamys*	0.8	0.1
Indigofera georgei	0.4	0.1
Isotropis iophyta	0.7	0.3
Jasminum didymum subsp. *lineare*		0.1
Maireana villosa	0.4	0.1
Panicum effusum	0.6	0.5

Paraneurachne muelleri	0.5	0.5
Peripleura obovata	0.5	0.1
Perotis rara	0.1	0.1
Psydrax latifolia		
Pterocaulon sphacelatum	0.5	0.2
Ptilotus astrolasius	0.4	0.3
Ptilotus ?carinatus	0.05	0.1
Ptilotus helipteroides	0.1	0.1
Senna notabilis	0.1	0.1
Sida cardiophylla	0.4	0.1
Sida sp. L (A.M. Ashby 4202)	0.4	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.9	0.1
Solanum lasiophyllum	0.3	0.1
Solanum phlomoides	0.4	0.1
Tephrosia ?sp. Newman	0.1	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.9	3
Triodia melvillei	0.8	15
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	C55
Site Type:	QUADRAT
Dimensions:	25m x 100m
Survey Date:	13/04/2022
GPS Location:	GDA94 Zone 50 693547.6E 7476322.6N
Orientation:	90/180
Vegetation Type:	4
Landform Type:	Upper Slope
Slope Class:	Very Steep (37 degrees)
Aspect:	NW
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, >50% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm, 200-600mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Low open woodland over sparse shrubland over hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia hamersleyensis	1.2	0.2
Acacia pruinocarpa	1.1	0.2
Amaranthus undulatus	0.25	0.5
Aristida burbidgeae	0.4	2
Arivela viscosa	0.4	1
**Bidens bipinnata*	0.2	0.4
Capparis lasiantha	0.25	0.1
Capparis mitchellii	0.3	0.1
Capparis spinosa subsp. *nummularia*	1.1	0.2
Cheilanthes brownii	0.1	0.1
Cheilanthes sieberi subsp. *sieberi*	0.2	0.1
Corymbia ferriticola	8	3
Cucumis variabilis		0.3
Cymbopogon ambiguus	0.7	4
Cynanchum pedunculatum		2
Cyperus cunninghamii subsp. *cunninghamii*	0.4	0.1
Dysphania ?*rhadinostachya*	0.03	0.1
Enneapogon polyphyllus	0.3	0.1
Eremophila jucunda subsp. *pulcherrima*	0.3	0.1
Eriachne mucronata	0.4	5
Eucalyptus leucophloia subsp. *leucophloia*	7	1
Euphorbia trigonosperma	0.25	0.1
Gomphrena cunninghamii	0.2	3
Goodenia stobbsiana	0.3	0.1
Gossypium robinsonii	1.8	0.3
Grevillea wickhamii subsp. ?*hispidula*	1.8	0.2
Hibiscus coatesii	0.4	0.1
Indigofera fractiflexa subsp. *fractiflexa*	0.4	1
Iseilema membranaceum	0.05	0.1
Jasminum didymum subsp. *lineare*		0.1
Nicotiana benthamiana	0.15	0.1
Paspalidium clementii	0.1	0.1
Polycarpaea longiflora	0.25	0.3

Ptilotus astrolasius	0.4	1
Santalum lanceolatum	0.7	0.1
Schizachyrium fragile	0.05	0.1
Senna glaucifolia	0.4	0.1
Senna glutinosa subsp. *glutinosa*	1.5	0.5
Senna venusta	0.1	0.1
Sida sp. Excedentifolia (J.L. Egan 1925)	0.3	0.2
Sida sp. Shovelanna Hill (S. van Leeuwen 3842)	0.2	0.2
Solanum cleistogamum	0.3	0.1
Tephrosia densa	0.8	0.1
Tinospora smilacina		0.1
Trichodesma zeylanicum	0.2	0.1
Triodia wiseana	0.3	12
Triumfetta leptacantha	0.5	0.5
Triumfetta maconochieana	0.4	0.1

PHOTOS

Site Name:	CR01
Site Type:	RELEVE
Survey Date:	16/03/2022
GPS Location:	GDA94 Zone 50 694870.61E 7476615.34N
Vegetation Type:	6
Slope Class:	Moderately Inclined (10 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, >50% bedrock exposed
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years
Habitat:	Low open woodland over tall open shrubland over open grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Clerodendrum floribundum var. *angustifolium*		
Corymbia hamersleyana		
Dodonaea pachyneura		
Eucalyptus leucophloia subsp. *leucophloia*		
Gossypium robinsonii		
Grevillea wickhamii		
Jasminum didymum subsp. *lineare*		
Santalum lanceolatum		

Site Name:	CR02
Site Type:	RELEVE
Survey Date:	17/03/2022
GPS Location:	GDA94 Zone 50 683120.97E 7473640.24N
Vegetation Type:	2
Landform Type:	Crest, summit of small hill (other)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 2-10% bedrock exposed
CF Abundance:	>90%
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	> 10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*		
Acacia monticola	4	
Corymbia hamersleyana	6	
Dampiera candicans		
Eriachne mucronata		
Eucalyptus leucophloia subsp. *leucophloia*	5	
Goodenia stobbsiana		
Grevillea wickhamii subsp. *hispidula*		
Hakea chordophylla	2	
Hibiscus sturtii var. *campylochlamys*		
Paraneurachne muelleri		
Senna glutinosa subsp. *pruinosa*		
Triodia wiseana		

Site Name:	CR03
Site Type:	RELEVE
Survey Date:	21/03/2022
GPS Location:	GDA94 Zone 50 693500.65E 7476771.21N
Vegetation Type:	2
Landform Type:	Drainage Line
Slope Class:	Gently Inclined (3 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 10-20% bedrock exposed
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*		
Acacia hilliana		
Acacia monticola		
Acacia tumida var. *pilbarensis*		
Corchorus lasiocarpus subsp. *parvus*		
Corymbia hamersleyana		
Cymbopogon ambiguus		
Eucalyptus leucophloia subsp. *leucophloia*		
Gompholobium oreophilum		
Goodenia stobbsiana		
Gossypium robinsonii		
Grevillea wickhamii subsp. ?*hispidula*		
Triodia wiseana		

Site Name:	CR04
Site Type:	RELEVE
Survey Date:	08/04/2022
GPS Location:	GDA94 Zone 50 692852.22E 7476239.53N
Vegetation Type:	5
Landform Type:	Other, Gully (other)
Slope Class:	Very Steep (37 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, >50% bedrock exposed
CF Abundance:	>90%
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia monticola		
Corymbia hamersleyana		
Cymbopogon ambiguus		
Duperreya commixta		
Eremophila jucunda subsp. *pulcherrima*		
Gossypium robinsonii		
Grevillea wickhamii subsp. ?*hispidula*		
Paraneurachne muelleri		
Psydrax latifolia		
Sida sp. Excedentifolia (J.L. Egan 1925)		
Triodia wiseana		

PHOTOS

Site Name:	CR05
Site Type:	RELEVE
Survey Date:	08/04/2022
GPS Location:	GDA94 Zone 50 692906.47E 7476323.24N
Vegetation Type:	5
Landform Type:	Other, Gully (other)
Slope Class:	Very Steep (37 degrees)
Aspect:	S
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 20-50% bedrock exposed
CF Abundance:	>90%
CF Sizes:	20-60mm, 60-200mm, 200-600mm, 600-2000mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia aptaneura		
Acacia monticola		
Cheilanthes sieberi subsp. *sieberi*		
Corymbia ferriticola		
Cymbopogon ambiguus		
Eriachne mucronata		
Fimbristylis dichotoma		
Gossypium robinsonii		
Grevillea wickhamii subsp. ?*hispidula*		
Santalum lanceolatum		
Senna glutinosa subsp. *glutinosa*		
Triodia pungens		

PHOTOS

Site Name:	K01
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	14/03/2022
GPS Location:	GDA94 Zone 50 694572.51E 7478495.95N
Orientation:	180/90
Vegetation Type:	5
Landform Type:	Other, Crest; Upper Slope (other)
Slope Class:	Gently Inclined (3 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 2-10% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years
Habitat:	Isolated low trees over isolated mid-tall shrubs over isolated mid shrubs over hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia inaequilatera	3	0.5
Acacia tenuissima	0.4	0.1
Aristida holathera var. *holathera*	0.2	0.1
Arivela viscosa	0.1	0.1
Enneapogon caerulescens	0.1	0.1
Enneapogon polyphyllus	0.1	1
Eriachne pulchella subsp. *dominii*	0.1	0.1
Eucalyptus leucophloia subsp. *leucophloia*	1	0.2
Fimbristylis dichotoma	0.1	2
Goodenia triodiophila	0.2	0.1
Hibiscus sturtii var. *campylochlamys*	0.3	0.1
Indigofera monophylla	0.3	0.2
Poaceae sp.	0.1	0.1
Ptilotus calostachyus	0.4	0.1
Senna artemisioides subsp. *oligophylla*	0.8	0.1
Senna glutinosa subsp. *glutinosa*	1.5	0.3
Senna glutinosa subsp. *pruinosa*	1	0.2
Triodia wiseana	0.3	50

PHOTOS

Site Name:	K02
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	15/03/2022
GPS Location:	GDA94 Zone 50 683288.99E 7470036.67N
Orientation:	180/90
Vegetation Type:	1
Landform Type:	Other, Drainage Line/Outwash (other)
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone, Quartz
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	5-10 Years
Habitat:	Low open woodland over tall mixed shrubland over low mixed hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	0.3	0.1
Acacia atkinsiana	2	5
Acacia bivenosa	1	1
Acacia pyrifolia var. *pyrifolia*	1	0.1
Arivela viscosa	0.1	0.1
**Cenchrus ciliaris*	0.4	0.3
Cymbopogon ambiguus	0.4	0.3
Duperreya commixta		0.1
Enneapogon lindleyanus	0.2	0.1
Eriachne mucronata	0.3	0.3
Eucalyptus gamophylla	5	6
Eucalyptus leucophloia subsp. *leucophloia*	10	3
Gossypium robinsonii	2.5	5
Hibiscus coatesii	0.3	0.1
Hibiscus sturtii var. *platychlamys*	0.4	0.1
Indigofera monophylla	0.2	0.2
Jasminum didymum subsp. *lineare*		0.1
Melhania oblongifolia	0.1	0.1
Paraneurachne muelleri	0.2	0.1
Ptilotus ?*carinatus*	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.3	0.1
Ptilotus rotundifolius	0.5	0.3
Rhynchosia minima		0.1
Scaevola parvifolia subsp. *pilbarae*	0.2	0.1
Senna artemisioides subsp. *oligophylla*	0.5	0.1
Senna glutinosa subsp. *glutinosa*	1	0.1
Senna glutinosa subsp. *x luerssenii*	1	0.1
Seringia exastia (T)	0.2	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1.2	0.1
Solanum lasiophyllum	0.4	0.1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.2	0.2
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.5	0.5

Triodia pungens	0.4	60
Triodia vanleeuwenii	0.3	1

PHOTOS

Site Name:	K03
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	15/03/2022
GPS Location:	GDA94 Zone 50 683511.12E 7469666.94N
Orientation:	180/90
Vegetation Type:	1
Landform Type:	Other, Outwash (other)
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone, Quartz
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	5-10 Years
Habitat:	Low open woodland over tall open shrubland over sparse low shrubland over low hummock grassland

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia atkinsiana	3	5
Acacia bivenosa	1	0.3
Acacia tenuissima	1.5	0.1
Cymbopogon ambiguus	0.2	0.1
Duperreya commixta		0.1
Eucalyptus gamophylla	5	5
Indigofera monophylla	0.6	0.1
Ptilotus astrolasius	0.2	0.1
Ptilotus calostachyus	0.5	0.1
Ptilotus rotundifolius	0.8	1
Senna artemisioides subsp. *oligophylla*	0.5	0.3
Senna glutinosa subsp. *x luerssenii*	0.7	0.1
Senna pleurocarpa var. *pleurocarpa*	0.5	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.4	0.3
Triodia pungens	0.3	60

PHOTOS

Site Name:	K035
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	06/04/2022
GPS Location:	GDA94 Zone 50 692929.15E 7476249.41N
Orientation:	90/180
Vegetation Type:	6
Landform Type:	Mid Slope
Slope Class:	Steep (23 degrees)
Aspect:	N
Soil Type:	Sandy Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 2-10% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	(other) - Drill pads adjacent
Fire:	5-10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Aristida holathera var. *holathera*	0.2	0.1
Arivela viscosa	0.1	0.1
Cassytha capillaris		0.1
Cheilanthes brownii	0.1	0.1
Corymbia hamersleyana	4	3
Eremophila jucunda subsp. *pulcherrima*	0.4	0.1
Eriachne mucronata	0.2	0.1
Eucalyptus leucophloia subsp. *leucophloia*	2.5	0.5
Fimbristylis dichotoma	0.1	0.1
Gossypium robinsonii	2.5	0.1
Grevillea wickhamii subsp. *hispidula*	1.2	0.1
Grevillea wickhamii subsp. ?*hispidula*	2	3
Schizachyrium fragile	0.1	0.1
Senna ferraria	0.6	0.1
Senna glutinosa subsp. *glutinosa*	0.8	0.1
Triodia pungens	0.3	2
Triodia wiseana	0.4	30

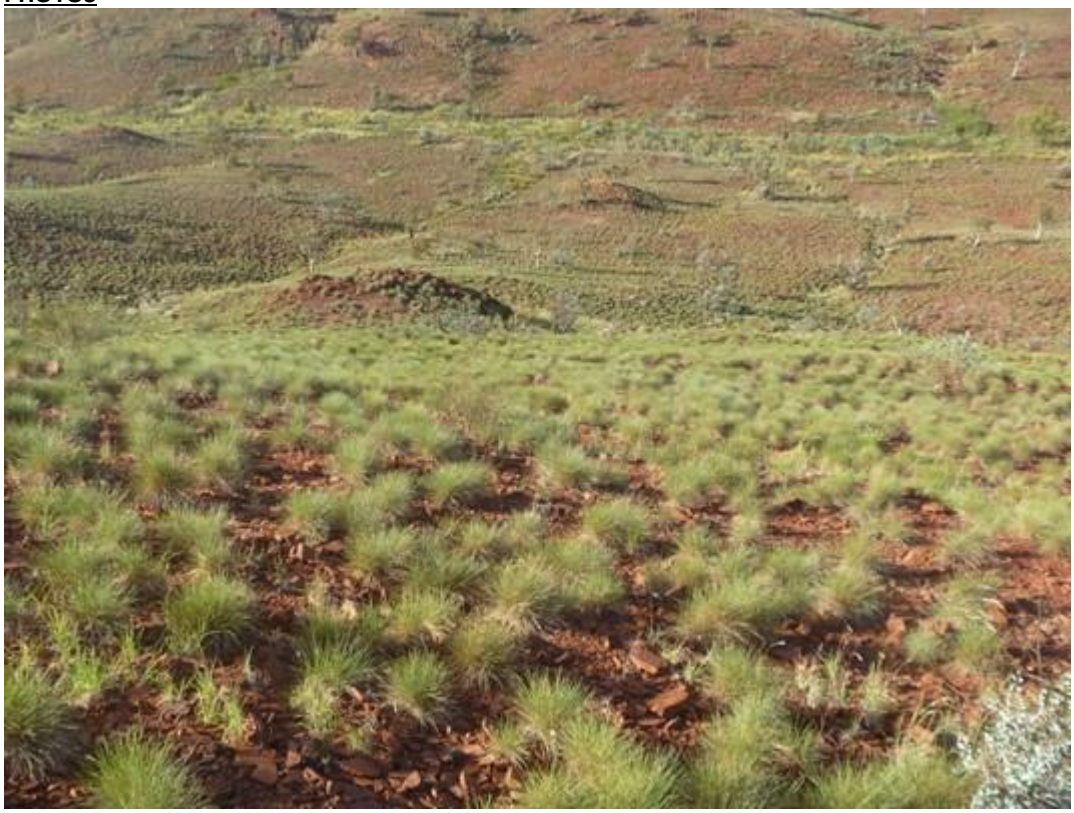
PHOTOS

Site Name:	K04
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	16/03/2022
GPS Location:	GDA94 Zone 50 694876.12E 7478243.41N
Orientation:	180/90
Vegetation Type:	5
Landform Type:	Other, Upper Slope/Mid Slope (other)
Slope Class:	Steep (23 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 2-10% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm, 200-600mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years
Habitat:	Isolated trees over isolated mid shrubs over isolated low shrubs over hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia inaequilatera	1.5	0.5
Acacia tetragonophylla	0.5	0.1
Aristida contorta	0.2	0.1
Boerhavia coccinea		
Cheilanthes contigua	0.1	0.1
Cullen leucochaites	0.4	0.1
Cymbopogon ambiguus	0.4	0.1
Enneapogon polyphyllus	0.1	0.2
Eremophila latrobei subsp. *filiformis*	0.3	0.1
Eriachne mucronata	0.3	0.2
Eucalyptus leucophloia subsp. *leucophloia*	1.5	0.3
Fimbristylis dichotoma	0.1	0.1
Goodenia muelleriana	0.1	0.1
Hakea loreus subsp. *loreus*	0.5	0.2
Jasminum didymum subsp. *lineare*		0.1
Maytenus sp. Mt Windell (S. van Leeuwen 846)	0.3	0.2
Rhynchosia minima		0.1
Santalum lanceolatum	0.4	0.1
Scaevola spinescens	0.3	0.2
Senna artemisioides subsp. *oligophylla*	0.4	0.3
Senna glutinosa subsp. *glutinosa*	0.8	0.1
Solanum lasiophyllum	0.2	0.1
?*Swainsona decurrens*	0.1	0.1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.1	0.1
Themeda triandra	0.3	0.3
Trichodesma zeylanicum	0.2	0.1
Triodia vanleeuwenii	0.2	0.3
Triodia wiseana	0.3	65

PHOTOS



Site Name:	K05
Site Type:	QUADRAT
Dimensions:	25m x 100m
Survey Date:	16/03/2022
GPS Location:	GDA94 Zone 50 695088.35E 7478647.61N
Orientation:	270/90
Vegetation Type:	5
Landform Type:	Drainage Line
Slope Class:	Gently Inclined (3 degrees)
Soil Type:	Clayey Sand
Soil Colour:	Brown
Rock Outcrop:	Dolerite, 2-10% bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm, 200-600mm
CF Types:	Dolerite, Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years
Habitat:	Isolated trees over mid open shrubland (mixed species) over low open tussock grassland over hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia inaequilatera	0.5	0.1
Aristida contorta	0.3	0.1
Aristida holathera var. *holathera*	0.2	0.1
Arivela viscosa	0.1	0.1
Atalaya hemiglauca	1.5	0.3
Boerhavia coccinea	0.1	0.1
Bothriochloa ewartiana	0.7	0.1
Corchorus incanus subsp. *lithophilus*	0.4	0.3
Corchorus sp. (sterile)	0.1	0.1
Corymbia hamersleyana	3	0.3
Cymbopogon ambiguus	0.6	0.1
Enneapogon lindleyanus	0.3	0.5
Enneapogon polyphyllus	0.2	0.1
Eremophila longifolia	0.6	0.1
Euphorbia biconvexa	0.2	0.1
Fimbristylis dichotoma	0.1	0.1
Gossypium australe	1	0.8
Gossypium robinsonii	0.5	0.1
Grevillea pyramidalis subsp. *leucadendron*	0.4	0.1
Grevillea wickhamii subsp. ?*hispidula*	0.7	0.1
Hakea loreus subsp. *loreus*	0.3	0.1
Hibiscus coatesii	1	0.1
Indigofera rugosa	0.8	2
Jasminum didymum subsp. *lineare*		0.2
Melhania oblongifolia	0.4	0.1
Mnesithea formosa	0.1	0.1
Polycarpaea longiflora	0.1	0.1
Ptilotus calostachyus	0.6	0.1
Rhynchosia minima		0.1
Santalum lanceolatum	1.2	0.1
Senna artemisioides subsp. *oligophylla*	0.5	5
Senna glaucifolia	1	0.1
Senna glutinosa subsp. *glutinosa*	0.8	1

Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.8	0.2
Solanum cleistogamum	0.1	0.1
Stemodia grossa	0.3	0.1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.3	0.1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.1	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.5	2
Tinospora smilacina		0.1
Trichodesma zeylanicum	0.3	0.1
Triodia wiseana	0.3	45

PHOTOS

Site Name:	K06
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	16/03/2022
GPS Location:	GDA94 Zone 50 682983.53E 7472172.56N
Orientation:	180/90
Vegetation Type:	1
Landform Type:	Other, Drainage Line/Outwash (other)
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Sandy Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone, Quartz
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	5-10 Years
Habitat:	Low open woodland over isolated tall shrubs over low open tussock grassland over mixed hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adsurgens	3	1
Acacia bivenosa	0.6	0.1
Acacia cowleana	3	5
Acacia steedmanii subsp. *borealis*	2	0.2
Aristida contorta	0.2	0.1
Aristida inaequiglumis	0.5	0.4
Bothriochloa ewartiana	0.5	3
Corchorus incanus subsp. *lithophilus*	0.4	0.1
Corymbia deserticola subsp. *deserticola*	8	0.5
Corymbia hamersleyana	3	0.3
Duperreya commixta		0.1
Enneapogon polyphyllus	0.1	0.1
Eragrostis eriopoda	0.2	0.1
Eremophila longifolia	0.3	0.1
Eriachne mucronata	0.3	0.1
Eucalyptus gamophylla	3	6
Eucalyptus leucophloia subsp. *leucophloia*	6	0.5
Euphorbia tannensis subsp. *eremophila*	0.2	0.1
Evolvulus alsinoides	0.1	0.1
Gompholobium oreophilum	0.5	0.2
Goodenia microptera	0.2	0.1
Grevillea wickhamii subsp. ?*hispidula*	2	0.2
Hibiscus burtonii	0.5	0.1
Hibiscus leptocladus	0.3	0.1
Hibiscus sturtii var. *campylochlamys*	0.2	0.1
Hibiscus sturtii var. *platychlamys*	0.3	0.1
Indigofera monophylla	0.3	0.1
Jasminum didymum subsp. *lineare*		0.1
Maireana villosa	0.3	0.1
Maytenus sp. Mt Windell (S. van Leeuwen 846)	0.6	0.2
Melhania oblongifolia	0.2	0.1
Paraneurachne muelleri	0.3	0.2
Ptilotus astrolasius	0.3	0.1
Ptilotus calostachyus	0.6	0.1

Ptilotus obovatus var. *obovatus*	0.5	0.1
Ptilotus rotundifolius	0.6	0.2
Scaevola parvifolia subsp. *pilbarae*	0.2	0.1
Senna artemisioides subsp. *oligophylla*	0.4	0.2
Senna glutinosa subsp. *glutinosa*	0.8	0.1
Senna glutinosa subsp. *x luerssenii*	0.5	0.1
Seringia exastia (T)	0.3	0.1
Sida arenicola	0.3	0.1
Sida sp. L (A.M. Ashby 4202)	0.4	0.1
Solanum lasiophyllum	0.3	0.1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.2	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.4	0.5
Triodia pungens	0.4	12
Triodia vanleeuwenii	0.2	50
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	K07
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	17/03/2022
GPS Location:	GDA94 Zone 50 682549.5E 7471981.21N
Orientation:	180/90
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - VG - Very Good
Disturbance:	Exotic Weeds - Minor disturbance
Fire:	5-10 Years
Habitat:	Tall open shrubland over mid open (mixed) shrubland over open tussock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.1	0.1
Acacia aptaneura	7	2.5
Acacia inaequilatera	2.5	0.2
Acacia pruinocarpa	5	1.5
Alternanthera nana	0.1	0.1
Anthobolus leptomerioides	1.2	1
Aristida contorta	0.2	0.3
Aristida inaequiglumis	0.5	1
Arivela viscosa	0.2	0.1
**Bidens bipinnata*	0.1	0.1
Boerhavia coccinea	0.1	0.1
Boerhavia repleta	0.1	0.1
Bothriochloa ewartiana	0.5	2
Capparis lasiantha	0.7	0.1
**Cenchrus ciliaris*	0.6	2.5
Chrysopogon fallax		1
Corchorus tridens	0.1	0.1
Dactyloctenium radulans	0.1	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.4	3
Eremophila forrestii subsp. *forrestii*	2	0.5
Eremophila latrobei subsp. *filiformis*	1	0.1
Eremophila longifolia	2	0.5
Eriachne mucronata	0.3	0.1
Eucalyptus gamophylla	3	0.2
Euphorbia australis var. *subtomentosa*	0.1	0.1
Euphorbia ?trigonosperma	0.1	0.1
Euploca cunninghamii	0.1	0.1
Euploca tanythrix	0.2	0.1
Evolvulus alsinoides	0.1	0.1
Gossypium australe	0.2	0.1
Gossypium robinsonii	3	2
Hibiscus sturtii var. *platychlamys*	0.2	0.1

Jasminum didymum subsp. *lineare*		0.1
Maireana villosa		
Perotis rara	0.1	0.1
Psydrax latifolia		
Pterocaulon sphacelatum	0.4	0.1
Ptilotus calostachyus	0.1	0.1
Ptilotus ?carinatus	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.6	3
Salsola australis	0.1	0.1
Senna artemisioides subsp. *helmsii*	0.8	0.5
Senna artemisioides subsp. *oligophylla*	0.4	0.1
Sida fibulifera	0.2	0.1
Sida sp. L (A.M. Ashby 4202)		0.1
Solanum lasiophyllum	0.4	0.1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.5	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.5	2
Tribulus macrocarpus	0.1	0.1
Tribulus suberosus	0.8	0.1
Triodia pungens	0.3	0.3
Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)		0.1

PHOTOS

Site Name:	K08
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	17/03/2022
GPS Location:	GDA94 Zone 50 683143E 7472593.15N
Orientation:	180/90
Vegetation Type:	9
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	20-50%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	>10 Years
Habitat:	Low isolated trees over isolated tall shrubs over mid shrubs over low open tussock grassland over low open hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.2	0.1
Acacia adsurgens	2	0.5
Acacia aptaneura	5	0.8
Acacia atkinsiana	2	0.3
Acacia bivenosa	2	0.1
Acacia cowleana	3	0.2
Acacia dictyophleba	2	0.3
Acacia pruinocarpa	4	0.5
Afrohybanthus aurantiacus	0.2	0.1
Aristida contorta	0.2	0.1
Aristida inaequiglumis	0.4	1
Arivela viscosa	0.1	0.1
Boerhavia coccinea	0.1	0.1
Bothriochloa ewartiana	0.5	0.5
Corymbia deserticola subsp. *deserticola*	5	1
Cymbopogon obtectus	0.5	0.1
Digitaria brownii	0.4	1
Duperreya commixta		0.1
Enneapogon lindleyanus	0.3	0.1
Enneapogon polyphyllus	0.1	0.1
Eremophila forrestii subsp. *forrestii*	0.8	0.1
Eremophila longifolia	2	0.1
Eriachne mucronata	0.3	0.1
Eucalyptus gamophylla	7	0.75
Eucalyptus leucophloia subsp. *leucophloia*		
Euploca tanythrix	0.2	0.1
Evolvulus alsinoides	0.1	0.1
Fimbristylis dichotoma	0.1	0.1
Goodenia microptera	0.1	0.1
Goodenia stobbsiana	0.1	0.1
Gossypium australe	0.2	0.1
Hakea loreus subsp. *loreus*	2.5	0.2
Hibiscus burtonii	0.2	0.1
Hibiscus coatesii	0.2	0.1

Hibiscus sturtii var. *platychlamys*	0.2	0.1
Jasminum didymum subsp. *lineare*		0.1
Maireana villosa	0.1	0.1
Melhania oblongifolia	0.1	0.1
Paraneurachne muelleri	0.2	0.1
Peripleura obovata	0.2	0.1
Perotis rara	0.1	0.1
Ptilotus astrolasius	0.7	0.1
Ptilotus calostachyus	0.1	0.1
Ptilotus ?*carinatus*	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.3	0.3
Ptilotus rotundifolius	0.8	0.1
Scaevola parvifolia subsp. *pilbarae*	0.2	0.1
Senna artemisioides subsp. *helmsii*	0.4	0.1
Senna artemisioides subsp. *oligophylla*	0.2	0.1
Senna glutinosa subsp. *glutinosa*	2	0.2
Senna glutinosa subsp. *x luerssenii*	1.5	0.5
Sida echinocarpa	1	0.1
Sida fibulifera	0.1	0.1
Sida sp. L (A.M. Ashby 4202)		0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.6	0.1
Solanum lasiophyllum	0.5	0.1
Tribulus suberosus	0.8	0.1
Triodia pungens	0.4	11

PHOTOS

Site Name:	K09
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	18/03/2022
GPS Location:	GDA94 Zone 50 691203.2E 7478651.96N
Orientation:	180/90
Vegetation Type:	9
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	Exotic Weeds - Minor disturbance
Fire:	>10 Years
Habitat:	Tall open shrubland over low open tussock grassland over low hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.2	0.1
Abutilon otocarpum	0.4	0.1
Acacia adsurgens	2.5	0.2
Acacia ?aneura	6	0.3
Acacia aptaneura	7	6
Acacia atkinsiana	7	0.5
Acacia bivenosa	2	0.3
Acacia inaequilatera	3	0.2
Acacia pruinocarpa	4	1.5
Acacia sibirica	2.5	1
Acacia tenuissima	4	0.2
Alternanthera nana	0.1	0.1
Aristida contorta	0.2	0.3
Aristida inaequiglumis	0.6	0.1
**Bidens bipinnata*	0.1	0.1
Boerhavia coccinea	0.1	0.1
Cheilanthes sieberi subsp. *sieberi*	0.2	0.1
Chrysopogon fallax	0.5	0.1
Corymbia deserticola subsp. *deserticola*	5	0.5
Corymbia hamersleyana		
Cymbopogon obtectus	0.5	0.1
Digitaria brownii	0.4	3
Duperreya commixta		0.1
Enneapogon lindleyanus	0.3	0.2
Enneapogon polyphyllus	0.2	0.1
Eremophila forrestii subsp. *forrestii*	1.8	0.4
Fimbristylis dichotoma	0.1	0.1
Hibiscus burtonii	0.6	0.1
Hibiscus sturtii var. *platychlamys*	0.4	0.1
Indigofera georgei	0.3	0.1
Maireana villosa	0.1	0.1
Paraneurachne muelleri	0.4	0.2
Pterocaulon sphacelatum	0.2	0.1

Ptilotus astrolasius	0.3	0.1
Ptilotus calostachyus	0.3	0.1
Ptilotus obovatus var. *obovatus*	0.3	0.2
Senna glaucifolia	0.6	0.1
Senna glutinosa subsp. *glutinosa*	0.8	0.1
Sida sp. L (A.M. Ashby 4202)	0.2	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.8	0.1
Triodia pungens	0.3	20
Triodia wiseana	0.5	30
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	K10
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	18/03/2022
GPS Location:	GDA94 Zone 50 691435.53E 7478687.25N
Orientation:	180/90
Vegetation Type:	1
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	>10 Years
Habitat:	Isolated trees over sparse tall shrubland over closed hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia atkinsiana	4	2
Acacia bivenosa	1.8	0.2
Acacia inaequilatera	2	0.5
Acacia pruinocarpa	3	0.5
Acacia tenuissima	1.5	0.1
Aristida contorta	0.2	0.2
Aristida inaequiglumis	0.4	0.2
Corymbia deserticola subsp. *deserticola*	3	0.4
Duperreya commixta		0.1
Enneapogon polyphyllus	0.3	0.1
Eucalyptus gamophylla	6	2
Eucalyptus leucophloia subsp. *leucophloia*	4	1
Hakea loreus subsp. *loreus*	2.5	0.2
Hibiscus burtonii	0.3	0.1
Indigofera monophylla	0.3	0.1
Ptilotus obovatus var. *obovatus*	0.4	0.2
Ptilotus rotundifolius	0.5	0.1
Rhagodia eremaea	1	0.2
Senna glutinosa subsp. *glutinosa*	1.5	0.1
Senna glutinosa subsp. *x luerssenii*	2	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.3	0.1
Triodia wiseana	0.5	85

PHOTOS

Site Name:	K11
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	18/03/2022
GPS Location:	GDA94 Zone 50 690728.93E 7478346.93N
Orientation:	180/90
Vegetation Type:	9
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	>5 Years
Habitat:	Isolated trees over sparse tall shrubland over tall hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adsurgens	1.8	0.2
Acacia aptaneura	0.4	0.1
Acacia atkinsiana	2.5	3
Acacia inaequilatera	4	1
Acacia pruinocarpa	3	0.2
Aristida contorta	0.3	0.2
Aristida inaequiglumis	0.4	0.2
Codonocarpus cotinifolius	1.3	0.1
Digitaria brownii	0.3	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.2	0.1
Eucalyptus leucophloia subsp. *leucophloia*		
Euphorbia ?trigonosperma	0.1	0.1
Evolvulus alsinoides	0.1	0.1
Goodenia microptera	0.1	0.1
Goodenia stobbsiana	0.2	0.1
Hakea loreus subsp. *loreus*		
Hibiscus burtonii	0.3	0.1
Hibiscus coatesii	0.6	0.1
Hibiscus sturtii var. *platychlamys*	0.3	0.1
Indigofera monophylla	0.1	0.1
Maireana villosa	0.1	0.1
Melhania oblongifolia	0.2	0.1
Paraneurachne muelleri	0.2	0.1
Psydrax suaveolens	1.2	0.1
Ptilotus obovatus var. *obovatus*	0.6	0.1
Senna artemisioides subsp. *helmsii*	0.5	0.1
Senna glutinosa subsp. *x luerssenii*	1.5	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.6	0.1
Solanum cleistogamum	0.2	0.1
Solanum lasiophyllum	0.2	0.1
Triodia wiseana	0.5	65

PHOTOS

Site Name:	K12
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	19/03/2022
GPS Location:	GDA94 Zone 50 691372.49E 7477873.43N
Orientation:	180/90
Vegetation Type:	10
Landform Type:	Drainage Line
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm, 200-600mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - VG - Very Good
Disturbance:	Exotic Weeds
Fire:	<5 Years
Habitat:	Low open woodland over tall sparse shrubland over mid open shrubland over low open shrub land over open tussock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	2	0.2
Acacia pyrifolia var. *pyrifolia*	2.5	2
Acacia tumida var. *pilbarensis*	2	0.75
Afrohybanthus aurantiacus	0.3	0.1
Alternanthera nana	0.1	0.1
Aristida contorta	0.2	0.3
Arivela viscosa	0.1	0.1
Atalaya hemiglauca	1.5	0.1
**Bidens bipinnata*	0.2	0.1
Boerhavia coccinea	0.1	0.1
Boerhavia repleta	0.1	0.1
**Cenchrus setiger*	0.6	0.5
Corchorus crozophorifolius	0.4	0.4
Corymbia hamersleyana	10	2.5
Cucumis variabilis		0.1
Cymbopogon obtectus	0.8	0.1
Duperreya commixta		0.1
Enneapogon lindleyanus	0.4	0.1
Enneapogon polyphyllus	0.2	0.3
Eremophila longifolia	0.6	0.1
Eriachne mucronata	0.3	2
Eriachne tenuiculmis	0.3	2
Euphorbia ?biconvexa	0.2	0.1
Euploca tanythrix	0.2	0.1
Evolvulus alsinoides	0.1	0.1
Gomphrena canescens subsp. *canescens*	0.2	0.2
Gossypium robinsonii	2.5	2
Grevillea wickhamii subsp. ?*hispidula*	2	0.3
Hakea loreus subsp. *loreus*	0.8	0.2
Indigofera monophylla	0.2	0.1
Jasminum didymum subsp. *lineare*	0.6	0.1
**Malvastrum americanum*	0.3	0.3
Melhania oblongifolia	0.1	0.1

Nellica maderaspatensis	0.3	0.1
Pterocaulon sphacelatum	0.4	0.1
Ptilotus astrolasius	0.2	0.1
Ptilotus obovatus var. *obovatus*	0.4	0.2
Rhagodia eremaea	0.4	0.1
Santalum lanceolatum	2.5	0.2
Senna artemisioides subsp. *oligophylla*	0.6	0.1
Senna glutinosa subsp. *glutinosa*	1	0.1
Seringia exastia (T)	0.4	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.9	0.2
Solanum phlomoides	0.2	0.1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.6	5
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.7	2
Triodia pungens	0.4	0.1
Waltheria indica	0.4	0.2

PHOTOS

Site Name:	K13
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	19/03/2022
GPS Location:	GDA94 Zone 50 691957.65E 7477632.57N
Orientation:	180/90
Vegetation Type:	10
Landform Type:	Other, Drainage Line/Outwash (other)
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	20-50%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years
Habitat:	Isolated trees over sparse mid-tall shrubland over sparse tussock grassland over hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adsurgens	0.5	0.1
Acacia atkinsiana	0.5	0.2
Acacia cowleana	1.8	0.2
Acacia dictyophleba	1.2	0.1
Acacia pruinocarpa	1.5	0.4
Acacia pyrifolia var. *pyrifolia*	0.5	1
Acacia tumida var. *pilbarensis*	1.5	0.2
Afrohybanthus aurantiacus	0.4	0.2
Alternanthera nana	0.1	0.1
Androcalva luteiflora	2	0.8
Aristida holathera var. *holathera*	0.3	0.3
Arivela viscosa	0.1	0.1
Boerhavia repleta		0.1
Bonamia erecta	0.4	1
**Cenchrus ciliaris*	0.5	0.3
**Cenchrus setiger*	0.5	0.5
Chrysopogon fallax	0.5	0.3
Corymbia hamersleyana	6	2
Crotalaria medicaginea var. *neglecta*	0.2	0.1
Cymbopogon obtectus	0.5	0.2
Digitaria brownii	0.3	0.3
Duperreya commixta		0.1
Enneapogon polyphyllus	0.3	0.3
Eragrostis eriopoda	0.2	0.1
Eremophila longifolia	1.5	0.75
Eucalyptus gamophylla	2	0.3
Euphorbia australis var. *subtomentosa*	0.1	0.1
Euploca pachyphylla	0.1	0.1
Euploca tanythrix	0.2	0.1
Evolvulus alsinoides	0.1	0.1
Gomphrena canescens subsp. *canescens*	0.2	0.1
Goodenia microptera	0.1	0.1
Goodenia stellata	0.2	0.1
Gossypium australe	0.5	0.3

Grevillea wickhamii subsp. ?*hispidula*	2	0.3
Hakea chordophylla	0.3	0.1
Hibiscus sturtii var. *platychlamys*	0.3	0.1
Indigofera monophylla	0.4	0.8
Jasminum didymum subsp. *lineare*	0.5	0.2
Paraneurachne muelleri	0.3	0.75
Polymeria ambigua		0.1
Ptilotus astrolasius	0.2	0.1
Ptilotus calostachyus	0.1	0.1
Ptilotus ?*carinatus*	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.4	0.2
Rhynchosia minima		0.1
Senna artemisioides subsp. *helmsii*	0.5	0.1
Senna artemisioides subsp. *oligophylla*	0.4	0.1
Senna glaucifolia	0.4	0.1
Senna glutinosa subsp. *glutinosa*	1	0.5
Sida sp. L (A.M. Ashby 4202)		0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.8	0.3
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.1	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.4	4
Trichodesma zeylanicum	0.3	0.1
Triodia pungens	0.3	30

PHOTOS

Site Name:	K14
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	19/03/2022
GPS Location:	GDA94 Zone 50 692121.1E 7477290.03N
Orientation:	180/90
Vegetation Type:	1
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam/Clay Sand (other)
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	5-10 Years
Habitat:	Low open woodland over tall open shrubland over mixed hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.1	0.1
Acacia adsurgens	0.5	0.2
Acacia ?aneura	1.5	0.1
Acacia aptaneura	1.5	0.1
Acacia atkinsiana	2	4
Acacia bivenosa	0.5	0.1
Acacia inaequilatera	2	0.1
Acacia monticola	3	0.2
Afrohybanthus aurantiacus	0.3	0.1
Aristida holathera var. *holathera*	0.3	0.1
Aristida inaequiglumis	0.3	0.1
Bonamia erecta	0.3	0.1
Bothriochloa ewartiana	0.4	0.2
Corymbia deserticola subsp. *deserticola*	4	0.5
Cymbopogon obtectus	0.5	0.1
Digitaria brownii	0.3	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.2	0.1
Eriachne tenuiculmis	0.3	0.1
Eucalyptus gamophylla	5	3
Evolvulus alsinoides	0.2	0.1
Goodenia stobbsiana	0.1	0.1
Hakea chordophylla	3.5	0.1
Hibiscus sturtii var. *platychlamys*	0.2	0.1
Indigofera monophylla	0.3	0.2
Jasminum didymum subsp. *lineare*	0.6	0.1
Melhania oblongifolia	0.2	0.1
Paraneurachne muelleri	0.3	0.1
Ptilotus calostachyus	0.4	0.1
Ptilotus obovatus var. *obovatus*	0.8	0.1
Ptilotus rotundifolius	0.6	0.1
Rhynchosia minima	0.3	0.1
Santalum lanceolatum	1.5	0.3
Senna artemisioides subsp. *oligophylla*	1	0.4
Senna glaucifolia	0.4	0.1

Senna glutinosa subsp. *pruinosa*	0.8	0.1
Senna glutinosa subsp. *x luerssenii*	0.8	0.1
Senna notabilis	0.3	0.1
Seringia exastia (T)	0.2	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1.5	0.1
Solanum phlomoides	0.3	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.5	0.7
Tribulus suberosus	0.4	0.1
Triodia pungens	0.3	30
Triodia vanleeuwenii	0.2	30

PHOTOS

Site Name:	K15
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	20/03/2022
GPS Location:	GDA94 Zone 50 692410.8E 7476530.45N
Orientation:	180/90
Vegetation Type:	2
Landform Type:	Lower Slope
Slope Class:	Moderately Inclined (10 degrees)
Soil Type:	Clay Loam
Soil Colour:	Brown
Rock Outcrop:	Ironstone, 2-10% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years
Habitat:	Isolated low trees over isolated mid-tall shrubs over hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.2	0.3
Acacia atkinsiana	0.4	0.2
Acacia bivenosa	0.8	0.1
Acacia cowleana	0.8	0.1
Acacia hilliana	0.2	0.2
Acacia inaequilatera	0.5	0.2
Acacia pruinocarpa	0.7	0.2
Aristida contorta	0.2	0.1
Cassytha capillaris		0.1
Clerodendrum floribundum var. *angustifolium*	2	0.1
Codonocarpus cotinifolius	0.7	0.1
Corymbia hamersleyana	8	0.5
Cymbopogon ambiguus	0.4	0.1
Dodonaea coriacea	1	0.1
Duperreya commixta		0.1
Enneapogon caerulescens	0.1	0.1
Enneapogon polyphyllus	0.1	0.1
Eriachne mucronata	0.2	0.1
Eriachne pulchella subsp. *dominii*	0.1	0.1
Eucalyptus leucophloia subsp. *leucophloia*	4	0.75
Euploca tanythrix	0.1	0.1
Fimbristylis dichotoma	0.2	0.1
Gomphrena canescens subsp. *canescens*	0.2	0.1
Goodenia microptera	0.2	0.1
Goodenia stobbsiana	0.1	0.1
Goodenia triodiophila	0.2	0.1
Gossypium robinsonii	2	0.2
Grevillea wickhamii subsp. ?*hispidula*	1	0.1
Hakea chordophylla	2	0.2
Hibiscus coatesii	0.3	0.1
Hibiscus sturtii var. *campylochlamys*	0.4	0.2
Indigofera monophylla	0.2	0.1
Jasminum didymum subsp. *lineare*	0.3	0.1
Mnesithea formosa	0.1	0.1
Paraneurachne muelleri	0.3	0.1

Poaceae sp.	0.1	0.1
Polycarpaea longiflora	0.1	0.1
Ptilotus calostachyus	0.3	0.2
Ptilotus obovatus var. *obovatus*	0.3	0.1
Ptilotus rotundifolius	0.4	0.1
Senna artemisioides subsp. *oligophylla*	0.1	0.1
Senna glaucifolia	0.2	0.1
Senna glutinosa subsp. *glutinosa*	1	0.2
Senna glutinosa subsp. *pruinosa*	0.8	0.2
Senna glutinosa subsp. *x luerssenii*	1	0.1
Sida sp. Articulation below (A.A. Mitchell PRP 1605)	0.3	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.8	0.1
Solanum lasiophyllum	0.3	0.2
Solanum phlomoides	0.2	0.1
Tephrosia oxalidea	0.1	0.1
Tephrosia virens	1	0.1
Trichodesma zeylanicum	0.4	0.1
Triodia vanleeuwenii	0.2	50
Triodia wiseana	0.3	10

PHOTOS

Site Name:	K16
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	20/03/2022
GPS Location:	GDA94 Zone 50 692303.32E 7475876.69N
Orientation:	180/90
Vegetation Type:	2
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone, Quartz
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	Mining - Drill lines adj./in
Fire:	<5 Years
Habitat:	Low isolated trees over mid-tall open shrubland over low sparse shrubland over hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.2	0.1
Acacia adoxa var. *adoxa*	0.2	0.1
Acacia adsurgens	1.5	0.2
Acacia atkinsiana	3	3.5
Acacia inaequilatera	3.5	0.5
Acacia pruinocarpa	0.6	0.2
Aristida holathera var. *holathera*	0.4	0.1
Corchorus incanus subsp. *lithophilus*	0.5	0.1
Dolichocarpa crouchiana	0.1	0.1
Eucalyptus leucophloia subsp. *leucophloia*	8	1
Euphorbia australis var. *subtomentosa*	0.1	0.1
Goodenia microptera	0.1	0.1
Goodenia stobbsiana	0.2	0.1
Goodenia triodiophila	0.1	0.1
Hakea chordophylla	3	0.2
Hibiscus sturtii var. *campylochlamys*	0.3	0.3
Indigofera monophylla	0.3	0.4
Mnesithea formosa	0.1	0.1
Poaceae sp.	0.2	0.1
Ptilotus calostachyus	0.3	0.1
Ptilotus ?*carinatus*	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.3	0.1
Ptilotus rotundifolius	0.6	0.4
Scaevola parvifolia subsp. *pilbarae*	0.2	0.1
Senna glutinosa subsp. *glutinosa*	1.2	0.1
Senna glutinosa subsp. *pruinosa*	0.8	0.3
Senna glutinosa subsp. *x luerssenii*	1	0.2
Senna notabilis	0.1	0.1
Seringia exastia (T)	0.2	0.1
Sida arenicola	1.2	0.1
Sida echinocarpa	0.7	0.1
Solanum lasiophyllum	0.2	0.1
Solanum phlomoides	0.3	0.1

Tephrosia oxalidea	0.1	0.1
Trichodesma zeylanicum	0.3	0.1
Triodia vanleeuwenii	0.2	40
Triodia wiseana	0.3	5

PHOTOS

Site Name:	K17
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	20/03/2022
GPS Location:	GDA94 Zone 50 691764.72E 7475612.16N
Orientation:	180/90
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	20-50%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	Exotic Weeds - Minor disturbance
Fire:	>10 Years
Habitat:	Tall shrubland over open tussock grassland over sparse hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.5	0.1
Abutilon otocarpum	0.4	0.2
Acacia ?aneura	8	30
Acacia aptaneura	8	2
Acacia atkinsiana	3	0.3
Acacia ?ayersiana	2	0.2
Acacia pruinocarpa	2.5	0.2
Acacia sibirica	2	0.5
Alternanthera nana	0.1	0.1
Amaranthus cuspidifolius	0.1	0.1
Anthobolus leptomerioides	0.9	0.1
Aristida contorta	0.2	25
Aristida inaequiglumis	0.8	0.3
Arivela viscosa	0.1	0.1
**Bidens bipinnata*	0.1	0.1
Boerhavia coccinea	0.1	0.1
Capparis lasiantha	0.6	0.1
Cheilanthes sieberi subsp. *sieberi*	0.1	0.1
Clerodendrum floribundum var. *angustifolium*	0.8	0.1
Cucumis variabilis		0.1
Cynanchum viminale subsp. *australe*		0.3
Digitaria brownii	0.2	0.1
Duperreya commixta		0.1
Enneapogon lindleyanus	0.4	0.2
Enneapogon polyphyllus	0.2	0.1
Eremophila forrestii subsp. *forrestii*	0.8	0.2
Eremophila fraseri subsp. *fraseri*	3.5	4
Eriachne pulchella subsp. *dominii*	0.1	0.1
Euphorbia australis var. *subtomentosa*	0.1	0.1
Euphorbia biconvexa	0.1	0.1
Evolvulus alsinoides	0.1	0.1
Goodenia microptera	0.1	0.1
Hibiscus burtonii	0.3	0.1
Hibiscus coatesii	0.3	0.1

Hibiscus sturtii var. *platychlamys*	0.3	0.1
Maireana villosa	0.1	0.1
Mnesithea formosa	0.1	0.1
Paraneurachne muelleri	0.3	0.1
Perotis rara		0.1
Portulaca ?*oleracea*	0.1	0.1
Psydrax suaveolens	0.5	0.1
Pterocaulon sphacelatum	0.2	0.1
Ptilotus obovatus var. *obovatus*	0.3	0.1
Santalum lanceolatum	2.5	0.3
Senna artemisioides subsp. *helmsii*	1.5	0.3
Senna artemisioides subsp. *oligophylla*	1.8	0.2
Senna glutinosa subsp. *glutinosa*	1.8	0.1
Senna glutinosa subsp. *x luerssenii*	2	0.3
Sida sp. dark green fruits (S. van Leeuwen 2260)	0.2	0.1
Sida sp. L (A.M. Ashby 4202)		0.1
Solanum lasiophyllum	0.2	0.1
Solanum phlomoides	0.1	0.1
Sporobolus australasicus	0.1	0.1
Stemodia grossa	0.3	0.1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.1	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.5	0.2
Tribulus suberosus	0.6	0.1
Triodia pungens	0.3	5

PHOTOS

Site Name:	K18
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	20/03/2022
GPS Location:	GDA94 Zone 50 691293.65E 7475132.89N
Orientation:	180/90
Vegetation Type:	10
Landform Type:	Drainage Line
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	2-10%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - VG - Very Good
Disturbance:	Exotic Weeds
Fire:	<5 Years
Habitat:	Very open low woodland over mid-tall open shrubland over tussock grassland over open hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon amplum	1.5	0.1
Acacia adsurgens	1	0.2
Acacia bivenosa	1.5	0.2
Acacia cowleana	1.2	0.2
Acacia pyrifolia var. *pyrifolia*	1.5	0.1
Acacia tenuissima	1	0.1
Afrohybanthus aurantiacus	0.6	0.1
Alternanthera nana	0.1	0.1
Anthobolus leptomerioides	0.8	0.1
Aristida contorta	0.2	4.5
Aristida inaequiglumis	0.3	0.1
Arivela viscosa	0.1	0.1
Boerhavia coccinea	0.1	0.1
Bonamia erecta	0.3	3
Bothriochloa ewartiana	0.4	0.3
Capparis lasiantha	0.3	0.1
**Cenchrus setiger*	0.4	8
Chrysopogon fallax	0.2	0.1
Corchorus crozophorifolius	0.3	0.1
Corymbia hamersleyana	10	3.5
Crotalaria medicaginea var. *neglecta*	0.1	0.1
Cucumis variabilis		0.1
Duperreya commixta		0.1
Enneapogon lindleyanus	0.3	0.3
Enneapogon polyphyllus	0.2	0.1
Eragrostis eriopoda	0.2	2
Eremophila longifolia	0.5	0.2
Eriachne tenuiculmis	0.3	1
Euphorbia australis var. *subtomentosa*	0.1	0.1
Euphorbia biconvexa	0.1	0.1
Euphorbia tannensis subsp. *eremophila*	0.3	0.1
Euploca pachyphylla	0.2	0.1
Euploca tanythrix	0.1	0.1

Evolvulus alsinoides	0.1	0.1
Gomphrena canescens subsp. *canescens*	0.3	0.5
Gomphrena cunninghamii	0.1	0.1
Goodenia microptera	0.1	0.1
Goodenia stellata	0.2	0.1
Gossypium australe	0.5	0.2
Gossypium robinsonii	2	2.5
Grevillea wickhamii subsp. ?*hispidula*	1.5	0.6
Hibiscus sturtii var. *platychlamys*	0.3	0.3
Indigofera monophylla	0.3	0.5
Jasminum didymum subsp. *lineare*	0.4	0.1
Melhania oblongifolia	0.1	0.1
Mnesithea formosa	0.1	0.1
Paraneurachne muelleri	0.3	2
Perotis rara	0.1	0.1
Pterocaulon sphacelatum	0.2	0.1
Ptilotus astrolasius	0.3	0.2
Ptilotus ?*carinatus*	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.2	3.5
Rhynchosia minima		0.1
Santalum lanceolatum	2	0.1
Senna artemisioides subsp. *helmsii*	0.4	0.1
Senna artemisioides subsp. *oligophylla*	1	0.2
Setaria surgens	0.2	0.1
**Setaria verticillata*	0.3	0.1
Sida sp. L (A.M. Ashby 4202)		0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1.6	3.2
Solanum lasiophyllum	0.4	0.1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.2	5.5
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.2	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.4	0.3
Tribulus macrocarpus	0.2	0.1
Trichodesma zeylanicum	0.1	0.1
Triodia pungens	0.4	4
Waltheria indica	0.1	0.1

PHOTOS

Site Name:	K19
Site Type:	QUADRAT
Dimensions:	25m x 100m
Survey Date:	21/03/2022
GPS Location:	GDA94 Zone 50 693297.98E 7478450.1N
Orientation:	250/70
Vegetation Type:	10
Landform Type:	Drainage Line
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Clay Loam
Soil Colour:	Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone, Quartz
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years
Habitat:	Isolated trees over mid-tall shrubland over sparse low shrubland over sparse tall tussock grassland over hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.3	0.1
Acacia adsurgens	0.7	0.1
Acacia bivenosa	1.2	0.1
Acacia cowleana	1.5	11
Acacia inaequilatera	1.2	0.1
Acacia monticola	0.5	0.3
Acacia tenuissima	0.4	0.1
Afrohybanthus aurantiacus	0.3	0.1
Aristida holathera var. *holathera*	0.3	0.1
Boerhavia coccinea	0.1	0.1
Boerhavia repleta	0.1	0.1
Bonamia erecta	0.5	0.3
Capparis lasiantha	0.3	0.1
Clerodendrum floribundum var. *angustifolium*	0.1	0.1
Corchorus incanus subsp. *lithophilus*	0.1	0.1
Corymbia hamersleyana	5	1
Crotalaria medicaginea var. *neglecta*	0.2	0.1
Cymbopogon ambiguus	0.6	0.3
Digitaria brownii	0.3	0.1
Duperreya commixta		0.1
Enneapogon caerulescens	0.2	0.1
Enneapogon lindleyanus	0.3	0.5
Enneapogon polyphyllus	0.2	0.1
Eragrostis eriopoda	0.2	0.1
Eriachne mucronata	0.3	0.1
Eucalyptus leucophloia subsp. *leucophloia*	8	2
Evolvulus alsinoides	0.1	0.1
Gomphrena canescens subsp. *canescens*	0.2	0.1
Goodenia microptera	0.1	0.1
Gossypium australe	0.1	0.1
Gossypium robinsonii	3	9
Hibiscus coatesii	0.2	0.1
Hibiscus sturtii var. *campylochlamys*	0.2	0.1
Hibiscus sturtii var. *platychlamys*	0.3	0.1

Indigofera monophylla	0.2	0.5
Jasminum didymum subsp. *lineare*	0.1	0.1
**Malvastrum americanum*	0.2	0.1
Nellica maderaspatensis	0.4	0.1
Paraneurachne muelleri	0.4	0.2
Perotis rara	0.1	0.1
Ptilotus astrolasius	0.4	0.3
Ptilotus calostachyus	0.8	0.1
Ptilotus ?carinatus	0.2	0.1
Ptilotus obovatus var. *obovatus*	0.3	0.1
Rhynchosia minima		0.1
Santalum lanceolatum	2	1
Senna artemisioides subsp. *oligophylla*	0.2	0.1
Senna glaucifolia	0.5	0.1
Senna glutinosa subsp. *glutinosa*	1.8	0.3
Senna glutinosa subsp. *pruinosa*	1.2	0.1
Senna glutinosa subsp. *x luerssenii*	1	0.2
Setaria surgens	0.2	0.1
Sida arenicola	0.4	0.1
Sida echinocarpa	0.2	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.2	0.1
Solanum cleistogamum	0.1	0.1
Solanum phlomoides	0.1	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.5	5
Trichodesma zeylanicum	0.5	0.1
Triodia wiseana	0.3	35

PHOTOS

Site Name:	K20
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	21/03/2022
GPS Location:	GDA94 Zone 50 692789.05E 7478710.21N
Orientation:	180/90
Vegetation Type:	1
Landform Type:	Other, Low rise (other)
Slope Class:	Gently Inclined (3 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years
Habitat:	Isolated low trees over sparse low shrubland over open hummock grassland (impacted by fire).

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adsurgens	0.4	0.1
Acacia bivenosa	0.2	0.1
Acacia synchronicia	0.2	0.1
Acacia tetragonophylla	0.3	0.1
Aristida contorta	0.1	0.1
Corchorus lasiocarpus subsp. *parvus*	0.3	0.1
Dolichocarpa crouchiana	0.1	0.1
Enneapogon caerulescens	0.1	0.1
Eriachne mucronata	0.2	0.1
Eriachne pulchella subsp. *dominii*	0.1	0.1
Eucalyptus leucophloia subsp. *leucophloia*	7	0.5
Fimbristylis dichotoma	0.1	0.1
Goodenia microptera	0.1	0.1
Goodenia muelleriana	0.1	0.1
Grevillea wickhamii subsp. ?*hispidula*	0.5	0.1
Hibiscus sturtii var. *campylochlamys*	0.2	0.1
Indigofera monophylla	0.3	0.1
Melhania oblongifolia	0.2	0.1
Poaceae sp.	0.2	0.1
Portulaca ?*oleracea*	0.1	0.1
Ptilotus astrolasius	0.2	0.1
Ptilotus calostachyus	1	0.1
Ptilotus ?*carinatus*	0.2	0.1
Ptilotus rotundifolius	0.4	0.1
Senna artemisioides subsp. *oligophylla*	0.3	0.5
Senna glutinosa subsp. *glutinosa*	1.2	0.1
Senna glutinosa subsp. *pruinosa*	0.6	0.1
Senna glutinosa subsp. *x luerssenii*	1.2	0.1
Solanum lasiophyllum	0.2	0.1
Triodia vanleeuwenii	0.1	0.1
Triodia wiseana	0.2	20

PHOTOS

Site Name:	K21
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	21/03/2022
GPS Location:	GDA94 Zone 50 694158.34E 7478134.87N
Orientation:	180/90
Vegetation Type:	1
Landform Type:	Mid Slope
Slope Class:	Moderately Inclined (10 degrees)
Soil Type:	Sandy Clay Loam
Soil Colour:	Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years
Habitat:	Low open woodland over sparse mid shrubland over hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia bivenosa	0.8	0.1
Acacia tenuissima	0.6	0.1
Acacia tetragonophylla	0.4	0.1
Amphipogon sericeus	0.2	0.1
Aristida contorta	0.1	0.1
Corchorus incanus subsp. *lithophilus*	0.3	0.1
Cymbopogon ambiguus	0.4	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.2	0.1
Eragrostis eriopoda	0.1	0.1
Eremophila latrobei subsp. *filiformis*	0.3	0.1
Eremophila latrobei × forrestii	0.3	0.1
Eremophila longifolia	0.8	0.2
Eriachne mucronata	0.3	0.2
Eucalyptus leucophloia subsp. *leucophloia*	10	25
Fimbristylis dichotoma	0.1	0.1
Goodenia microptera	0.1	0.1
Goodenia muelleriana	0.1	0.1
Goodenia triodiophila	0.1	0.1
Gossypium australe	0.1	0.1
Hibiscus burtonii	0.3	0.1
Hibiscus coatesii	0.1	0.1
Hibiscus sturtii var. *campylochlamys*	0.2	0.3
Jasminum didymum subsp. *lineare*	0.3	0.1
Lepidium pedicellosum	0.3	0.2
Melhania oblongifolia	0.2	0.2
Mnesithea formosa	0.1	0.1
Paraneurachne muelleri	0.3	0.2
Poaceae sp.	0.2	0.1
Pterocaulon sphacelatum	0.1	0.1
Ptilotus astrolasius	0.2	0.1
Ptilotus calostachyus	0.1	0.1
Ptilotus ?*carinatus*	0.1	0.1
Ptilotus clementii	0.2	0.1
Ptilotus obovatus var. *obovatus*	0.3	0.1

Ptilotus rotundifolius	0.4	0.1
Senna glutinosa subsp. *glutinosa*	1.2	0.4
Senna glutinosa subsp. *pruinosa*	1	0.1
Senna glutinosa subsp. *x luerssenii*	1.2	0.5
Sida arenicola	0.5	0.1
Solanum lasiophyllum	0.2	0.1
Solanum phlomoides	0.2	0.1
Sporobolus australasicus	0.1	0.1
Tribulus suberosus	0.4	0.2
Triodia vanleeuwenii	0.2	25
Triodia wiseana	0.3	5

PHOTOS

Site Name:	K22
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	21/03/2022
GPS Location:	GDA94 Zone 50 694237.32E 7477926.97N
Orientation:	180/90
Vegetation Type:	1
Landform Type:	Other, Hillock/Upper Slope (other)
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Sandy Clay Loam
Soil Colour:	Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Granite
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years
Habitat:	Low open woodland over isolated tall shrubs over mid sparse shrubland over hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia aptaneura	0.2	0.1
Acacia atkinsiana	0.3	0.1
Acacia bivenosa	0.5	0.1
Acacia elachantha	0.4	0.1
Acacia tenuissima	0.5	0.2
Aristida contorta	0.1	0.1
Corchorus incanus subsp. *lithophilus*	0.2	0.1
Corymbia deserticola subsp. *deserticola*	0.8	0.1
Dodonaea coriacea	0.2	0.1
Dolichocarpa crouchiana	0.1	0.1
Eriachne mucronata	0.3	0.4
Eucalyptus leucophloia subsp. *leucophloia*	5	2.5
Evolvulus alsinoides	0.1	0.1
Fimbristylis dichotoma	0.1	0.1
Gompholobium oreophilum		
Goodenia muelleriana	0.1	0.1
Goodenia stobbsiana	0.2	0.2
Goodenia triodiophila	0.2	0.1
Hakea chordophylla	3	0.2
Hibiscus burtonii	0.3	0.1
Hibiscus coatesii	0.3	0.1
Paraneurachne muelleri	0.3	0.1
Ptilotus astrolasius	0.3	0.1
Ptilotus calostachyus	0.1	0.1
Ptilotus ?*carinatus*	0.3	0.1
Ptilotus obovatus var. *obovatus*	0.2	0.1
Ptilotus rotundifolius	0.4	0.2
Senna glutinosa subsp. *glutinosa*	0.5	0.2
Senna glutinosa subsp. *pruinosa*	0.3	0.1
Senna glutinosa subsp. *x luerssenii*	1.2	0.4
Sida arenicola	1.5	0.2
Solanum phlomoides	0.2	0.1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.1	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.4	0.5

Triodia pungens	0.3	7
Triodia vanleeuwenii	0.1	25
Triodia wiseana	0.3	10

PHOTOS

Site Name:	K23
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	22/03/2022
GPS Location:	GDA94 Zone 50 693137E 7475300.67N
Orientation:	180/90
Vegetation Type:	2
Landform Type:	Lower Slope
Slope Class:	Gently Inclined (3 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Soil Condition:	SE corner catches a creek line - have excluded creek species (moved to unburnt).
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	5-10 Years
Habitat:	Isolated low trees over sparse tall shrubland over isolated mid shrubs over sparse low tussock grassland over mixed hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.1	0.1
Acacia hilliana	0.1	0.1
Acacia inaequilatera	3.5	2.5
Aristida holathera var. *holathera*	0.3	0.5
Dampiera candicans		
Dolichocarpa crouchiana	0.1	0.1
Enneapogon polyphyllus	0.1	0.1
Eriachne mucronata	0.3	0.2
Eucalyptus leucophloia subsp. *leucophloia*	4	0.4
Euploca tanythrix	0.1	0.1
Fimbristylis dichotoma	0.1	0.1
Gompholobium oreophilum	0.1	0.3
Goodenia microptera	0.1	0.1
Goodenia stobbsiana	0.1	0.5
Goodenia triodiophila	0.1	0.1
Grevillea wickhamii subsp. ?*hispidula*	0.3	0.2
Hakea chordophylla	3.5	1.5
Hibiscus coatesii	0.2	0.1
Hibiscus sturtii var. *campylochlamys*	0.1	0.1
Indigofera monophylla	0.1	0.1
Paraneurachne muelleri	0.3	0.3
Ptilotus calostachyus	0.4	0.3
Ptilotus ?*carinatus*	0.2	0.1
Senna artemisioides subsp. *oligophylla*	0.4	0.1
Senna ferraria	1.5	0.1
Senna glaucifolia	0.3	0.1
Senna glutinosa subsp. *glutinosa*	0.5	0.1
Senna notabilis	0.1	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.3	0.5
Solanum lasiophyllum	0.2	0.1
Triodia vanleeuwenii	0.2	15
Triodia wiseana	0.3	15

PHOTOS

Site Name:	K24
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	22/03/2022
GPS Location:	GDA94 Zone 50 691821.93E 7474981.01N
Orientation:	180/90
Vegetation Type:	1
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years
Habitat:	Low open woodland over mid-tall open shrubland over mixed hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.1	0.1
Acacia adsurgens	0.5	1
Acacia atkinsiana	0.4	0.2
Acacia cowleana	0.8	0.3
Acacia inaequilatera	3	0.75
Acacia tenuissima	0.5	0.1
Amphipogon sericeus	0.3	0.2
Aristida holathera var. *holathera*	0.3	0.1
Aristida inaequiglumis	0.6	0.1
Bonamia erecta	0.2	0.1
Corymbia deserticola subsp. *deserticola*	8	1
Corymbia hamersleyana	7	0.5
Duperreya commixta		0.1
Eragrostis eriopoda	0.2	0.1
Eriachne mucronata	0.3	0.2
Eucalyptus gamophylla	3	0.4
Eucalyptus leucophloia subsp. *leucophloia*	4	0.3
Euploca pachyphylla	0.2	0.1
Goodenia microptera	0.1	0.1
Grevillea wickhamii subsp. ?*hispidula*	0.5	0.1
Hakea chordophylla	0.3	0.1
Indigofera monophylla	0.2	0.1
Jasminum didymum subsp. *lineare*	0.3	0.1
Paraneurachne muelleri	0.3	0.1
Ptilotus astrolasius	0.3	0.1
Ptilotus calostachyus	0.4	0.3
Ptilotus obovatus var. *obovatus*	0.2	0.1
Ptilotus rotundifolius	0.7	0.2
Senna artemisioides subsp. *helmsii*	0.5	0.1
Senna artemisioides subsp. *oligophylla*	0.4	0.2
Senna glaucifolia	0.8	0.2
Senna glutinosa subsp. *x luerssenii*	0.5	0.1
Sida arenicola	0.8	0.1

Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.6	0.2
Solanum lasiophyllum	0.1	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.4	0.2
Triodia pungens	0.3	2
Triodia vanleeuwenii	0.2	30

PHOTOS

Site Name:	K25
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	22/03/2022
GPS Location:	GDA94 Zone 50 684168.86E 7474787.1N
Orientation:	180/90
Vegetation Type:	9
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	>10 Years
Habitat:	Isolated low trees over tall open shrubland over mid open shrubland over low hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.2	0.1
Acacia atkinsiana	4	0.5
Acacia bivenosa	3	0.5
Acacia dictyophleba	1.2	0.1
Acacia inaequilatera	3	5
Acacia monticola	1.8	0.2
Acacia pruinocarpa	4	2.1
Acacia tenuissima	3	0.4
Alternanthera nana	0.2	0.1
Anthobolus leptomerioides	2.5	0.1
Aristida contorta	0.2	0.1
Aristida inaequiglumis	0.4	0.1
Boerhavia coccinea	0.1	0.1
Bonamia erecta	0.3	0.2
Bothriochloa ewartiana	0.3	0.1
Capparis lasiantha	0.5	0.2
Chrysopogon fallax	0.4	0.1
Corymbia hamersleyana		
Cymbopogon obtectus	0.4	0.1
Cynanchum pedunculatum		0.1
Digitaria brownii	0.4	0.3
Duperreya commixta		0.1
Enneapogon polyphyllus	0.1	0.1
Eremophila forrestii subsp. *forrestii*	0.5	0.1
Eremophila longifolia	1.5	0.2
Eucalyptus gamophylla	7	2
Eucalyptus leucophloia subsp. *leucophloia*	8	3
Euploca tanythrix	0.2	0.1
Evolvulus alsinoides	0.1	0.1
Fimbristylis dichotoma	0.1	0.1
Glycine canescens		0.1
Goodenia microptera	0.1	0.1
Gossypium robinsonii	2.5	0.3
Hakea chordophylla	2.5	0.2

Hibiscus burtonii	0.3	0.1
Hibiscus sturtii var. *campylochlamys*	0.1	0.1
Hibiscus sturtii var. *platychlamys*	0.3	0.1
Maireana villosa	0.3	0.3
Melhania oblongifolia	0.6	0.1
Paraneurachne muelleri	0.3	0.1
Perotis rara	0.1	0.1
Pterocaulon sphacelatum	0.4	0.2
Ptilotus astrolasius	0.3	0.1
Ptilotus obovatus var. *obovatus*	0.2	0.1
Rhagodia eremaea	0.3	0.1
Rhynchosia minima		0.1
Senna artemisioides subsp. *helmsii*	1.2	0.1
Senna artemisioides subsp. *oligophylla*	0.3	0.8
Senna artemisioides subsp. *x artemisioides*	1	0.2
Senna glutinosa subsp. *pruinosa*	1.5	0.5
Sida arenicola	0.8	0.1
Sida echinocarpa	0.3	0.1
Solanum cleistogamum	0.2	0.1
Solanum lasiophyllum	0.5	0.1
Tephrosia densa	0.6	0.2
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.2	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.4	0.2
Tribulus suberosus	1.2	0.1
Trichodesma zeylanicum	0.1	0.1
Triodia pungens	0.4	60
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	K26
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	22/03/2022
GPS Location:	GDA94 Zone 50 684092.47E 7474211.68N
Orientation:	180/90
Vegetation Type:	2
Landform Type:	Other, Hillock/Low Rise (other)
Slope Class:	Gently Inclined (3 degrees)
Soil Type:	Clay Loam
Soil Colour:	Brown
Rock Outcrop:	Ironstone, 2-10% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years
Habitat:	Low open woodland over sparse low shrubland over hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.2	0.2
Acacia aptaneura	0.8	0.1
Acacia atkinsiana	0.4	0.2
Acacia bivenosa	0.6	0.2
Acacia elachantha	0.2	0.1
Acacia inaequilatera	2.5	0.3
Acacia pruinocarpa	0.5	0.2
Acacia sibirica	0.4	0.3
Acacia ?sibirica	0.2	0.1
Aristida contorta	0.2	0.1
Aristida pruinosa	0.3	0.1
Capparis lasiantha	0.4	0.1
Cymbopogon ambiguus	0.2	0.1
Dodonaea coriacea	0.6	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.1	0.1
Eremophila latrobei subsp. *filiformis*	0.2	0.1
Eriachne mucronata	0.2	0.5
Eucalyptus leucophloia subsp. *leucophloia*	7	4.5
Evolvulus alsinoides	0.1	0.1
Fimbristylis dichotoma	0.1	0.1
Goodenia microptera	0.1	0.1
Goodenia stobbsiana	0.1	0.1
Goodenia triodiophila	0.1	0.1
Gossypium australe	0.4	0.1
Grevillea berryana		
Hibiscus sturtii var. *campylochlamys*	0.2	0.1
Indigofera monophylla	0.1	0.3
Paraneurachne muelleri	0.3	0.1
Psydrax suaveolens	0.4	0.1
Ptilotus calostachyus	0.4	0.1
Ptilotus ?carinatus	0.3	0.1
Ptilotus obovatus var. *obovatus*	0.3	0.1
Ptilotus rotundifolius	0.4	0.1
Santalum lanceolatum	1.5	0.1

Senna artemisioides subsp. *helmsii*	0.3	0.1
Senna artemisioides subsp. *oligophylla*	0.5	0.1
Senna glaucifolia	0.4	0.1
Senna glutinosa subsp. *glutinosa*	0.3	0.5
Senna glutinosa subsp. *pruinosa*	0.2	0.1
Sida arenicola	0.3	0.1
Sida echinocarpa	0.5	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.4	1
Solanum lasiophyllum	0.2	0.1
Tephrosia oxalidea	0.1	0.1
Triodia pungens	0.3	0.5
Triodia vanleeuwenii	0.2	30
Triodia wiseana	0.3	3

PHOTOS

Site Name:	K27
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	22/03/2022
GPS Location:	GDA94 Zone 50 684134.48E 7473968.84N
Orientation:	180/90
Vegetation Type:	1
Landform Type:	Other, Plain/Outwash (other)
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Clay Loam
Soil Colour:	Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	>10 Years
Habitat:	Low open woodland over mid-tall open shrubland over hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adsurgens	2	0.3
Acacia aptaneura	2	0.2
Acacia atkinsiana	3	4
Acacia inaequilatera	2.5	0.5
Acacia pruinocarpa	1.5	0.2
Amphipogon sericeus	0.2	0.1
Aristida contorta	0.2	0.1
Aristida pruinosa	0.3	0.1
Bothriochloa ewartiana	0.3	0.1
Cymbopogon obtectus	0.2	0.1
Duperreya commixta		0.1
Eragrostis eriopoda	0.2	0.1
Eriachne mucronata	0.2	0.2
Eucalyptus leucophloia subsp. *leucophloia*	8	2
Gompholobium oreophilum	0.5	0.4
Goodenia microptera	0.1	0.1
Goodenia stobbsiana	0.1	0.1
Hakea chordophylla	4	0.75
Hibiscus sturtii var. *campylochlamys*	0.2	0.1
Indigofera monophylla	0.3	0.1
Paraneurachne muelleri	0.3	0.2
Ptilotus astrolasius	0.3	0.2
Ptilotus calostachyus	0.2	0.1
Ptilotus rotundifolius	0.4	0.1
Scaevola parvifolia subsp. *pilbarae*	0.2	0.1
Senna artemisioides subsp. *oligophylla*	0.3	0.1
Senna glaucifolia	0.3	0.1
Senna glutinosa subsp. *pruinosa*	1.2	0.1
Senna glutinosa subsp. *x luerssenii*	0.8	0.1
Seringia exastia (T)	0.2	0.2
Sida arenicola	0.4	0.1
Sida cardiophylla	0.4	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.3	0.1
Solanum lasiophyllum	0.5	0.2

Tribulus suberosus	0.5	0.2
Triodia pungens	0.3	1
Triodia vanleeuwenii	0.2	50

PHOTOS

Site Name:	K28
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	23/03/2022
GPS Location:	GDA94 Zone 50 684542.11E 7474505.46N
Orientation:	180/90
Vegetation Type:	1
Landform Type:	Other, Plain/Outwash (other)
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years
Habitat:	Isolated low trees over low-mid open shrubland over hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia atkinsiana	0.7	4
Acacia bivenosa	0.3	0.1
Acacia inaequilatera	4	0.2
Amphipogon sericeus	0.1	0.1
Aristida holathera var. *holathera*	0.2	0.2
Bonamia erecta	0.5	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.1	0.1
Eucalyptus leucophloia subsp. *leucophloia*	9	2
Fimbristylis simulans	0.1	0.1
Hibiscus coatesii	0.1	0.1
Hibiscus sturtii var. *campylochlamys*	0.2	0.1
Indigofera monophylla	0.3	0.2
Jasminum didymum subsp. *lineare*	0.4	0.1
Paraneurachne muelleri	0.3	0.1
Poaceae sp.	0.2	0.1
Portulaca ?*oleracea*	0.1	0.1
Ptilotus astrolasius	0.2	0.1
Ptilotus calostachyus	0.2	0.1
Ptilotus ?*carinatus*	0.2	0.1
Ptilotus obovatus var. *obovatus*	0.2	0.1
Ptilotus rotundifolius	0.8	0.2
Senna artemisioides subsp. *oligophylla*	0.2	0.1
Senna glutinosa subsp. *pruinosa*	0.8	0.1
Senna glutinosa subsp. *x luerssenii*	0.4	0.5
Sida arenicola	0.3	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.3	0.2
Solanum lasiophyllum	0.5	0.1
Triodia pungens	0.2	0.5
Triodia vanleeuwenii	0.2	33

PHOTOS

Site Name:	K29
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	23/03/2022
GPS Location:	GDA94 Zone 50 688496.68E 7476476.27N
Orientation:	180/90
Vegetation Type:	2
Landform Type:	Lower Slope
Slope Class:	Gently Inclined (3 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years
Habitat:	Isolated low trees over open low shrubland over hummock grassland.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*		
Acacia hilliana	0.2	7
Acacia inaequilatera	0.5	0.3
Amphipogon sericeus	0.2	0.1
Codonocarpus cotinifolius	0.3	0.1
Corymbia deserticola subsp. *deserticola*	5	0.5
Eragrostis eriopoda	0.2	0.1
Eriachne pulchella subsp. *dominii*	0.1	0.1
Eucalyptus leucophloia subsp. *leucophloia*	1.2	0.2
Euploca tanythrix	0.2	0.1
Fimbristylis dichotoma	0.1	0.1
Fimbristylis simulans	0.1	0.1
Goodenia stobbsiana	0.1	0.1
Goodenia triodiophila	0.1	0.1
Gossypium australe	0.5	0.2
Hakea chordophylla	1.2	0.3
Hibiscus sturtii var. *campylochlamys*	0.2	0.1
Indigofera monophylla	0.3	0.1
Poaceae sp.	0.2	0.1
Ptilotus calostachyus	0.3	0.2
Ptilotus ?*carinatus*	0.4	0.1
Ptilotus obovatus var. *obovatus*	0.3	0.1
Ptilotus rotundifolius	0.2	0.1
Senna artemisioides subsp. *oligophylla*	0.3	0.1
Senna glutinosa subsp. *pruinosa*	1.5	0.3
Seringia exastia (T)	0.3	0.1
Sida arenicola	1.5	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.3	0.2
Solanum lasiophyllum	0.4	0.1
Triodia pungens	0.4	0.4
Triodia vanleeuwenii	0.2	30
Triodia wiseana	0.2	0.3

PHOTOS

Site Name:	K30
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	04/04/2022
GPS Location:	GDA94 Zone 50 684939.89E 7474629.08N
Orientation:	180/90
Vegetation Type:	1
Landform Type:	Lower Slope
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Sandy Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon macrum	0.2	0.1
Abutilon otocarpum	0.1	0.1
Acacia atkinsiana	3	3.5
Acacia bivenosa	2	0.2
Afrohybanthus aurantiacus	0.2	0.1
Amphipogon sericeus	0.2	0.1
Aristida contorta	0.2	0.1
Aristida holathera var. *holathera*	0.3	0.1
Aristida inaequiglumis	0.3	0.1
Aristida pruinosa	0.3	0.1
**Bidens bipinnata*	0.1	0.1
Boerhavia coccinea	0.1	0.1
Bonamia erecta	0.5	0.1
Corchorus lasiocarpus subsp. *parvus*	0.2	0.1
Corymbia deserticola subsp. *deserticola*	4	0.5
Corymbia hamersleyana	4	
Crotalaria medicaginea var. *neglecta*	0.1	0.1
Cucumis variabilis		0.1
Cymbopogon ambiguus	0.4	0.1
Cymbopogon obtectus	0.3	0.1
Digitaria brownii	0.2	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.2	0.1
Eragrostis eriopoda	0.2	0.1
Eriachne mucronata	0.2	0.1
Eucalyptus gamophylla	4	0.3
Eulalia aurea	0.4	0.1
Euphorbia australis var. *hispidula*	0.1	0.1
Euploca tanythrix	0.2	0.1
Evolvulus alsinoides	0.1	0.1
Fimbristylis dichotoma	0.1	0.1
Goodenia muelleriana	0.1	0.1
Goodenia stobbsiana	0.1	0.1
Gossypium robinsonii	0.1	0.1
Hibiscus burtonii	0.1	0.1
Hibiscus coatesii	0.2	0.1
Hibiscus sturtii var. *platychlamys*	0.3	0.1
Indigofera monophylla	0.2	0.1

Jasminum didymum subsp. *lineare*		0.1
Maireana villosa	0.1	0.1
Paraneurachne muelleri	0.2	0.1
Ptilotus astrolasius	0.1	0.1
Ptilotus calostachyus	0.6	0.1
Ptilotus ?carinatus	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.2	0.1
Ptilotus rotundifolius	0.5	0.1
Rhynchosia minima		0.1
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *helmsii*	0.8	0.1
Senna artemisioides subsp. *oligophylla*	1.1	0.2
Senna glutinosa subsp. *glutinosa*	1.4	0.3
Senna glutinosa subsp. *pruinosa*	1.3	0.1
Senna glutinosa subsp. *x luerssenii*	0.6	0.1
Senna notabilis	0.1	0.1
Seringia exastia (T)	0.5	3
Sida sp. Supplejack Station (T.S. Henshall 2345)	0.1	0.1
Solanum cleistogamum	0.2	0.1
Solanum lasiophyllum	0.2	0.1
Tephrosia densa	0.2	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.3	0.2
Triodia pungens	0.3	5
Triodia vanleeuwenii	0.2	10
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	K31
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	05/04/2022
GPS Location:	GDA94 Zone 50 685229.77E 7475272.45N
Orientation:	180/90
Vegetation Type:	1
Landform Type:	Other, Plain/Low spur b/w drainage lines (other)
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	W
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia atkinsiana	0.5	1
Acacia bivenosa	0.5	0.1
Aristida holathera var. *holathera*	0.2	0.1
Capparis lasiantha	0.9	0.1
Corchorus lasiocarpus subsp. *parvus*	0.3	0.1
Corymbia deserticola subsp. *deserticola*	3.5	0.3
Cymbopogon ambiguus	0.2	0.1
Duperreya commixta		0.1
Eriachne pulchella subsp. *dominii*		
Eucalyptus gamophylla	2	0.5
Eucalyptus leucophloia subsp. *leucophloia*	5	1
Euphorbia tannensis subsp. *eremophila*	0.3	0.1
Goodenia microptera	0.2	0.1
Hakea chordophylla	0.3	0.1
Indigofera monophylla	0.2	0.1
Ptilotus astrolasius	0.2	0.1
Ptilotus calostachyus	0.8	0.1
Ptilotus obovatus var. *obovatus*	0.4	0.1
Ptilotus rotundifolius	0.7	1
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *oligophylla*	0.3	0.2
Senna glutinosa subsp. *pruinosa*	0.2	0.2
Senna glutinosa subsp. *x luerssenii*	0.4	0.5
Seringia exastia (T)	0.5	0.1
Sida arenicola	0.6	0.1
Sida cardiophylla	0.3	0.1
Sida echinocarpa	0.6	0.1
Solanum lasiophyllum	0.2	0.1
Triodia pungens	0.3	1
Triodia vanleeuwenii	0.2	35

PHOTOS

Site Name:	K32
Site Type:	QUADRAT
Dimensions:	100m x 25m
Survey Date:	05/04/2022
GPS Location:	GDA94 Zone 50 687588.95E 7476671.05N
Orientation:	180/90
Vegetation Type:	10
Landform Type:	Drainage Line
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	NE
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - VG - Very Good
Disturbance:	Exotic Weeds
Fire:	<5 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	3	0.1
Acacia cowleana	2.5	40
Acacia monticola	2	0.3
Acacia pyrifolia var. *pyrifolia*	0.4	0.1
Afrohybanthus aurantiacus	0.2	0.1
Alternanthera nana	0.2	0.1
Androcalva luteiflora	1	1
Aristida contorta	0.2	0.1
Aristida holathera var. *holathera*	0.2	0.5
Aristida inaequiglumis	1	0.1
Arivela viscosa	0.1	0.1
Boerhavia coccinea		0.1
Bonamia erecta	0.4	0.1
**Cenchrus setiger*	0.3	20
Corchorus incanus subsp. *lithophilus*	0.3	0.1
Corymbia hamersleyana	5	6
Crotalaria medicaginea var. *neglecta*	0.2	0.1
Cymbopogon ambiguus	0.4	0.1
Digitaria brownii	0.3	0.1
Duperreya commixta		0.1
Enneapogon lindleyanus	0.4	0.1
Enneapogon polyphyllus	0.2	0.1
Eriachne mucronata	0.2	0.1
Eulalia aurea	0.3	0.1
Euphorbia australis var. *subtomentosa*	0.1	0.1
Euploca tanythrix	0.2	0.1
Evolvulus alsinoides	0.1	0.1
Gomphrena canescens subsp. *canescens*	0.2	0.1
Goodenia microptera	0.1	0.1
Gossypium australe	1	0.1
Gossypium robinsonii	2.5	1
Grevillea wickhamii subsp. ?*hispidula*	0.8	1
Hakea loreus subsp. *loreus*		
Hibiscus sturtii var. *campylochlamys*	0.2	0.1

Hibiscus sturtii var. *platychlamys*	0.8	0.1
Indigofera monophylla	0.2	0.1
Isotropis iophyta	0.8	0.1
Jasminum didymum subsp. *lineare*		0.1
Melhania oblongifolia	0.3	0.1
Paraneurachne muelleri	0.2	0.1
Pterocaulon sphacelatum	0.2	0.1
Ptilotus astrolasius	0.3	0.1
Ptilotus obovatus var. *obovatus*	0.6	0.3
Rhynchosia minima		0.1
Santalum lanceolatum	2	1
Scaevola parvifolia subsp. *pilbarae*		
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *helmsii*	0.8	0.1
Senna artemisioides subsp. *oligophylla*	0.5	0.1
Senna glutinosa subsp. *glutinosa*	1.3	0.1
Setaria surgens	0.1	0.1
Sida echinocarpa	1.2	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1.5	0.1
Stemodia grossa	0.3	0.1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	1	20
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.6	5
Triodia pungens	0.3	2

PHOTOS

Site Name:	K33
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	05/04/2022
GPS Location:	GDA94 Zone 50 687270.01E 7476718.73N
Orientation:	180/90
Vegetation Type:	2
Landform Type:	Upper Slope
Slope Class:	Moderately Inclined (10 degrees)
Aspect:	E
Soil Type:	Sandy Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, <2% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.2	0.1
Acacia hilliana	0.5	2
Acacia pyrifolia var. *pyrifolia*	0.3	0.1
Aristida holathera var. *holathera*	0.2	0.1
Aristida pruinosa	0.2	0.1
Cheilanthes contigua	0.1	0.1
Corchorus lasiocarpus subsp. *parvus*	0.2	1
Corymbia hamersleyana	1.5	2
Cymbopogon ambiguus	0.3	0.1
Dysphania rhadinostachya	0.1	0.1
Enneapogon caerulescens	0.4	0.1
Eremophila jucunda subsp. *pulcherrima*	0.8	0.1
Eriachne mucronata	0.3	0.1
Eriachne pulchella subsp. *dominii*	0.1	0.1
Eucalyptus leucophloia subsp. *leucophloia*	4	3
Euphorbia ?*trigonosperma*	0.1	0.1
Gompholobium oreophilum	0.5	0.2
Goodenia stobbsiana	0.3	0.1
Goodenia triodiophila	0.2	0.1
Gossypium robinsonii	1.6	0.2
Grevillea wickhamii subsp. ?*hispidula*	2	0.3
Hibiscus sturtii var. *campylochlamys*	0.1	0.1
Indigofera monophylla	0.2	0.1
Jasminum didymum subsp. *lineare*		0.1
Mirbelia viminalis	0.6	0.1
Paraneurachne muelleri	0.3	0.1
Petalostylis labicheoides	2	1
Polycarpaea longiflora	0.1	0.1
Ptilotus astrolasius	0.3	0.1
Ptilotus calostachyus	0.3	0.1
Rhynchosia minima		0.1
Santalum lanceolatum	1.6	0.4
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *oligophylla*	0.6	0.1
Senna glutinosa subsp. *glutinosa*	0.3	0.1

Senna glutinosa subsp. *pruinosa*	0.8	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.5	0.1
Solanum lasiophyllum	0.2	0.1
Solanum phlomoides	0.4	0.1
Tephrosia densa	0.1	0.1
Tephrosia oxalidea	0.1	0.1
Triodia vanleeuwenii	0.2	0.2
Triodia wiseana	0.4	40

PHOTOS

Site Name:	K34
Site Type:	QUADRAT
Dimensions:	165m x 15m
Survey Date:	06/04/2022
GPS Location:	GDA94 Zone 50 694096.7E 7477282.5N
Orientation:	180/90
Vegetation Type:	10
Landform Type:	Drainage Line
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	NW
Soil Type:	Sandy Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Fire:	<5 Years
Habitat:	General.

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	3	0.1
Acacia adoxa var. *adoxa*	0.4	0.1
Acacia cowleana	2	75
Acacia maitlandii	0.3	0.1
Afrohybanthus aurantiacus	0.4	0.1
Alternanthera nana	0.2	0.1
Androcalva luteiflora	1	0.1
Aristida holathera var. *holathera*	0.2	0.5
Arivela viscosa	0.1	0.1
Boerhavia coccinea	0.1	0.1
Bulbostylis barbata	0.1	0.1
Clerodendrum floribundum var. *angustifolium*	0.1	0.1
Corchorus incanus subsp. *lithophilus*	0.8	1
Corymbia hamersleyana	4	3
Crotalaria medicaginea var. *neglecta*	0.1	0.1
Cucumis variabilis		0.1
Cymbopogon ambiguus	0.3	0.1
Dendrophyllanthus erwinii	0.1	0.1
Digitaria ammophila	0.2	0.1
Digitaria ctenantha	0.3	0.1
Dodonaea lanceolata var. *lanceolata*	1.2	0.1
Duperreya commixta		0.1
Enneapogon lindleyanus	0.3	0.1
Enneapogon polyphyllus	0.4	0.1
Eragrostis cumingii	0.1	0.1
Eriachne mucronata	0.3	0.5
Eriachne pulchella subsp. *dominii*	0.1	0.1
Eriachne sp. Dugald River (B.K. Simon+ 3007)	0.1	0.1
Eucalyptus gamophylla	2	0.2
Euphorbia ?biconvexa	0.1	0.1
Euploca tanythrix	0.1	0.1
Evolvulus alsinoides	0.1	0.1
Fimbristylis dichotoma	0.2	0.1
Fimbristylis simulans	0.1	0.1

Gomphrena canescens subsp. *canescens*	0.1	0.1
Gomphrena cunninghamii	0.1	0.1
Goodenia microptera	0.2	0.1
Goodenia stobbsiana	0.2	0.1
Gossypium australe	0.8	0.1
Gossypium robinsonii	1.5	0.5
Grevillea wickhamii subsp. ?*hispidula*	1.5	0.1
Hakea loreus subsp. *loreus*	0.7	0.1
Hibiscus coatesii	0.8	0.1
Hibiscus sturtii var. *campylochlamys*	0.2	0.5
Indigofera monophylla	0.7	1
Jasminum didymum subsp. *lineare*		0.5
Melhania oblongifolia	0.2	0.1
Nellica maderaspatensis	0.3	0.1
Notoleptopus decaisnei	0.1	0.1
Paraneurachne muelleri	0.4	0.1
Perotis rara	0.1	0.1
Polycarpaea longiflora	0.1	0.1
Pterocaulon sphacelatum	0.2	0.1
Ptilotus astrolasius	0.3	0.1
Ptilotus calostachyus	0.3	0.1
Ptilotus ?*carinatus*	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.3	0.1
Rhynchosia minima		0.1
Santalum lanceolatum	1.5	1
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *oligophylla*	0.2	0.1
Senna glutinosa subsp. *glutinosa*	1.4	0.1
Senna notabilis	0.1	0.1
Seringia exastia (T)	0.4	0.1
Setaria surgens	0.1	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.9	0.1
Solanum cleistogamum	0.2	0.1
Solanum lasiophyllum	0.6	0.1
Stylobasium spathulatum	1.2	0.1
Tephrosia densa	0.3	0.5
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.4	1.5
Trachymene oleracea subsp. *oleracea*	0.1	0.1
Trichodesma zeylanicum	0.1	0.1
Triodia pungens	0.3	5

PHOTOS

Site Name:	K36
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	06/04/2022
GPS Location:	GDA94 Zone 50 691937.68E 7476598.36N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Aspect:	NW
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.3	0.1
Acacia atkinsiana	1	2
Acacia inaequilatera	1.2	0.2
Aristida contorta	0.2	0.1
Aristida holathera var. *holathera*	0.3	1
Bonamia erecta	0.2	0.2
Corchorus lasiocarpus subsp. *parvus*	0.3	0.1
Corymbia deserticola subsp. *deserticola*	4.5	1.5
Dendrophyllanthus erwinii	0.1	0.1
Duperreya commixta		0.1
Eragrostis eriopoda	0.1	0.1
Eriachne mucronata	0.5	0.1
Eucalyptus gamophylla	1.7	0.5
Euphorbia australis var. *hispidula*	0.1	0.1
Gompholobium oreophilum	0.7	0.1
Gomphrena canescens subsp. *canescens*	0.1	0.1
Goodenia microptera	0.1	0.1
Indigofera monophylla	0.2	0.3
Paraneurachne muelleri	0.3	0.1
Pterocaulon sp. (dead)	0.1	0.1
Ptilotus calostachyus	0.5	0.1
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *helmsii*		
Senna artemisioides subsp. *oligophylla*		
Senna artemisioides subsp. *oligophylla*	0.1	0.1
Senna glaucifolia	0.6	0.2
Senna glutinosa subsp. *glutinosa*	0.2	0.1
Senna glutinosa subsp. *x luerssenii*	1.1	0.1
Senna notabilis	0.1	0.1
Sida arenicola	0.3	0.1
Sida cardiophylla	0.3	0.1
Solanum lasiophyllum	0.2	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.1	0.1
Triodia pungens	0.3	25

Triodia vanleeuwenii	0.2	1
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	K37
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	07/04/2022
GPS Location:	GDA94 Zone 50 689960.01E 7476882.2N
Orientation:	90/180
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Aspect:	N
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	20-50%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	Exotic Weeds
Fire:	> 10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.1	0.1
Abutilon otocarpum	0.2	0.1
Acacia aptaneura	3.5	2
Acacia ayersiana	1.2	0.2
Acacia pruinocarpa	2	1
Anthobolus leptomerioides	1.5	0.1
Aristida contorta	0.2	0.1
Aristida holathera var. *holathera*	0.3	0.1
Aristida inaequiglumis	0.7	1.5
Arivela viscosa	0.2	1
**Bidens bipinnata*	0.2	0.1
Boerhavia coccinea		0.1
**Cenchrus setiger*	0.3	0.1
Chrysopogon fallax	0.3	0.5
Cucumis variabilis		0.1
Dactyloctenium radulans	0.1	0.1
Digitaria ctenantha	0.4	0.1
Dodonaea petiolaris	0.8	0.1
Duperreya commixta		0.1
Dysphania ?*rhadinostachya*	0.1	0.1
Enneapogon lindleyanus	0.5	0.5
Enneapogon polyphyllus	0.3	0.5
Eragrostis setifolia	0.2	0.1
Eremophila fraseri subsp. *fraseri*	2.2	1
Eremophila latrobei subsp. *filiformis*	1.1	0.1
Eriachne mucronata	0.3	0.1
Euphorbia biconvexa	0.2	0.1
Euploca tanythrix	0.1	0.1
Evolvulus alsinoides	0.1	0.1
Gomphrena canescens subsp. *canescens*	0.1	0.1
Gomphrena cunninghamii	0.1	0.1
Grevillea wickhamii subsp. ?*hispidula*	2	0.1
Hakea chordophylla	0.3	0.1
Hibiscus burtonii	0.6	0.1

Hibiscus sturtii var. *platychlamys*	0.4	0.1
Indigofera georgei	0.2	0.1
Iseilema membranaceum	0.2	0.1
Maireana villosa	0.3	2
Paspalidium clementii	0.1	0.1
Perotis rara	0.1	0.1
Portulaca ?oleracea	0.1	0.1
Ptilotus ?carinatus	0.1	0.1
Ptilotus helipteroides	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.4	0.1
Sclerolaena cornishiana	0.4	0.1
Senna artemisioides subsp. *helmsii*	0.2	0.1
Senna glaucifolia	0.4	0.1
Senna notabilis	0.1	0.1
Sida sp. Supplejack Station (T.S. Henshall 2345)	0.3	0.1
Solanum lasiophyllum	1	0.1
Spermacoce brachystema	0.1	0.1
Sporobolus australasicus	0.1	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.4	0.1
Tragus australianus	0.1	0.1
Tribulus astrocarpus	0.1	0.1

PHOTOS

Site Name:	K38
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	07/04/2022
GPS Location:	GDA94 Zone 50 690451.47E 7477612.01N
Orientation:	90/180
Vegetation Type:	9
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Aspect:	W
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adsurgens	0.4	0.1
Acacia aptaneura	0.3	0.1
Acacia atkinsiana	1.1	2
Acacia bivenosa	0.9	0.1
Acacia pruinocarpa	1.8	0.1
Alternanthera nana	0.1	0.1
Aristida contorta	0.2	0.2
Aristida holathera var. *holathera*	0.2	0.2
Aristida inaequiglumis	0.2	0.1
Arivela viscosa	0.1	0.1
Codonocarpus cotinifolius	0.6	0.1
Corymbia deserticola subsp. *deserticola*	6	1
Duperreya commixta		0.1
Eragrostis eriopoda	0.2	0.1
Eriachne pulchella subsp. *dominii*	0.1	0.1
Eucalyptus gamophylla	2.2	0.3
Goodenia microptera	0.2	0.1
Hibiscus burtonii	0.6	0.1
Hibiscus sturtii var. *platychlamys*	0.3	0.1
Indigofera monophylla	0.3	0.1
Paraneurachne muelleri	0.3	0.1
Psydrax suaveolens	0.6	0.1
Ptilotus astrolasius	0.2	0.1
Ptilotus calostachyus	0.3	0.1
Ptilotus ?carinatus	0.1	0.1
Ptilotus helipteroides	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.2	0.1
Ptilotus rotundifolius	0.8	0.1
Schizachyrium fragile	0.1	0.1
Senna glutinosa subsp. *glutinosa*	1.1	0.1
Senna glutinosa subsp. *x luerssenii*	1.1	0.1
Senna notabilis	0.1	0.1
Sida cardiophylla	0.8	0.1
Sida echinocarpa	1.2	0.1

Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1	0.1
Sida sp. Supplejack Station (T.S. Henshall 2345)	0.6	0.1
Solanum lasiophyllum	0.5	0.1
Triodia pungens	0.3	10
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	K39
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	08/04/2022
GPS Location:	GDA94 Zone 50 693891.59E 7475624.64N
Orientation:	90/180
Vegetation Type:	6
Landform Type:	Upper Slope
Slope Class:	Moderately Inclined (10 degrees)
Aspect:	NNW
Soil Type:	Sandy Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 10-20% bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia hamersleyensis	5	
Acacia pyrifolia var. *pyrifolia*	1.8	0.1
Aristida holathera var. *holathera*	0.1	0.1
Corymbia hamersleyana	2	1
Eriachne mucronata	0.3	0.1
Eucalyptus leucophloia subsp. *leucophloia*	6	10
Goodenia triodiophila	0.2	0.1
Grevillea wickhamii subsp. ?*hispidula*	1.3	0.1
Hakea chordophylla	1.1	0.1
Mirbelia viminalis	1.1	0.1
Schizachyrium fragile	0.1	0.1
Solanum lasiophyllum	0.2	0.1
Triodia wiseana	0.4	40

PHOTOS

Site Name:	K40
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	09/04/2022
GPS Location:	GDA94 Zone 50 694054.6E 7475172.66N
Orientation:	90/180
Vegetation Type:	6
Landform Type:	Upper Slope
Slope Class:	Steep (23 degrees)
Aspect:	S
Soil Type:	Sandy Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 20-50% bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia cowleana	1.3	0.1
Acacia hamersleyensis	3	0.1
Acacia pyrifolia var. *pyrifolia*	2	0.1
Afrohybanthus aurantiacus	0.1	0.1
Aristida holathera var. *holathera*	0.1	0.1
Cassytha capillaris		0.1
Cheilanthes brownii	0.1	0.1
Cheilanthes contigua	0.1	0.1
Clerodendrum floribundum var. *angustifolium*	2	0.1
Corchorus lasiocarpus subsp. *parvus*	0.2	0.1
Corymbia hamersleyana	4.5	10
Cymbopogon ambiguus	0.8	0.1
Dodonaea lanceolata var. *lanceolata*	1.2	0.1
Duperreya commixta		0.1
Eremophila jucunda subsp. *pulcherrima*	0.8	0.1
Eriachne mucronata	0.1	0.1
Eriachne pulchella subsp. *dominii*	0.1	0.1
Eucalyptus leucophloia subsp. *leucophloia*	5	3
Eulalia aurea	0.2	0.1
Euphorbia ?*trigonosperma*	0.1	0.1
Fimbristylis dichotoma	0.1	0.1
Goodenia triodiophila	0.2	0.1
Gossypium robinsonii	2	0.1
Grevillea wickhamii subsp. ?*hispidula*	2	0.1
Indigofera fractiflexa subsp. *fractiflexa*	0.3	0.1
Jasminum didymum subsp. *lineare*	0.3	0.1
Newcastelia clavipetala	0.7	0.1
Petalostylis labicheoides	0.7	0.2
Ptilotus obovatus var. *obovatus*	0.1	0.1
Santalum lanceolatum	2.5	0.1
Scaevola browniana subsp. *browniana*	0.3	0.1
Schizachyrium fragile	0.1	0.1
Senna ferraria	0.5	0.1
Senna glutinosa subsp. *glutinosa*	1.2	0.1

Sida sp. Shovelanna Hill (S. van Leeuwen 3842)	0.2	0.1
Solanum lasiophyllum	0.3	0.1
Triodia pungens	0.3	3
Triodia wiseana	0.4	40

PHOTOS

Site Name:	K41
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	09/04/2022
GPS Location:	GDA94 Zone 50 693931.55E 7474952.39N
Orientation:	90/180
Vegetation Type:	6
Landform Type:	Lower Slope
Slope Class:	Steep (23 degrees)
Aspect:	S
Soil Type:	Sandy Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 20-50% bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia aptaneura	1.3	0.1
Acacia hamersleyensis	2.5	0.1
Acacia pruinocarpa	1.5	0.1
Acacia pyrifolia var. *pyrifolia*	2	0.1
Acacia tenuissima	1.4	0.1
Aristida holathera var. *holathera*	0.2	0.1
Cheilanthes brownii	0.1	0.1
Clerodendrum floribundum var. *angustifolium*	0.2	0.1
Corchorus incanus subsp. *lithophilus*	0.3	0.1
Corymbia hamersleyana	4	4
Cymbopogon ambiguus	0.3	0.1
Dysphania ?*rhadinostachya*	0.1	0.1
Eremophila jucunda subsp. *pulcherrima*	0.5	0.1
Eriachne mucronata	0.3	0.1
Eucalyptus leucophloia subsp. *leucophloia*	5	6
Fimbristylis dichotoma	0.1	0.1
Goodenia stobbsiana	0.1	0.1
Goodenia triodiophila	0.2	0.1
Grevillea wickhamii subsp. ?*hispidula*	1.8	0.1
Hakea chordophylla	3	0.3
Indigofera monophylla	0.3	0.1
Jasminum didymum subsp. *lineare*		0.2
Ptilotus astrolasius	0.2	0.1
Ptilotus obovatus var. *obovatus*	0.1	0.1
Scaevola browniana subsp. *browniana*	0.5	0.1
Senna ferraria	1.7	0.1
Senna glaucifolia	0.7	0.1
Senna glutinosa subsp. *glutinosa*	0.4	0.1
Senna glutinosa subsp. *pruinosa*	1.7	0.1
Seringia exastia (T)	0.2	0.1
Solanum lasiophyllum	0.7	0.1
Triodia pungens	0.4	5
Triodia wiseana	0.4	35

PHOTOS

Site Name:	K42
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	09/04/2022
GPS Location:	GDA94 Zone 50 691600.81E 7477762.79N
Orientation:	90/180
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	NW
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	Exotic Weeds
Fire:	<5 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.3	0.1
Abutilon macrum	0.5	0.1
Abutilon otocarpum	0.3	0.1
Acacia adsurgens	2.5	0.1
Acacia ?aneura	5	1
Acacia aptaneura	3	5
Acacia bivenosa	2.5	0.1
Acacia pruinocarpa	2.5	2
Afrohybanthus aurantiacus	0.3	0.1
Alternanthera nana	0.2	0.1
Anthobolus leptomerioides	2	0.1
Aristida contorta	0.3	0.5
Aristida inaequiglumis	1.5	0.3
Arivela viscosa	0.1	0.1
**Bidens bipinnata*	0.1	0.1
Boerhavia coccinea		0.1
Capparis lasiantha	0.6	0.1
Cheilanthes sieberi subsp. *sieberi*	0.3	0.1
Chrysopogon fallax	0.3	0.1
Corymbia hamersleyana	8	1
Cucumis variabilis		0.1
Cymbopogon ambiguus	0.4	0.1
Digitaria brownii	0.7	0.2
Digitaria ctenantha	0.2	0.1
Duperreya commixta		1
?Enchylaena tomentosa	0.4	0.1
Enneapogon polyphyllus	0.2	0.3
Eremophila forrestii subsp. *forrestii*	1	0.1
Eremophila fraseri subsp. *fraseri*	1	1.8
Eremophila latrobei subsp. *filiformis*	2.2	0.1
Eremophila longifolia	3	0.1
Eriachne mucronata	0.3	0.1
Eriachne pulchella subsp. *dominii*	0.1	0.1
Evolvulus alsinoides	0.1	0.1

Glycine canescens		0.1
Gomphrena canescens subsp. *canescens*	0.1	0.1
Goodenia muelleriana	0.2	0.1
Hakea loreus subsp. *loreus*	0.2	0.1
Hibiscus burtonii	0.4	0.1
Hibiscus sturtii var. *platychlamys*	0.4	0.1
Jasminum didymum subsp. *lineare*	0.2	0.1
Maireana planifolia	0.6	0.1
Maireana villosa	0.4	0.1
Melhania oblongifolia	0.4	0.1
Paraneurachne muelleri	0.3	0.1
Perotis rara	0.1	0.1
Portulaca ?*oleracea*	0.1	0.1
Pterocaulon sphacelatum	0.3	0.1
Ptilotus astrolasius	0.3	0.1
Ptilotus ?*carinatus*	0.1	0.1
Ptilotus helipteroides	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.3	1
Rhagodia eremaea	0.7	0.1
Schizachyrium fragile	0.2	0.1
Sclerolaena cornishiana	0.2	0.1
Senna artemisioides subsp. *helmsii*	1.2	1
Senna artemisioides subsp. *oligophylla*	1.2	0.2
Senna glutinosa subsp. *glutinosa*	1.5	0.1
Senna glutinosa subsp. *pruinosa*	2	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.4	0.1
Sida sp. Supplejack Station (T.S. Henshall 2345)	0.3	0.1
Solanum cleistogamum	0.2	0.1
Sporobolus australasicus	0.1	0.1
Stemodia grossa	0.5	0.1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.2	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.5	0.1
Tragus australianus	0.1	0.1
Tribulus macrocarpus		0.1
Tribulus suberosus	0.8	0.1
Triodia pungens	0.3	10
Waltheria indica	0.7	0.1

PHOTOS

Site Name:	K43
Site Type:	QUADRAT
Dimensions:	15m x 165m
Survey Date:	09/04/2022
GPS Location:	GDA94 Zone 50 693665.87E 7477551.16N
Orientation:	90/180
Vegetation Type:	10
Landform Type:	Drainage Line
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	SW
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	20-50%
CF Sizes:	2-6mm, 6-20mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.3	0.1
Acacia adoxa var. *adoxa*	0.4	0.1
Acacia adsurgens	1.3	0.1
Acacia cowleana	3	80
Acacia monticola	1.6	0.1
Acacia sericophylla	1.5	0.1
Afrohybanthus aurantiacus	0.4	0.1
Alternanthera nana	0.1	0.1
Androcalva luteiflora	1.8	0.5
Aristida contorta	0.3	0.1
Aristida holathera var. *holathera*	0.4	0.1
Boerhavia coccinea		0.1
Cheilanthes contigua	0.1	0.1
Corchorus incanus subsp. *lithophilus*	0.5	0.1
Corymbia hamersleyana	4	5
Cucumis variabilis		0.1
Digitaria brownii	0.3	0.1
Dodonaea lanceolata var. *lanceolata*	1.3	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.5	0.1
Eragrostis cumingii	0.1	0.1
Eriachne mucronata	0.4	0.1
Eriachne tenuiculmis	0.7	1
Eulalia aurea	0.4	0.1
Evolvulus alsinoides	0.2	0.1
Gompholobium oreophilum	0.4	0.1
Goodenia microptera	0.1	0.1
Goodenia stobbsiana	0.2	0.1
Gossypium robinsonii	1	0.1
Grevillea wickhamii subsp. ?*hispidula*	2	0.1
Hibiscus coatesii	0.3	0.1
Hibiscus sturtii var. *campylochlamys*	0.4	0.3
Hibiscus sturtii var. *platychlamys*	0.5	0.1
Indigofera monophylla	0.4	1

Jasminum didymum subsp. *lineare*		0.1
Melhania oblongifolia	0.5	0.1
Nellica maderaspatensis	0.5	0.1
Paraneurachne muelleri	0.4	0.3
Ptilotus astrolasius	0.6	0.1
Ptilotus calostachyus	0.6	0.1
Rhynchosia minima		0.1
Santalum lanceolatum	1.3	0.1
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *oligophylla*	0.5	0.1
Seringia exastia (T)	0.6	2
Setaria surgens	0.2	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.8	0.1
Sida sp. Supplejack Station (T.S. Henshall 2345)	0.4	0.1
Solanum phlomoides	0.3	0.1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.5	0.1
Tephrosia virens	1.6	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	1.2	10
Triodia pungens	0.3	7
Waltheria indica	0.4	0.1

PHOTOS

Site Name:	K44
Site Type:	QUADRAT
Dimensions:	10m x 250m
Survey Date:	10/04/2022
GPS Location:	GDA94 Zone 50 689065.12E 7476748.63N
Orientation:	90/180
Vegetation Type:	1
Landform Type:	Drainage Line
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	NNW
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.6	0.1
Acacia atkinsiana	2	1
Acacia monticola	3	75
Afrohybanthus aurantiacus	0.2	1
Aristida contorta	0.2	0.1
Aristida holathera var. *holathera*	0.4	2
Aristida inaequiglumis	0.6	0.1
Arivela viscosa	0.1	0.1
Boerhavia coccinea	0.1	0.1
Bonamia erecta	0.2	0.1
Bothriochloa ewartiana	0.5	0.5
Capparis lasiantha	0.7	0.1
Corymbia deserticola subsp. *deserticola*	2.8	0.2
Corymbia hamersleyana	4.5	0.2
Duperreya commixta		0.1
Enneapogon polyphyllus	0.2	0.1
Eragrostis eriopoda	0.2	0.1
Eriachne mucronata	0.3	0.1
Eriachne pulchella subsp. *dominii*	0.1	0.1
Eriachne tenuiculmis	0.4	0.1
Eucalyptus gamophylla	3	8
Euploca tanythrix	0.2	0.1
Evolvulus alsinoides	0.1	0.1
Goodenia microptera	0.2	0.1
Goodenia stobbsiana	0.1	0.1
Gossypium robinsonii	1.2	0.1
Hibiscus coatesii	0.2	0.1
Hibiscus sturtii var. *campylochlamys*	0.3	0.1
Hibiscus sturtii var. *platychlamys*	0.7	0.1
Indigofera monophylla	0.6	0.2
Jasminum didymum subsp. *lineare*		0.1
Maytenus sp. Mt Windell (S. van Leeuwen 846)	0.8	0.1
Paraneurachne muelleri	0.4	0.3
Psydrax latifolia	0.7	0.1

Ptilotus astrolasius	0.3	0.1
Ptilotus calostachyus	0.7	0.1
Ptilotus obovatus var. *obovatus*	0.6	0.1
Santalum lanceolatum	0.7	0.1
Scaevola parvifolia subsp. *pilbarae*	0.3	0.1
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *helmsii*	0.8	0.1
Senna artemisioides subsp. *oligophylla*	0.8	0.1
Senna glutinosa subsp. *glutinosa*	0.8	0.1
Senna glutinosa subsp. *pruinosa*	0.9	0.1
Senna glutinosa subsp. *x luerssenii*	1.2	0.1
Senna notabilis	0.1	0.1
Seringia exastia (T)	0.3	0.1
Sida arenicola	1.8	0.2
Sida cardiophylla	0.4	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1	0.1
Sida sp. Supplejack Station (T.S. Henshall 2345)	0.4	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	1	3
Trichodesma zeylanicum	0.1	0.1
Triodia pungens	0.4	8
Triodia wiseana	1.3	0.1
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	K45
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	10/04/2022
GPS Location:	GDA94 Zone 50 689020.97E 7477251.67N
Orientation:	90/180
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	NW
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	0%
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	Exotic Weeds
Fire:	> 10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.4	0.1
Abutilon macrum	0.4	0.1
Abutilon otocarpum	0.3	0.1
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	0.3	0.1
Acacia aptaneura	2	0.2
Acacia atkinsiana	1.5	0.2
Acacia pruinocarpa	2	0.3
Acacia pyrifolia var. *pyrifolia*	0.7	0.1
Afrohybanthus aurantiacus	0.8	0.1
Alternanthera nana	0.1	0.2
Aristida contorta	0.3	3
Aristida inaequiglumis	0.4	0.1
Arivela viscosa	0.3	0.1
**Bidens bipinnata*	0.2	0.1
Boerhavia repleta		0.1
Bonamia erecta	0.2	0.1
**Cenchrus ciliaris*	0.4	0.1
**Cenchrus setiger*	0.4	2
Chrysopogon fallax	0.6	2
Corchorus tridens	0.1	0.1
Corymbia deserticola subsp. *deserticola*	7	0.2
Cucumis variabilis		0.1
Cymbopogon ambiguus	0.5	0.1
Dactyloctenium radulans	0.1	0.1
Digitaria ammophila	0.3	0.1
Digitaria brownii	0.7	0.3
Duperreya commixta		0.1
Enneapogon lindleyanus	0.4	2
Enneapogon polyphyllus	0.3	5
Eremophila longifolia	1.2	0.1
Eucalyptus gamophylla	3	0.5
Eucalyptus xerothermica	10	8
Eulalia aurea	0.5	0.1
Euphorbia australis var. *subtomentosa*	0.1	0.1
Euphorbia tannensis subsp. *eremophila*	0.1	0.1
Evolvulus alsinoides	0.1	0.1

Evolvulus alsinoides var. *decumbens*	0.2	0.1
Gomphrena canescens subsp. *canescens*	0.3	0.1
Goodenia stellata	0.1	0.1
Gossypium australe	0.9	0.1
Gossypium robinsonii	1.8	0.1
Hakea chordophylla	1.8	0.1
Hibiscus burtonii	0.8	0.1
Hibiscus sturtii var. *campylochlamys*	0.3	0.1
Hibiscus sturtii var. *platychlamys*	0.3	0.1
Indigofera georgei	1.3	0.1
Iseilema membranaceum	0.2	0.1
Isotropis iophyta	0.8	0.1
Maireana villosa	0.6	0.1
**Malvastrum americanum*	0.6	0.1
Melhania oblongifolia	0.4	0.1
Panicum effusum	0.3	0.1
Paraneurachne muelleri	0.7	0.1
Perotis rara	0.1	1
Psydrax latifolia	0.8	0.1
Pterocaulon sphacelatum	0.9	0.2
Ptilotus calostachyus	0.4	0.1
Ptilotus ?*carinatus*	0.1	0.1
Ptilotus helipteroides	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.3	1
Rhagodia eremaea	0.4	0.1
Rhynchosia minima		0.1
Santalum lanceolatum	1.7	0.1
Senna artemisioides subsp. *oligophylla*	0.7	0.1
Senna pleurocarpa var. *pleurocarpa*	0.5	0.3
**Setaria verticillata*	0.6	0.1
Sida echinocarpa	1.2	0.1
Sida fibulifera	0.3	0.1
Sida sp. L (A.M. Ashby 4202)		0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1.3	0.1
Solanum lasiophyllum	0.8	0.1
Solanum phlomoides	0.4	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.7	60
Trichodesma zeylanicum	0.6	0.1
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	K46
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	11/04/2022
GPS Location:	GDA94 Zone 50 687045.85E 7476252.35N
Orientation:	90/180
Vegetation Type:	2
Landform Type:	Lower Slope
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	SE
Soil Type:	Sandy Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	<5 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.3	0.1
Acacia atkinsiana	0.4	1
Acacia bivenosa	0.8	0.1
Acacia cowleana	1.2	0.3
Acacia hilliana	0.2	0.1
Acacia tenuissima	0.3	0.1
Amphipogon sericeus	0.2	0.1
Aristida contorta	0.2	0.1
Aristida holathera var. *holathera*	0.2	0.1
Aristida inaequiglumis	0.3	0.1
Corchorus incanus subsp. *lithophilus*	0.3	0.3
Corymbia deserticola subsp. *deserticola*	4	2
Cymbopogon ambiguus	0.8	0.1
Dampiera candicans	0.4	0.1
Digitaria brownii	0.3	0.1
Dodonaea coriacea	0.8	0.1
Duperreya commixta		0.1
Eragrostis eriopoda	0.2	0.1
Eriachne mucronata	0.3	0.1
Eulalia aurea	0.6	0.1
Fimbristylis dichotoma	0.1	0.1
Fimbristylis simulans	0.1	0.1
Gompholobium oreophilum	0.6	0.1
Goodenia microptera	0.2	0.1
Goodenia stobbsiana	0.1	0.1
Goodenia triodiophila	0.1	0.1
Hakea chordophylla	3.5	1
Hibiscus burtonii	0.7	0.1
Hibiscus sturtii var. *campylochlamys*	0.4	0.1
Indigofera monophylla	0.3	0.1
Jasminum didymum subsp. *lineare*	0.2	0.1
Paraneurachne muelleri	0.5	0.1
Ptilotus astrolasius	0.4	0.1
Ptilotus calostachyus	0.3	0.1

Ptilotus obovatus var. *obovatus*	0.8	0.1
Scaevola parvifolia subsp. *pilbarae*	0.2	0.1
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *helmsii*	0.6	0.1
Senna artemisioides subsp. *oligophylla*	0.4	0.1
Senna ferraria	1.2	0.1
Seringia exastia (T)	0.3	0.1
Sida sp. Excedentifolia (J.L. Egan 1925)	0.6	0.1
Solanum lasiophyllum	0.2	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.9	1
Triodia vanleeuwenii	0.2	25

PHOTOS

Site Name:	K47
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	11/04/2022
GPS Location:	GDA94 Zone 50 693922.05E 7476906.82N
Orientation:	90/180
Vegetation Type:	2
Landform Type:	Lower Slope
Slope Class:	Gently Inclined (3 degrees)
Aspect:	NW
Soil Type:	Sandy Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	(other) - Old rehabbed drill line
Fire:	5-10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.2	0.1
Acacia adsurgens	2	0.1
Acacia dictyophleba		
Acacia hilliana	0.4	0.1
Acacia monticola	3	0.2
Aristida holathera var. *holathera*	0.3	0.2
Arivela viscosa	0.1	0.1
Corchorus incanus subsp. *lithophilus*	0.8	0.5
Corymbia deserticola subsp. *deserticola*	6	0.5
Corymbia hamersleyana	5	
Cymbopogon ambiguus	0.5	0.1
Cymbopogon obtectus	0.9	0.1
Eriachne sp. Dugald River (B.K. Simon+ 3007)	0.1	0.1
Eucalyptus gamophylla	3.5	0.2
Eucalyptus leucophloia subsp. *leucophloia*	8	
Fimbristylis dichotoma	0.1	0.1
Fimbristylis simulans	0.1	0.1
Gomphrena cunninghamii	0.1	0.1
Goodenia microptera	0.4	0.1
Goodenia stobbsiana	0.2	0.1
Goodenia triodiophila	0.2	0.1
Gossypium robinsonii	2	0.1
Hakea chordophylla	5	1.5
Hibiscus sturtii var. *campylochlamys*	0.3	0.1
Indigofera monophylla	0.2	0.1
Paraneurachne muelleri	0.3	0.1
Polycarpaea longiflora	0.1	0.1
Ptilotus calostachyus	0.7	0.1
Ptilotus rotundifolius	0.8	0.1
Rhynchosia minima		0.1
Schizachyrium fragile	0.1	0.1
Senna glaucifolia	1.2	0.1
Senna glutinosa subsp. *glutinosa*	1.1	0.1
Senna glutinosa subsp. *pruinosa*	1.3	0.1

Solanum phlomoides	0.3	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.2	0.1
Trichodesma zeylanicum	0.4	0.1
Triodia vanleeuwenii	0.3	35
Triodia wiseana	0.6	25

PHOTOS

Site Name:	K48
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	12/04/2022
GPS Location:	GDA94 Zone 50 683724.82E 7473600.58N
Orientation:	90/180
Vegetation Type:	2
Landform Type:	Lower Slope
Slope Class:	Gently Inclined (3 degrees)
Aspect:	SW
Soil Type:	Sandy Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 2-10% bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm, 200-600mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	> 10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adoxa var. *adoxa*	0.2	0.1
Acacia aptaneura	2.5	0.2
Acacia bivenosa	2	0.1
Acacia cowleana	1.5	0.1
Acacia dictyophleba	2.5	0.1
Acacia hamersleyensis	1.4	0.1
Acacia inaequilatera	1.5	0.1
Acacia maitlandii	2.5	0.2
Acacia pruinocarpa	1.7	0.1
Aristida contorta	0.3	0.1
Clerodendrum floribundum var. *angustifolium*	1.1	0.1
Corchorus lasiocarpus subsp. *parvus*	0.2	0.1
Corymbia hamersleyana	0.4	0.1
Cymbopogon ambiguus	0.3	0.1
Cymbopogon obtectus	0.3	0.1
Enneapogon polyphyllus	0.2	0.1
Eremophila forrestii subsp. *forrestii*	0.8	0.1
Eriachne mucronata	0.3	0.1
Eriachne pulchella subsp. *dominii*	0.1	0.1
Eucalyptus leucophloia subsp. *leucophloia*	6	3
Eulalia aurea	0.3	0.1
Evolvulus alsinoides	0.1	0.1
Fimbristylis dichotoma	0.1	0.1
Goodenia muelleriana	0.1	0.1
Goodenia stobbsiana	0.3	0.1
Goodenia triodiophila	0.2	0.1
Hakea chordophylla	3	0.3
Hibiscus sturtii var. *campylochlamys*	0.2	0.1
Indigofera monophylla	0.3	0.1
Ptilotus astrolasius	0.2	0.1
Ptilotus calostachyus	0.5	0.1
Ptilotus clementii	0.1	0.1
Ptilotus rotundifolius	0.4	0.1
Schizachyrium fragile	0.1	0.1

Senna artemisioides subsp. *oligophylla*	0.3	0.1
Senna ferraria	1.5	0.1
Senna glutinosa subsp. *glutinosa*	1.2	0.2
Senna glutinosa subsp. *pruinosa*	1.2	0.2
Seringia exastia (T)	0.3	0.1
Sida echinocarpa	0.5	0.1
Solanum lasiophyllum	0.8	0.1
Tribulus suberosus	0.5	0.1
Triodia pungens	0.3	0.5
Triodia vanleeuwenii	0.2	40
Triodia wiseana	0.4	5

PHOTOS

Site Name:	K49
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	12/04/2022
GPS Location:	GDA94 Zone 50 684097.35E 7467772.59N
Orientation:	90/180
Vegetation Type:	8
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	WSW
Soil Type:	Sandy Clay
Soil Colour:	Brown (other)
Rock Outcrop:	No bedrock exposed
CF Abundance:	<2%
CF Sizes:	2-6mm, 6-20mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	> 10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.1	0.1
Acacia aptaneura	4.5	
Afrohybanthus aurantiacus	0.1	0.1
Alternanthera nana	0.1	0.1
Areocleome oxalidea		
Aristida contorta	0.2	0.2
Aristida inaequiglumis	0.3	2
Boerhavia repleta		0.1
Cheilanthes sieberi subsp. *sieberi*	0.2	0.1
Chrysopogon fallax	1	0.5
Cucumis variabilis		0.1
Cymbopogon obtectus	0.3	0.1
Digitaria ammophila	0.3	0.1
Digitaria brownii	0.4	0.1
Eragrostis setifolia	0.2	0.1
Eremophila lanceolata	0.2	0.1
Eremophila latrobei subsp. *filiformis*	0.7	0.1
Eulalia aurea	0.6	1
Euphorbia ferdinandi s. lat. (Potentially undescribed)	0.1	0.1
Evolvulus alsinoides	0.1	0.1
Fimbristylis dichotoma	0.1	0.1
Goodenia nuda	0.2	0.1
Goodenia prostrata	0.1	0.1
Hakea loreus subsp. *loreus*	2.5	0.2
Hibiscus burtonii	0.6	0.1
Maireana planifolia	0.3	0.1
Paspalidium rarum	0.1	0.1
Perotis rara	0.1	0.2
Ptilotus ?*carinatus*	0.4	0.1
Ptilotus obovatus var. *obovatus*	0.3	0.1
Ptilotus schwartzii var. *schwartzii*	0.3	1
Schizachyrium fragile	0.1	0.2
Sclerolaena tetragona	0.1	0.1

Setaria surgens	0.2	0.1
Sida platycalyx	0.2	0.1
Sida sp. L (A.M. Ashby 4202)	0.2	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.8	0.1
Tribulus astrocarpus		0.1
Tribulus suberosus	0.7	0.1

PHOTOS

Site Name:	K50
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	12/04/2022
GPS Location:	GDA94 Zone 50 685084.05E 7466904.52N
Orientation:	90/180
Vegetation Type:	3
Landform Type:	Mid Slope
Slope Class:	Moderately Inclined (10 degrees)
Aspect:	N
Soil Type:	Sandy Clay
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 2-10% bedrock exposed
CF Abundance:	>90%
CF Sizes:	60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adsurgens	2	0.2
Acacia atkinsiana	1.2	0.2
Acacia bivenosa	1.5	0.1
Acacia cowleana	0.9	0.1
Acacia maitlandii	1.5	0.1
Acacia monticola		
Acacia pruinocarpa	0.4	0.1
Acacia tenuissima	0.6	0.1
Amphipogon sericeus	0.4	0.2
Aristida holathera var. *holathera*	0.5	0.1
Aristida inaequiglumis	0.7	0.1
Chrysopogon fallax	0.8	0.1
Corymbia hamersleyana		
Cymbopogon ambiguus		
Eriachne mucronata	0.4	0.1
Eriachne pulchella subsp. *dominii*	0.1	0.1
Eucalyptus leucophloia subsp. *leucophloia*	4	2
Gompholobium oreophilum	0.6	0.1
Goodenia stobbsiana	0.3	0.1
Indigofera monophylla	0.4	0.1
Paraneurachne muelleri	0.4	0.1
Polycarpaea corymbosa var. *corymbosa*	0.1	0.1
Ptilotus calostachyus	0.6	0.2
Ptilotus rotundifolius	0.7	0.3
Schizachyrium fragile	0.1	0.3
Senna glutinosa subsp. *glutinosa*	1.1	0.1
Senna glutinosa subsp. *pruinosa*	1.2	0.1
Seringia exastia (T)	0.4	0.5
Solanum lasiophyllum	0.5	0.1
Triodia pungens	0.5	0.2
Triodia wiseana	0.4	30

PHOTOS

Site Name:	K51
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	13/04/2022
GPS Location:	GDA94 Zone 50 694281.55E 7475976.62N
Orientation:	90/180
Vegetation Type:	6
Landform Type:	Upper Slope
Slope Class:	Very Steep (37 degrees)
Aspect:	SW
Soil Type:	Sandy Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	Ironstone, 10-20% bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	5-10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Cassytha capillaris		0.1
Cheilanthes brownii	0.1	0.1
Clerodendrum floribundum var. *angustifolium*	0.1	0.1
Corymbia hamersleyana	4	1.5
Cymbopogon obtectus	0.3	0.1
Cynanchum pedunculatum		0.1
Dodonaea coriacea	0.8	0.1
Eriachne mucronata	0.3	0.1
Eriachne pulchella subsp. *dominii*	0.1	0.1
Eucalyptus kingsmillii	2	1
Eucalyptus leucophloia subsp. *leucophloia*	4.5	3
Fimbristylis dichotoma	0.1	0.1
Goodenia triodiophila	0.2	0.1
Grevillea wickhamii subsp. ?*hispidula*	3.5	0.1
Paraneurachne muelleri	0.4	0.1
Scaevola browniana subsp. *browniana*	0.3	0.1
Sida sp. Shovelanna Hill (S. van Leeuwen 3842)	0.3	0.1
Solanum cleistogamum	0.2	0.1
Triodia pungens	0.3	0.1
Triodia wiseana	0.3	50

PHOTOS

Site Name:	K52
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	14/04/2022
GPS Location:	GDA94 Zone 50 683343.28E 7473136.73N
Orientation:	90/180
Vegetation Type:	9
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	SW
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	(other) - Many tracks adjacent, new track through plot
Fire:	> 10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.1	0.3
Abutilon otocarpum	0.4	0.1
Acacia adsurgens	2.5	0.2
Acacia atkinsiana	0.6	0.1
Acacia bivenosa	1.3	0.3
Acacia cowleana	0.6	0.1
Acacia dictyophleba	2	0.1
Acacia maitlandii	2	0.3
Acacia monticola	1.5	0.1
Acacia tenuissima	1.3	0.1
Afrohybanthus aurantiacus	0.3	0.1
Alternanthera nana	0.1	0.1
Aristida contorta	0.3	0.3
Aristida holathera var. *holathera*	0.3	0.1
Aristida inaequiglumis	0.5	0.5
Arivela viscosa	0.1	0.1
Boerhavia coccinea		0.1
Chrysopogon fallax	0.9	0.1
Corchorus incanus subsp. *lithophilus*	0.7	0.1
Corymbia hamersleyana	1.2	0.1
Crotalaria medicaginea var. *neglecta*	0.1	0.1
Cymbopogon obtectus	0.3	0.1
Digitaria brownii	0.4	0.1
Duperreya commixta		0.1
Enneapogon lindleyanus	0.6	0.3
Enneapogon polyphyllus	0.2	0.3
Eragrostis eriopoda	0.6	0.1
Eremophila longifolia	1	0.1
Eriachne mucronata	0.6	0.1
Eriachne pulchella subsp. *dominii*	0.1	0.1
Eucalyptus gamophylla	4	15
Eulalia aurea	0.3	0.1
Euphorbia tannensis subsp. *eremophila*	0.4	0.1
Euploca tanythrix	0.2	0.1

Evolvulus alsinoides	0.2	0.1
Gomphrena canescens subsp. *canescens*	0.1	0.1
Goodenia microptera	0.3	0.1
Gossypium australe	0.9	0.1
Gossypium robinsonii	3	0.1
Hakea chordophylla	1.2	0.1
Hibiscus burtonii	0.1	0.1
Hibiscus sturtii var. *platychlamys*	0.4	0.1
Indigofera monophylla	0.4	0.1
Jasminum didymum subsp. *lineare*		0.1
Maireana villosa	0.2	0.1
Melhania oblongifolia	0.4	0.1
Paraneurachne muelleri	0.6	0.3
Peripleura obovata	0.3	0.1
Perotis rara	0.1	0.1
Ptilotus astrolasius	0.3	0.1
Ptilotus calostachyus	0.4	0.1
Ptilotus ?*carinatus*	0.1	0.1
Ptilotus helipteroides	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.5	0.1
Ptilotus rotundifolius	0.6	0.1
Rhynchosia minima		0.1
Scaevola parvifolia subsp. *pilbarae*	0.2	0.1
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *helmsii*	0.9	0.5
Senna artemisioides subsp. *oligophylla*	1	0.5
Senna glutinosa subsp. *glutinosa*	1.3	0.3
Senna notabilis	0.1	0.1
Sida echinocarpa	0.2	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.6	0.1
Sida sp. Supplejack Station (T.S. Henshall 2345)	0.2	0.1
Solanum lasiophyllum	0.7	0.1
Tephrosia densa	0.6	0.1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.3	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.4	0.1
Tribulus suberosus	0.2	0.1
Triodia pungens	0.2	30
Triodia vanleeuwenii	0.4	4

PHOTOS

Site Name:	Q01
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	14/04/2022
GPS Location:	GDA94 Zone 50 684003.56E 7469197.01N
Orientation:	90/180
Vegetation Type:	9
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	SSW
Soil Type:	Sandy Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	Exotic Weeds
Fire:	5-10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.1	0.1
Acacia ancistrocarpa	1.5	0.5
Acacia aptaneura	0.5	0.1
Acacia atkinsiana	1.4	0.1
Acacia bivenosa	2	0.1
Acacia cowleana	0.6	0.1
Acacia dictyophleba	1.3	0.1
Acacia pruinocarpa	5	1
Acacia tenuissima	0.3	0.1
Alternanthera nana	0.1	0.1
Anthobolus leptomerioides	1.3	0.1
Aristida contorta	0.2	0.1
Aristida holathera var. *holathera*	0.5	0.1
**Bidens bipinnata*	0.1	0.1
Corymbia deserticola subsp. *deserticola*	7	1
Cymbopogon obtectus	0.3	0.1
Digitaria ammophila	0.2	0.1
Digitaria brownii	0.4	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.2	0.1
Eragrostis eriopoda	0.4	0.1
Eremophila forrestii subsp. *forrestii*	1.2	0.1
Eremophila fraseri subsp. *fraseri*	0.5	0.1
Eremophila longifolia	2	0.1
Eriachne mucronata	0.3	0.1
Eucalyptus gamophylla	4.5	3
Eulalia aurea	0.4	0.1
Euphorbia australis var. *hispidula*	0.1	0.1
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1
Goodenia microptera	0.4	0.1
Hibiscus burtonii	0.4	0.1
Hibiscus coatesii	0.4	0.1
Hibiscus sturtii var. *platychlamys*	0.3	0.1
Indigofera georgei	0.5	0.1

Maireana villosa	0.1	0.1
Paraneurachne muelleri	0.9	0.1
Perotis rara	0.1	0.1
Pterocaulon sphacelatum	0.3	0.1
Ptilotus exaltatus	0.1	0.1
Ptilotus helipteroides	0.1	0.1
Ptilotus obovatus var. *obovatus*	0.3	0.1
Scaevola parvifolia subsp. *pilbarae*	0.2	0.1
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *oligophylla*	0.7	0.1
Senna glutinosa subsp. *x luerssenii*	1.3	0.3
Senna notabilis	0.1	0.1
Sida sp. L (A.M. Ashby 4202)	0.2	0.1
Solanum lasiophyllum	0.4	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.3	0.1
Triodia melvillei	0.5	2
Triodia pungens	0.3	25
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	Q03
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	13/04/2022
GPS Location:	GDA94 Zone 50 684623E 7469253N
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	2-10%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - VG - Very Good
Disturbance:	Exotic Weeds
Fire:	5-10 Years
Habitat:	Mulga and acacia open woodland over open tussock grassland on gently sloping (drainage) plain with variable rock cover

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.3	0.1
Abutilon lepidum	0.5	0.1
Abutilon otocarpum	0.3	0.1
Acacia aneura	2	1
Acacia aptaneura	2	0.1
Acacia bivenosa	2	0.1
Acacia cowleana	2.6	0.2
Acacia dictyophleba	1.1	0.1
Acacia pruinocarpa	5	1
Acacia tumida var. *pilbarensis*		
Alternanthera nana	0.2	0.1
Aristida holathera var. *holathera*	0.3	0.1
Aristida inaequiglumis	0.6	5
Aristida lazaridis (P2)	0.8	2
Arivela viscosa	0.5	0.1
**Bidens bipinnata*	0.1	0.1
Boerhavia coccinea	0.1	0.1
Boerhavia repleta	0.1	0.1
Bothriochloa ewartiana	0.8	0.1
**Cenchrus ciliaris*	0.8	20.5
**Cenchrus setiger*		
Chrysopogon fallax	0.5	0.1
Cucumis variabilis		0.1
Dactyloctenium radulans	0.05	0.1
Duperreya commixta		0.3
Enneapogon lindleyanus	0.6	0.1
Enneapogon polyphyllus	0.3	0.2
Enneapogon robustissimus	0.5	0.1
Eragrostis eriopoda	0.4	0.1
Eremophila longifolia	4	2
Eulalia aurea	0.7	0.5
Euphorbia australis var. *subtomentosa*	0.2	0.1
Euphorbia biconvexa	0.2	0.1
Euphorbia tannensis subsp. *eremophila*	0.2	0.1

Evolvulus alsinoides var. *villosicalyx*	0.2	0.1
Glycine canescens		0.1
Gomphrena canescens subsp. *canescens*	0.4	0.1
Goodenia stellata	0.1	0.1
Gossypium robinsonii		
Hakea loreus subsp. *loreus*		
Hibiscus burtonii	0.6	0.1
Hibiscus sturtii var. *platychlamys*	0.3	0.1
Ipomoea polymorpha	0.2	0.1
Jasminum didymum subsp. *lineare*		0.1
Maireana villosa	0.3	0.1
**Malvastrum americanum*	0.4	0.2
Melhania oblongifolia	0.4	0.1
Paraneurachne muelleri	0.2	0.1
Pterocaulon sphacelatum	0.7	25
Ptilotus obovatus var. *obovatus*	0.6	0.1
Rhagodia eremaea	1.2	0.1
Salsola australis	0.3	0.1
Santalum lanceolatum	2	0.1
Senna artemisioides subsp. *oligophylla*	0.3	0.1
Sida sp. L (A.M. Ashby 4202)	0.3	0.2
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1	0.1
Solanum lasiophyllum	0.5	0.1
Tephrosia densa	0.9	0.5
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.4	4
**Tribulus terrestris*	0.1	0.1
Trichodesma zeylanicum	1.2	0.1
Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)		0.1

PHOTOS

Site Name:	Q04
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	14/04/2022
GPS Location:	GDA94 Zone 50 684314E 7468803N
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	2-10%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
Vegetation Condition:	Northern Vegetation Condition - VG - Very Good
Disturbance:	Exotic Weeds
Fire:	5-10 Years
Habitat:	Mulga and acacia low open woodland over open tussock grassland on gently sloping (drainage) plain with variable rock cover

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon lepidum	0.5	0.1
Abutilon macrum	0.2	0.1
Abutilon otocarpum	0.4	0.1
Acacia aptaneura	8	0.1
Acacia pruinocarpa	3	2
Alternanthera nana	0.2	0.1
Aristida inaequiglumis	0.5	25
Arivela viscosa	1	0.1
**Bidens bipinnata*	0.4	0.1
Boerhavia coccinea	0.1	0.1
Boerhavia repleta	0.1	0.1
Bothriochloa ewartiana	0.8	0.2
**Cenchrus ciliaris*	0.8	0.7
Chrysopogon fallax	0.7	0.2
Corymbia hamersleyana	10	1
Cucumis variabilis		0.1
Dactyloctenium radulans	0.1	0.1
Digitaria brownii	0.7	0.1
Digitaria ctenantha	0.2	0.1
Duperreya commixta		0.2
Dysphania ?rhadinostachya	0.1	0.1
Enneapogon polyphyllus	0.2	0.1
Eremophila forrestii subsp. *forrestii*	1.1	0.1
Eremophila longifolia	1.1	0.1
Eulalia aurea	0.8	0.1
Euphorbia biconvexa	0.2	0.1
Euphorbia tannensis subsp. *eremophila*	0.2	0.1
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1
Glycine canescens		0.1
Gomphrena canescens subsp. *canescens*	0.1	0.1
Goodenia muelleriana	0.1	0.1
Goodenia stellata	0.15	0.1
Gossypium robinsonii	4	0.3
Hakea loreus subsp. *loreus*	2.5	0.1
Hibiscus burtonii	0.8	0.1

Hibiscus sturtii var. *platychlamys*	0.4	0.1
Iseilema membranaceum	0.1	0.1
Maireana villosa	0.4	0.1
**Malvastrum americanum*	0.6	0.1
Panicum effusum	0.5	0.1
Paraneurachne muelleri	0.5	0.2
Paspalidium rarum	0.2	0.1
Perotis rara	0.1	0.2
Psydrax latifolia	1	0.4
Pterocaulon sphacelatum	0.9	15
Ptilotus astrolasius	0.5	1
Ptilotus ?carinatus	0.05	0.1
Rhynchosia minima		0.1
Salsola australis	0.6	0.1
Senna artemisioides subsp. *helmsii*	1	0.1
Senna artemisioides subsp. *oligophylla*	0.5	0.1
Sida platycalyx	0.3	0.2
Sida sp. L (A.M. Ashby 4202)	0.2	0.2
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1.2	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.6	6
**Tribulus terrestris*	0.1	0.1
Trichodesma zeylanicum	1.5	0.1
Urochloa occidentalis var. *ciliata*	0.2	0.1
Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)		

PHOTOS

Site Name:	Q09
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	13/04/2022
GPS Location:	GDA94 Zone 50 684202E 7468451N
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	2-10%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
Vegetation Condition:	Northern Vegetation Condition - VG - Very Good
Disturbance:	Exotic Weeds
Fire:	>10 Years
Habitat:	Mulga and acacia low open woodland over open spinifex and tussock grassland on flat plain with medium rock cover

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.3	0.1
Acacia aptaneura	6	1
Acacia ayersiana	1.5	0.2
Acacia cowleana	1.1	0.5
Acacia dictyophleba	2.5	1
Acacia pruinocarpa	6	1
Acacia sibirica	1.5	0.2
Acacia tenuissima	1.2	0.1
Alternanthera nana	0.2	0.1
Aristida inaequiglumis	0.4	0.5
Arivela viscosa	0.7	0.1
**Bidens bipinnata*	0.1	0.1
Bothriochloa ewartiana	0.7	0.5
Chrysopogon fallax	0.5	0.1
Corymbia deserticola subsp. *deserticola*	3.2	1
Cucumis variabilis		0.2
Cymbopogon obtectus	1	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.3	0.1
Enneapogon robustissimus	0.5	0.1
Eremophila forrestii subsp. *forrestii*	1.2	0.1
Eremophila latrobei subsp. *filiformis*	1	0.1
Eucalyptus leucophloia subsp. *leucophloia*		
Eulalia aurea	0.7	0.5
Euphorbia drummondii	0.02	0.1
Evolvulus alsinoides	0.2	0.1
Hakea loreus subsp. *loreus*	2.5	0.2
Hibiscus burtonii	0.9	0.1
Hibiscus sturtii var. *platychlamys*	0.5	0.1
Indigofera georgei	0.5	0.1
Maireana villosa	0.5	0.1
Panicum effusum	0.5	1
Paraneurachne muelleri	0.5	0.5
Peripleura obovata	0.4	0.1
Perotis rara	0.1	0.1

Psydrax latifolia	1.2	0.1
Pterocaulon sphacelatum	1	10
Ptilotus ?*carinatus*	0.01	0.1
Ptilotus ?*exaltatus*	0.05	0.1
Ptilotus helipteroides	0.2	0.1
Ptilotus obovatus var. *obovatus*	0.6	0.1
Ptilotus rotundifolius	0.9	0.1
Rhagodia sp. Hamersley (M. Trudgen 17794) (P3)	1.1	0.1
Scaevola parvifolia subsp. *pilbarae*	0.3	0.2
Senna artemisioides subsp. *helmsii*	0.5	0.1
Senna artemisioides subsp. *oligophylla*	0.4	0.1
Senna artemisioides subsp. *x artemisioides*	1.1	0.2
Sida platycalyx	0.2	0.1
Sida sp. L (A.M. Ashby 4202)	0.2	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.9	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.6	1
Trichodesma zeylanicum	1.2	0.1
Triodia melvillei	0.5	1
Triodia pungens	0.5	6
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	Q14
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	14/04/2022
GPS Location:	GDA94 Zone 50 685016E 7468258N
Orientation:	90/180
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	20-50%
CF Sizes:	2-6mm, 6-20mm, 20-60mm, 60-200mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - VG - Very Good
Disturbance:	Exotic Weeds, (other) - New track through one side of quadrat, Limited Clearing
Fire:	5-10 Years
Habitat:	Mulga and acacia low open woodland over tussock grassland on flat plain with medium rock cover
Comments:	Previous stone records - quartzite and shale

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.3	0.1
Acacia adsurgens	0.5	0.1
Acacia aptaneura	6	2.3
Acacia ayersiana	8	2
Acacia cowleana	0.2	0.1
Acacia dictyophleba	3	1
Acacia pruinocarpa	4	3
Acacia tenuissima	1.1	0.1
Anthobolus leptomerioides	1	0.2
Aristida holathera var. *holathera*	0.4	0.2
Aristida inaequiglumis	0.5	0.1
Aristida obscura	0.3	0.2
Arivela viscosa	0.1	0.1
**Bidens bipinnata*	0.1	0.1
Boerhavia coccinea	0.1	0.1
Chrysopogon fallax	0.6	0.1
Corchorus ?lasiocarpus subsp. *parvus*	0.1	0.1
Dactyloctenium radulans	0.1	0.1
Dendrophyllanthus erwinii		
Digitaria brownii	0.7	0.5
Duperreya commixta		0.1
Dysphania ?rhadinostachya	0.1	0.1
Enneapogon polyphyllus	0.3	0.2
Enneapogon robustissimus	0.3	0.1
Eremophila longifolia	3.5	0.3
Eriachne pulchella subsp. *dominii*	0.2	0.1
Eulalia aurea	0.9	0.1
Euphorbia australis var. *hispidula*	0.1	0.1
Evolvulus alsinoides var. *villosicalyx*	0.2	0.1
Hakea loreus subsp. *loreus*	2.1	0.1
Hibiscus burtonii	0.5	0.1
Hibiscus sturtii var. *platychlamys*	0.5	0.1

Maireana villosa	0.3	0.2
Panicum effusum	0.5	0.1
Paraneurachne muelleri	0.5	0.2
Paspalidium rarum	0.2	0.1
Perotis rara	0.1	0.1
Polygala glaucifolia	0.1	0.1
Psydrax latifolia	1	0.1
Psydrax rigidula	1	0.1
Ptilotus ?exaltatus	0.2	0.1
Ptilotus helipteroides	0.3	0.1
Ptilotus obovatus var. *obovatus*	0.4	0.2
Rhagodia eremaea	1.2	0.1
Rhagodia sp. Hamersley (M. Trudgen 17794) (P3)	1.2	0.2
Scaevola parvifolia subsp. *pilbarae*	0.3	0.1
Senna artemisioides subsp. *helmsii*	0.3	0.1
Senna notabilis	0.1	0.1
Senna pleurocarpa var. *angustifolia*	0.5	0.2
Sida sp. L (A.M. Ashby 4202)	0.2	0.2
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1.1	0.1
Solanum ferocissimum	0.02	0.1
Solanum lasiophyllum	0.5	0.1
Teucrium teucriiflorum	0.5	0.1
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	0.7	1
Themeda triandra	0.5	0.1
Triodia melvillei	1	12
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	Q19
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	14/04/2022
GPS Location:	GDA94 Zone 50 685094.78E 7467730.05N
Orientation:	90/180
Vegetation Type:	8
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	N
Soil Type:	Sandy Clay
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	0%
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	None
Fire:	>10 Years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.3	0.1
Acacia aptaneura	10	8
Acacia cowleana	0.6	0.1
Alternanthera nana	0.2	0.1
Anthobolus leptomerioides	0.9	0.1
Aristida contorta	0.2	0.5
Aristida inaequiglumis	0.4	35
Aristida jerichoensis var. *subspinulifera* (P3)	0.3	0.1
Boerhavia coccinea	0.1	0.1
Chrysopogon fallax	0.5	0.5
Cucumis variabilis		0.1
Digitaria ammophila	0.4	0.3
Enneapogon lindleyanus	0.3	0.1
Enneapogon polyphyllus	0.3	0.1
Eremophila longifolia	1.2	0.5
Eulalia aurea	0.6	2
Hakea loreus subsp. *loreus*	3	0.5
Indigofera georgei	0.3	0.1
Lysiana murrayi		0.1
Maireana villosa	0.6	0.1
Perotis rara	0.1	0.1
Pluchea tetranthera	0.2	0.1
Pterocaulon sphacelatum	0.5	0.2
Ptilotus obovatus var. *obovatus*	0.6	0.3
Sida platycalyx	0.2	0.1
Sida sp. L (A.M. Ashby 4202)	0.4	0.3
Solanum lasiophyllum	0.2	0.1
Stemodia grossa	0.3	0.1
Themeda triandra	0.5	30
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	Q24
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	13/04/2022
GPS Location:	GDA94 Zone 50 685612.7728E 7467169.265N
Orientation:	90/180
Vegetation Type:	8
Landform Type:	Plain
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	N
Soil Type:	Sandy Clay
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	0%
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	(other) - track adjacent
Fire:	5-10 years

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.2	0.1
Acacia adsurgens	0.7	0.1
Acacia aptaneura	3.5	0.1
Acacia cowleana	0.8	0.1
Acacia dictyophleba	0.6	0.1
Acacia pachyacra	3.5	1
Alternanthera nana	0.4	0.1
Aristida inaequiglumis	0.5	0.1
Aristida lazaridis (P2)	0.7	0.1
Arivela viscosa	0.1	0.1
Capparis lasiantha	0.6	0.1
Chrysopogon fallax	0.3	0.3
Cucumis variabilis		0.2
Digitaria ammophila	0.3	0.3
Digitaria brownii	1	0.1
Duperreya commixta		0.1
Enneapogon lindleyanus	0.6	0.1
Eremophila longifolia	1.1	0.1
Eucalyptus xerothermica	4	0.5
Eulalia aurea	0.7	2
Euphorbia biconvexa	0.1	0.1
Grevillea berryana	1.2	0.1
Hakea loreus subsp. *loreus*	0.4	0.1
Indigofera georgei	0.3	0.1
Iseilema membranaceum	0.2	0.1
Panicum effusum	0.3	0.1
Psydrax latifolia	0.5	0.1
Pterocaulon sphacelatum	1.1	0.2
Ptilotus obovatus var. *obovatus*	0.5	0.3
Sida sp. L (A.M. Ashby 4202)	0.3	0.1
Solanum lasiophyllum	0.1	0.1
Teucrium teucriiflorum	0.7	0.1
Themeda triandra	0.6	80
Triodia wiseana	0.5	0.1

PHOTOS

Site Name:	Q26
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	13/04/2022
GPS Location:	GDA94 Zone 50 684002E 7468043N
Vegetation Type:	7
Landform Type:	Plain
Slope Class:	Level (0 degrees)
Soil Type:	Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	50-90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone, Previous quadrat had Quartz (other)
Disturbance:	(other) - Litter. Located next to GNH
Fire:	>10 Years
Habitat:	Quadrat rescore. Low mulga woodland over sparse understorey on stony plain

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri subsp. *fraseri*	0.05	0.1
Acacia aneura	1.2	2
Acacia aptaneura	4	20
Acacia dictyophleba	0.7	0.1
Acacia pruinocarpa	6	3
Acacia tenuissima	1.5	5
Anthobolus leptomerioides	1.2	0.1
Aristida obscura	0.1	0.1
**Bidens bipinnata*	0.1	0.1
Boerhavia coccinea	0.05	0.1
Cheilanthes sieberi subsp. *sieberi*	0.2	0.1
Chrysopogon fallax	0.4	0.1
Commelina ensifolia	0.3	0.1
Digitaria brownii	0.4	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.2	0.1
Enneapogon robustissimus	0.3	0.1
Eragrostis eriopoda	0.1	0.1
Eremophila latrobei subsp. *filiformis*	0.9	0.1
Euphorbia drummondii	0.05	0.1
Evolvulus alsinoides var. *villosicalyx*	0.2	0.1
Gomphrena canescens subsp. *canescens*	0.3	0.1
Hibiscus burtonii	0.3	0.2
Iseilema membranaceum	0.2	0.1
Maireana villosa	0.4	0.1
Panicum effusum	0.2	0.1
Paraneurachne muelleri	0.2	0.1
Paspalidium clementii	0.2	0.1
Paspalidium rarum	0.1	0.1
Perotis rara	0.1	0.1
Psydrax latifolia	2.5	0.1
Psydrax suaveolens	2.5	0.1
Ptilotus ?*carinatus*	0.01	0.1
Ptilotus obovatus var. *obovatus*	0.2	0.1
Sida sp. L (A.M. Ashby 4202)	0.2	0.1
Solanum ferocissimum	0.2	0.1

Solanum lasiophyllum	0.4	0.1
Triodia melvillei	0.4	20
Vincetoxicum lineare		0.1

PHOTOS

Site Name:	R01
Site Type:	QUADRAT
Dimensions:	50m x 50m
Survey Date:	13/04/2022
GPS Location:	GDA94 Zone 50 685435.15E 7466835.09N
Orientation:	90/180
Vegetation Type:	3
Landform Type:	Lower Slope
Slope Class:	Very Gently Inclined (1 degree)
Aspect:	NE
Soil Type:	Sandy Clay Loam
Soil Colour:	Red-Brown
Rock Outcrop:	No bedrock exposed
CF Abundance:	>90%
CF Sizes:	2-6mm, 6-20mm, 20-60mm
CF Types:	Ironstone
Vegetation Condition:	Northern Vegetation Condition - E - Excellent
Disturbance:	(other) - Vehicle track through plot
Fire:	>10 Years
Habitat:	Rapallo rescore

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia adsurgens	2.5	2
Acacia atkinsiana	2.5	0.5
Acacia dictyophleba	3	0.1
Acacia marramamba		
Acacia minyura	1.5	0.1
Acacia pyrifolia var. *pyrifolia*	1.7	0.1
Acacia rhodophloia x sibirica	1.3	0.2
Acacia tenuissima	1.5	0.1
Amphipogon sericeus	0.2	0.1
Aristida holathera var. *holathera*	0.4	0.1
Aristida inaequiglumis	0.3	0.1
Corymbia deserticola subsp. *deserticola*		
Corymbia hamersleyana		
Cymbopogon obtectus	0.2	0.1
Digitaria brownii	0.4	0.1
Eucalyptus gamophylla		
Eulalia aurea	0.7	0.1
Evolvulus alsinoides	0.2	0.1
Gompholobium oreophilum	0.9	0.1
Goodenia stobbsiana	0.1	0.1
Hakea chordophylla	3.5	0.5
Indigofera monophylla	0.3	0.1
Paraneurachne muelleri	0.3	0.1
Ptilotus calostachyus	0.9	0.1
Ptilotus obovatus var. *obovatus*	0.5	0.1
Scaevola parvifolia subsp. *pilbarae*	0.4	0.1
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *oligophylla*	0.8	0.1
Senna glutinosa subsp. *pruinosa*	1.2	0.1
Senna notabilis	0.1	0.1
Senna pleurocarpa var. *pleurocarpa*	0.6	0.1
Seringia exastia (T)	0.4	0.2
Sida arenicola	0.6	0.1

Triodia melvillei	0.4	0.1
Triodia pungens	0.5	1
Triodia wiseana	0.6	45

PHOTOS

Data Source: Rapallo (2021b)

Site Name: Q01RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 684008E 7469197N

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.3	0.1
Acacia ancistrocarpa	1.5	0.1
Acacia aptaneura	0.5	0.1
Acacia atkinsiana	1.5	0.1
Acacia dictyophleba	1.5	0.1
Acacia pruinocarpa	2	1
Acacia tenuissima	0.5	0.1
Anthobolus leptomerioides	0.8	0.1
Aristida contorta	0.3	0.1
Aristida holathera var. *holathera*	0.4	0.1
Aristida inaequiglumis	0.5	0.1
**Cenchrus ciliaris*	0.3	0.1
Corymbia deserticola subsp. *deserticola*	7	0.1
Cymbopogon ambiguus	0.4	0.1
Cymbopogon obtectus	0.4	0.1
Duperreya commixta		0.1
Enneapogon caerulescens	0.2	0.1
Enneapogon polyphyllus	0.2	0.1
Eragrostis eriopoda	0.4	0.1
Eremophila forrestii subsp. *forrestii*	1.2	0.1
Eremophila fraseri subsp. *fraseri*	0.5	0.1
Eriachne pulchella subsp. *pulchella*	0.2	0.1
Eucalyptus gamophylla	4.5	1
Euphorbia australis var. *hispidula*	0.1	0.1
Euploca inexplicita	0.2	0.1
Evolvulus alsinoides var. *villosicalyx*	0.2	0.1
Goodenia microptera	0.1	0.1
Hibiscus burtonii	0.3	0.1
Hibiscus coatesii	0.3	0.1
Indigofera georgei	0.4	0.1
Maireana villosa	0.2	0.1
Panicum decompositum	0.5	0.1
Paraneurachne muelleri	0.2	0.1
Polycarpaea corymbosa	0.1	0.1
Portulaca oleracea	0.1	0.1
Ptilotus calostachyus	0.8	0.1
Ptilotus exaltatus	0.5	0.1
Ptilotus helipteroides	0.2	0.1
Ptilotus obovatus	0.4	0.1
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *oligophylla*	0.3	0.1
Senna glutinosa subsp. *glutinosa*	0.5	0.1
Sida ?L (A.M. Ashby 4202)	0.2	0.1
Solanum lasiophyllum	0.5	0.1
Tribulus macrocarpus	0.1	0.1
Trichodesma zeylanicum var. *zeylanicum*	0.4	0.1
Triodia melvillei	0.5	2
Triodia pungens	0.4	1

Data Source: Rapallo (2021b)

Site Name: Q02RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 684249E 7469197N
Vegetation Type: 7

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri	0.3	0.1
Abutilon lepidum	0.2	0.1
Abutilon otocarpum	0.3	0.1
Acacia aptaneura	8	2
Acacia aptaneura	2.5	0.1
Acacia pruinocarpa	4	1
Aristida contorta	0.3	3
Aristida inaequiglumis	0.4	4
Arivela viscosa	0.8	0.1
Boerhavia coccinea	0.1	0.1
Chrysopogon fallax	0.6	0.1
Cucumis variabilis		0.1
Cymbopogon ambiguus	0.8	0.1
Dactyloctenium radulans	0.1	0.1
Digitaria ctenantha	0.2	0.1
Duperreya commixta		0.1
Dysphania rhadinostachya subsp. *inflata*	0.1	0.1
Enneapogon caerulescens	0.2	0.1
Enneapogon polyphyllus	0.2	0.1
Enneapogon robustissimus	0.2	0.1
Eremophila forrestii subsp. *forrestii*	2.2	1
Eremophila latrobei subsp. *filiformis*	1.5	1
Eremophila longifolia	2.5	3
Eriachne mucronata	0.3	0.1
Eulalia aurea	0.1	0.1
Euphorbia coghlanii	0.1	0.1
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1
Gomphrena canescens subsp. *canescens*	0.2	0.1
Hibiscus burtonii	0.6	0.1
Maireana villosa	0.1	0.1
Perotis rara	0.1	0.1
Pterocaulon sphacelatum	1	1
Ptilotus exaltatus	0.2	0.1
Ptilotus helipteroides	0.1	0.1
Ptilotus obovatus	1	1
Rhynchosia minima	0.3	0.1
Salsola australis	0.3	0.1
Santalum lanceolatum	2	0.1
Sclerolaena cornishiana	0.2	0.1
Senna artemisioides subsp. *helmsii*	0.6	0.1
Senna artemisioides subsp. *helmsii*	0.6	0.1
Sida ?L (A.M. Ashby 4202)	0.1	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.9	0.1
Themeda triandra	0.2	3
Tragus australianus	0.1	0.1
Triodia pungens	0.4	0.1

Data Source: Rapallo (2021b)

Site Name: Q03RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 684598E 7469275N

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon macrum	0.3	0.1
Abutilon otocarpum	0.3	0.1
Acacia aneura	2	1
Acacia aptaneura	2	0.1
Acacia bivenosa	2	0.1
Acacia pruinocarpa	5	1
Alternanthera nana	0.2	0.1
Androcalva luteiflora	1.3	0.1
Aristida contorta	0.3	0.1
Aristida inaequiglumis	0.6	5
Aristida lazaridis (P2)	0.8	0.1
Arivela viscosa	0.5	0.1
Boerhavia coccinea	0.1	0.1
Cajanus marmoratus	0.1	0.1
**Cenchrus setiger*	0.5	0.1
Chrysopogon fallax	0.5	0.1
Convolvulus clementii		0.1
Cucumis variabilis		0.1
Dactyloctenium radulans	0.1	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.3	0.1
Enneapogon robustissimus	0.5	0.1
Eremophila longifolia	4	2
Euphorbia australis var. *subtomentosa*	0.1	0.1
Euphorbia coghlanii	0.2	0.1
Euphorbia tannensis subsp. *eremophila*	0.2	0.1
Evolvulus alsinoides var. *villosicalyx*	0.2	0.1
Glycine sp.	0.4	0.1
Goodenia stellata	0.1	0.1
Hibiscus sturtii var. *platychlamys*	0.3	0.1
Indigofera georgei	0.5	0.1
Maireana villosa	0.3	0.1
**Malvastrum americanum*	0.4	0.1
Melhania oblongifolia	0.4	0.1
Panicum decompositum	0.5	0.1
Paraneurachne muelleri	0.2	0.1
Perotis rara	0.1	0.1
Pterocaulon sphacelatum	0.7	20
Ptilotus exaltatus	0.4	0.1
Ptilotus helipteroides	0.4	0.1
Ptilotus obovatus	0.6	0.1
Rhynchosia minima		0.1
Salsola australis	1.1	0.1
Santalum lanceolatum	2	0.1
Senna artemisioides subsp. *oligophylla*	0.3	0.1
Sida ?L (A.M. Ashby 4202)	0.3	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1	0.1
Solanum lasiophyllum	0.5	0.1

Themeda triandra	0.4	4
Tribulus macrocarpus	0.1	0.1
Trichodesma zeylanicum var. *zeylanicum*	1.2	0.1

Data Source: Rapallo (2021b)

Site Name: Q04RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 684314E 7468803N

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri	0.5	0.1
Abutilon otocarpum	0.4	0.1
Acacia aptaneura	8	0.1
Acacia pruinocarpa	3	2
Alternanthera nana	0.2	0.1
Amaranthus cuspidifolius	0.2	0.1
Aristida contorta	0.3	5
Aristida inaequiglumis	0.5	60
Arivela viscosa	1	0.1
**Bidens bipinnata*	0.4	0.1
Chrysopogon fallax	0.7	0.1
Cucumis variabilis		0.1
Dactyloctenium radulans	0.1	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.3	0.1
Eragrostis eriopoda	0.3	0.1
Glycine sp.		0.1
Gossypium robinsonii	4	0.1
Maireana villosa	0.4	0.1
**Malvastrum americanum*	0.6	0.1
Panicum decompositum	0.5	0.1
Paraneurachne muelleri	0.5	0.1
Perotis rara	0.1	0.1
Psydrax latifolia	1	0.1
Pterocaulon sphacelatum	0.9	15
Ptilotus exaltatus	0.8	0.1
Ptilotus helipteroides	0.1	0.1
Rhynchosia minima		0.1
Salsola australis	0.5	0.1
Santalum lanceolatum	2	0.1
Senna artemisioides subsp. *helmsii*	1	0.1
Sida ?L (A.M. Ashby 4202)	0.1	0.1
Sida platycalyx	0.3	0.1
Themeda triandra	0.6	0.1
Tribulus macrocarpus	0.1	0.1
Trichodesma zeylanicum var. *zeylanicum*	1.5	0.1

Data Source: Rapallo (2021b)

Site Name: Q05RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 684684E 7468922N
Vegetation Type: 7

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon macrum	0.2	0.1
Abutilon otocarpum	0.3	0.1
Acacia aptaneura	9	20
Alternanthera nana	0.2	0.1
Aristida contorta	0.3	8
Aristida inaequiglumis	0.6	5
Arivela viscosa	1	0.1
**Bidens bipinnata*	0.2	2
Boerhavia coccinea	0.1	0.1
**Cenchrus ciliaris*	1	40
Chrysopogon fallax	0.7	0.1
Cucumis variabilis		0.1
Digitaria ammophila	0.2	0.1
Digitaria ctenantha	0.1	0.1
Duperreya commixta		0.1
Dysphania rhadinostachya subsp. *inflata*	0.1	0.1
Enneapogon caerulescens	0.2	0.1
Enneapogon polyphyllus	0.3	0.1
Eragrostis eriopoda	0.2	0.1
Eremophila latrobei subsp. *filiformis*	1.5	0.1
Eriachne pulchella subsp. *pulchella*	0.1	0.1
Euphorbia australis var. *subtomentosa*	0.1	0.1
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1
Glycine sp.		0.1
Goodenia prostrata	0.01	0.1
Gossypium robinsonii		0.1
Maireana villosa	0.2	0.1
**Malvastrum americanum*	0.3	2
Melhania oblongifolia	0.3	0.1
Paraneurachne muelleri	0.1	0.1
Perotis rara	0.1	0.1
Polycarpaea corymbosa	0.1	0.1
Portulaca oleracea	0.1	0.1
Pterocaulon sphacelatum	0.5	5
Ptilotus exaltatus	0.7	0.1
Ptilotus helipteroides	0.2	0.1
Ptilotus obovatus	0.5	0.1
Rhagodia eremaea	1	0.1
Rhagodia sp. Hamersley (M. Trudgen 17794) (P3)	2	0.1
Rhynchosia minima	0.3	0.1
Salsola australis	1	0.1
Schizachyrium fragile	0.1	0.1
Senna artemisioides subsp. *helmsii*	0.6	0.1
Senna artemisioides subsp. *oligophylla*	0.4	0.1
Sida ?L (A.M. Ashby 4202)	0.2	0.1
Solanum lasiophyllum	0.3	0.1
Sporobolus australasicus	0.15	0.1

Stemodia grossa	0.4	0.1
Themeda triandra	0.9	2
Tragus australianus	0.1	0.1
Tribulus macrocarpus	0.1	0.1
Trichodesma zeylanicum var. *zeylanicum*	1.5	0.1
Triodia pungens	0.3	0.1

Data Source: Rapallo (2021b)

Site Name: Q06RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 684562E 7468748N
Vegetation Type: 7

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.2	0.1
Acacia aptaneura	4	1
Acacia pruinocarpa	9	1
Aristida contorta	0.2	6
Aristida inaequiglumis	0.5	0.1
Boerhavia coccinea	0.1	0.1
Cucumis variabilis		0.1
Cymbopogon ambiguus	1	0.1
Duperreya commixta	1.2	0.1
Dysphania rhadinostachya subsp. *inflata*	0.1	0.1
Enneapogon caerulescens	0.2	0.1
Enneapogon polyphyllus	0.3	0.1
Enneapogon robustissimus	0.2	0.1
Eremophila forrestii subsp. *forrestii*	1.2	0.1
Goodenia prostrata	0.01	0.1
Hakea loreus subsp. *loreus*	1.5	0.1
Hibiscus burtonii	0.3	0.1
Maireana villosa	0.5	0.1
Paraneurachne muelleri	0.4	0.1
Perotis rara	0.1	0.1
Portulaca oleracea	0.1	0.1
Pterocaulon sphacelatum	1	0.1
Ptilotus exaltatus	1	0.1
Ptilotus helipteroides	0.2	0.1
Ptilotus obovatus	0.9	0.1
Rhagodia eremaea	0.6	0.1
Salsola australis	1	0.1
Senna artemisioides subsp. *helmsii*	0.5	0.1
Sida ?echinocarpa	0.5	0.1
Solanum lasiophyllum	1	0.1
Stemodia grossa	0.2	0.1
Themeda triandra	0.7	0.1
Tribulus macrocarpus	0.1	0.1
Triodia pungens	0.6	0.1

Data Source: Rapallo (2021b)

Site Name: Q07RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 684837E 7468759N
Vegetation Type: 7

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.4	0.1
Acacia aptaneura	4	2
Acacia dictyophleba	1.2	0.1
Acacia elachantha	4	0.1
Acacia pruinocarpa	5	4
Acacia sp.	2	0.1
Alternanthera nana	0.2	0.1
Aristida contorta	0.1	0.1
Aristida inaequiglumis	0.8	10
Arivela viscosa	0.4	0.1
Boerhavia schomburgkiana	0.2	0.1
Capparis lasiantha	1	0.1
Chrysopogon fallax	0.3	0.1
Cucumis variabilis		0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.2	0.1
Enneapogon robustissimus	0.5	0.1
Eremophila forrestii subsp. *forrestii*	2	0.1
Eriachne pulchella subsp. *pulchella*	0.1	0.1
Eucalyptus gamophylla	3	1
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1
Goodenia microptera	0.1	0.1
Hakea chordophylla	2	0.1
Hibiscus burtonii	0.3	0.1
Hibiscus coatesii	0.3	0.1
Hibiscus sturtii var. *platychlamys*	0.2	0.1
Maireana villosa	0.2	0.1
Panicum decompositum	0.5	0.1
Paraneurachne muelleri	0.2	0.1
Perotis rara	0.1	0.1
Polycarpaea corymbosa	0.1	0.1
Portulaca oleracea	0.1	0.1
Psydrax latifolia	1.2	0.1
Pterocaulon sphacelatum	0.7	0.1
Ptilotus exaltatus	0.2	0.1
Ptilotus helipteroides	0.2	0.1
Ptilotus obovatus	1	1
Rhagodia sp. Hamersley (M. Trudgen 17794) (P3)	1.1	0.1
Salsola australis	0.1	0.1
Santalum lanceolatum	3	0.1
Senna artemisioides subsp. *helmsii*	0.5	0.1
Sida ?L (A.M. Ashby 4202)	0.1	0.1
Sida platycalyx	0.3	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.8	0.1
Themeda triandra	0.8	10
Trichodesma zeylanicum var. *zeylanicum*	1.1	0.1
Triodia pungens	0.5	5

Data Source: Rapallo (2021b)

Site Name: Q09RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 684181E 7468474N

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.3	0.1
Acacia acradenia	1.5	0.1
Acacia aptaneura	8	0.1
Acacia bivenosa	2	0.1
Acacia dictyophleba	2.5	0.1
Acacia elachantha	1.1	0.1
Acacia pruinocarpa	6	0.1
Acacia tenuissima	1.2	0.1
Alternanthera nana	0.2	0.1
Aristida contorta	0.3	0.1
Aristida holathera var. *holathera*	0.4	0.1
Aristida inaequiglumis	0.4	3
Arivela viscosa	0.7	0.1
Boerhavia coccinea	0.2	0.1
Chrysopogon fallax	0.5	0.1
Corymbia deserticola subsp. *deserticola*	3.2	0.1
Cucumis variabilis		0.1
Cymbopogon obtectus	1	0.1
Dendrophyllanthus erwinii	0.1	0.1
Duperreya commixta		0.1
Dysphania kalpari	0.1	0.1
Enneapogon polyphyllus	0.4	0.1
Enneapogon robustissimus	0.5	0.1
Eremophila forrestii subsp. *forrestii*	1.2	0.1
Eremophila latrobei subsp. *filiformis*	1	0.1
Eremophila longifolia	1.2	0.1
Eulalia aurea	0.7	0.1
Evolvulus alsinoides var. *villosicalyx*	0.2	0.1
Goodenia microptera	0.3	0.1
Hibiscus sturtii var. *platychlamys*	0.5	0.1
Maireana villosa	0.5	0.1
**Malvastrum americanum*	0.8	0.1
Panicum decompositum	0.5	0.1
Paraneurachne muelleri	0.5	0.1
Perotis rara	0.1	0.1
Portulaca oleracea	0.1	0.1
Pterocaulon sphacelatum	1	0.1
Ptilotus exaltatus	0.6	0.1
Ptilotus helipteroides	0.2	0.1
Ptilotus obovatus	0.6	0.1
Santalum lanceolatum	2	0.1
Senna notabilis	0.4	0.1
Sida ?L (A.M. Ashby 4202)	0.2	0.1
**Stylosanthes hamata*	0.3	0.1
Themeda triandra	0.6	2
Trichodesma zeylanicum var. *zeylanicum*	1.2	0.1
Triodia melvillei	0.5	0.1
Triodia pungens	0.5	4

Data Source: Rapallo (2021b)

Site Name: Q10RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 684659E 7468432N
Vegetation Type: 7

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.2	0.1
Acacia aptaneura	5	2
Acacia dictyophleba	2.5	0.1
Acacia pruinocarpa	6	4
Aristida contorta	0.3	0.1
Aristida holathera var. *holathera*	0.3	0.1
Aristida inaequiglumis	0.4	2
Arivela viscosa	0.8	0.1
**Cenchrus ciliaris*	0.6	0.1
Chrysopogon fallax	0.5	0.1
Corymbia deserticola subsp. *deserticola*	4	0.1
Cucumis variabilis		0.1
Duperreya commixta		0.1
Enneapogon caerulescens	0.2	0.1
Enneapogon polyphyllus	0.3	0.1
Eremophila forrestii subsp. *forrestii*	2	0.1
Eremophila latrobei subsp. *filiformis*	0.5	0.1
Eremophila longifolia	2.5	0.1
Eriachne pulchella subsp. *pulchella*	0.1	0.1
Eulalia aurea	1	0.1
Euphorbia australis var. *subtomentosa*	0.2	0.1
Evolvulus alsinoides var. *villosicalyx*	0.3	0.1
Hibiscus sturtii var. *platychlamys*	0.2	0.1
Maireana villosa	0.4	0.1
Panicum decompositum	0.5	0.1
Paraneurachne muelleri	0.4	0.1
Perotis rara	0.1	0.1
Polycarpaea corymbosa	0.2	0.1
Pterocaulon sphacelatum	0.8	0.1
Ptilotus exaltatus	0.3	0.1
Ptilotus obovatus	0.4	0.1
Salsola australis	0.3	0.1
Schizachyrium fragile	0.2	0.1
Sclerolaena cornishiana	0.1	0.1
Senna artemisioides subsp. *oligophylla*	0.1	0.1
Sida ?L (A.M. Ashby 4202)	0.4	0.1
Sida platycalyx	0.3	0.1
Themeda triandra	0.5	2
Tribulus macrocarpus	0.2	0.1
Triodia pungens	0.5	40

Data Source: Rapallo (2021b)

Site Name: Q11RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 684096E 7468226N
Vegetation Type: 7

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.6	0.1
Acacia aptaneura	7	5
Acacia dictyophleba	2	0.1
Acacia elachantha	2.5	0.1
Acacia pachyacra	1.2	0.1
Acacia pruinocarpa	2.5	0.1
Aristida contorta	0.4	5
Aristida holathera var. *holathera*	0.4	0.1
Arivela viscosa	0.2	0.1
Cheilanthes sieberi subsp. *sieberi*	0.2	0.1
Chrysopogon fallax	0.5	0.1
Cucumis variabilis		0.1
Duperreya commixta		0.1
Dysphania kalpari	0.1	0.1
Enneapogon polyphyllus	0.2	0.1
Enneapogon robustissimus	0.6	0.1
Eulalia aurea	0.6	0.1
Euphorbia biconvexa	0.2	0.1
Euphorbia aff. *ferdinandi*	0.1	0.1
Evolvulus alsinoides var. *villosicalyx*	0.3	0.1
Goodenia microptera	0.2	0.1
Goodenia stellata	0.1	0.1
Hibiscus burtonii	0.5	0.1
Hibiscus sturtii var. *platychlamys*	0.5	0.1
Indigofera georgei	0.8	0.1
Maireana villosa	0.3	0.1
Panicum decompositum	0.3	0.1
Paraneurachne muelleri	0.4	1
Paspalidium rarum	0.2	0.1
Perotis rara	0.1	0.1
Psydrax latifolia	1.8	0.1
Pterocaulon sphacelatum	1.2	0.1
Ptilotus calostachyus	0.8	0.1
Ptilotus exaltatus	0.4	0.1
Ptilotus helipteroides	0.2	0.1
Ptilotus obovatus	0.5	0.1
Scaevola parvifolia subsp. *parvifolia*	0.4	0.1
Sclerolaena cornishiana	0.1	0.1
Senna artemisioides subsp. *oligophylla*	0.3	0.1
Sida ?L (A.M. Ashby 4202)	0.2	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1.2	0.1
Themeda triandra	0.8	2
Triodia melvillei	0.7	10

Data Source: Rapallo (2021b)

Site Name: Q12RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 684574E 7468353N
Vegetation Type: 7

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon macrum	0.5	0.1
Abutilon otocarpum	0.6	0.1
Acacia aptaneura	3	0.1
Acacia dictyophleba	1.5	0.1
Acacia pruinocarpa	7	5
Alternanthera nana	0.4	0.1
Anthobolus leptomerioides	1	0.1
Aristida contorta	0.3	1
Aristida holathera var. *holathera*	0.5	0.1
Aristida inaequiglumis	0.6	0.1
Aristida lazaridis (P2)	0.3	0.1
Arivela viscosa	1	0.1
Boerhavia coccinea	0.1	0.1
Cheilanthes sieberi subsp. *sieberi*	0.2	0.1
Chrysocephalum apiculatum subsp. *pilbarense*	0.25	0.1
Chrysopogon fallax	0.7	0.1
Cucumis variabilis		0.1
Duperreya commixta		0.1
Dysphania kalpari	0.1	0.1
Enneapogon lindleyanus	0.3	0.1
Enneapogon polyphyllus	0.4	0.1
Enneapogon robustissimus	0.5	0.1
Eremophila longifolia	6	0.1
Eulalia aurea	0.5	10
Euphorbia australis var. *subtomentosa*	0.1	0.1
Evolvulus alsinoides var. *villosicalyx*	0.2	0.1
Glycine sp.		0.1
Hakea loreus subsp. *loreus*	5	0.1
Hibiscus burtonii	0.5	0.1
Maireana villosa	0.4	0.1
Panicum decompositum	0.5	0.1
Paraneurachne muelleri	0.5	0.1
Peripleura virgata	0.3	0.1
Perotis rara	0.1	0.1
Pterocaulon sphacelatum	0.5	5
Ptilotus calostachyus	0.8	0.1
Ptilotus exaltatus	0.7	0.1
Ptilotus helipteroides	0.2	0.1
Ptilotus obovatus	1	0.1
Salsola australis	1	0.1
Senna notabilis	0.3	0.1
Sida ?L (A.M. Ashby 4202)	0.2	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.6	0.1
Themeda triandra	0.5	20
Triodia pungens	0.5	5

Data Source: Rapallo (2021b)

Site Name: Q13RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 684555E 7467944N
Vegetation Type: 7

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.2	0.1
Acacia aptaneura	4	2
Acacia dictyophleba	1.5	0.1
Acacia elachantha	3	0.1
Acacia pachyacra	2	0.1
Acacia pruinocarpa	2.2	1
Alternanthera nana	0.3	0.1
Aristida contorta	0.3	1
Aristida inaequiglumis	0.5	10
Aristida lazaridis (P2)	0.5	0.1
Arivela viscosa	0.6	0.1
**Bidens bipinnata*	0.2	0.1
Boerhavia coccinea	0.2	0.1
**Cenchrus setiger*	0.2	0.1
Chrysopogon fallax	0.3	0.1
Cucumis variabilis		0.1
Digitaria brownii	0.6	0.1
Duperreya commixta		0.1
Dysphania rhadinostachya subsp. *inflata*	0.2	0.1
Enneapogon polyphyllus	0.4	1
Enneapogon robustissimus	0.5	0.1
Eremophila latrobei subsp. *filiformis*	1.1	0.1
Eremophila longifolia	1.2	0.1
Eriachne pulchella subsp. *pulchella*	0.1	0.1
Eulalia aurea	0.7	15
Euphorbia biconvexa	0.1	0.1
Euphorbia aff. *ferdinandi*	0.1	0.1
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1
Hakea loreus subsp. *loreus*	2	1
Hibiscus burtonii	0.8	0.1
Indigofera georgei	1.1	0.1
Maireana villosa	0.4	0.1
Panicum decompositum	0.5	0.1
Paraneurachne muelleri	0.1	0.1
Peripleura obovata	0.3	0.1
Peripleura virgata	0.3	0.1
Perotis rara	0.1	0.1
Portulaca oleracea	0.1	0.1
Psydrax latifolia	0.7	0.1
Pterocaulon sphacelatum	1	4
Ptilotus exaltatus	0.5	0.1
Ptilotus helipteroides	0.3	0.1
Ptilotus obovatus	0.5	0.1
Senna artemisioides subsp. *x artemisioides*	1	0.1
Sida ?L (A.M. Ashby 4202)	0.2	0.1
Solanum ?horridum	0.5	0.1
Solanum lasiophyllum	0.2	0.1
Sporobolus australasicus	0.1	0.1

Themeda triandra	0.6	5
Triodia melvillei	0.6	1
Triodia pungens	0.6	2

Data Source: Rapallo (2021b)

Site Name: Q14RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 685014E 7468361N

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri	0.3	0.1
Abutilon otocarpum	0.3	0.1
Acacia acradenia	8	2
Acacia aptaneura	6	2
Acacia dictyophleba	3	2
Acacia pruinocarpa	4	2
Alternanthera nana	0.1	0.1
Anthobolus leptomerioides	1	0.1
Aristida contorta	0.4	0.1
Aristida inaequiglumis	0.5	0.1
Arivela viscosa	0.1	0.1
**Bidens bipinnata*	0.1	0.1
Boerhavia coccinea	0.1	0.1
Chrysopogon fallax	0.6	0.1
Digitaria brownii	0.5	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.3	0.1
Eriachne mucronata	0.1	0.1
Eriachne pulchella subsp. *pulchella*	0.1	0.1
Eulalia aurea	0.9	0.1
Euphorbia aff. *ferdinandi*	0.1	0.1
Evolvulus alsinoides var. *villosicalyx*	0.2	0.1
Goodenia microptera	0.3	0.1
Goodenia prostrata	0.01	0.1
Hakea loreus subsp. *loreus*	2.1	0.1
Hibiscus burtonii	0.5	0.1
Hibiscus sturtii var. *platychlamys*	0.5	0.1
Panicum decompositum	0.5	0.1
Paraneurachne muelleri	0.5	0.1
Polycarpaea corymbosa	0.1	0.1
Polygala glaucifolia	0.1	0.1
Portulaca oleracea	0.1	0.1
Psydrax latifolia	1	0.1
Psydrax rigidula	1	0.1
Pterocaulon sphacelatum	0.3	0.1
Ptilotus exaltatus	0.3	0.1
Ptilotus helipteroides	0.3	0.1
Ptilotus obovatus	0.4	0.1
Scaevola parvifolia subsp. *parvifolia*	0.3	0.1
Schizachyrium fragile	0.2	0.1
Senna notabilis	0.1	0.1
Sida ?L (A.M. Ashby 4202)	0.3	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1	0.1
Solanum lasiophyllum	0.5	0.1
Tephrosia sp.	0.4	0.1
Themeda triandra	0.5	0.1
Triodia melvillei	1	10

Data Source: Rapallo (2021b)

Site Name: Q17RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 685015E 7467909N
Vegetation Type: 7

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.2	0.1
Acacia aptaneura	6	5
Acacia pachyacra	2.5	0.1
Acacia tenuissima	2.5	0.1
Anthobolus leptomerioides	1	0.1
Aristida contorta	0.2	2
Aristida holathera var. *holathera*	0.3	0.1
Aristida inaequiglumis	0.5	2
Boerhavia coccinea	0.1	0.1
Chrysopogon fallax	0.6	0.1
Cymbopogon obtectus	0.3	0.1
Digitaria brownii	0.5	0.1
Duperreya commixta		0.1
Dysphania kalpari	0.1	0.1
Enneapogon polyphyllus	0.3	0.1
Enneapogon robustissimus	0.5	0.1
Eremophila latrobei subsp. *filiformis*	1.5	0.1
Eremophila longifolia	1.2	0.1
Eriachne pulchella subsp. *pulchella*	0.1	0.1
Eulalia aurea	0.6	0.1
Euphorbia biconvexa	0.1	0.1
Evolvulus alsinoides var. *villosicalyx*	0.2	0.1
Gomphrena canescens subsp. *canescens*	0.2	0.1
Goodenia prostrata	0.01	0.1
Hakea loreus subsp. *loreus*	2	2
Hibiscus burtonii	1	0.1
Lysiana murrayi		0.1
Maireana villosa	0.1	0.1
Perotis rara	0.1	0.1
Polycarpaea corymbosa	0.1	0.1
Portulaca oleracea	0.1	0.1
Pterocaulon sphacelatum	0.8	0.1
Ptilotus exaltatus	0.1	0.1
Ptilotus gaudichaudii	0.2	0.1
Ptilotus helipteroides	0.2	1
Ptilotus obovatus	0.4	0.1
Rhagodia sp. Hamersley (M. Trudgen 17794) (P3)	1	0.1
Schizachyrium fragile	0.1	0.1
Senna notabilis	0.1	0.1
Sida ?L (A.M. Ashby 4202)	0.5	0.1
Solanum ferocissimum	0.2	0.1
Themeda triandra	0.5	0.1
Triodia melvillei	0.5	10

Data Source: Rapallo (2021b)

Site Name: Q19RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 685089E 7467734N

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Acacia aptaneura	10	3
Acacia pachyacra	1.2	0.1
Alternanthera nana	0.1	0.1
Aristida contorta	0.2	2
Aristida holathera var. *holathera*	0.2	0.1
Aristida inaequiglumis	0.4	32
**Bidens bipinnata*	0.3	0.1
Boerhavia coccinea	0.2	0.1
Cheilanthes sieberi subsp. *sieberi*	0.2	0.1
Chrysopogon fallax	0.5	0.1
Cucumis variabilis		0.1
Digitaria ammophila	0.2	0.1
Dysphania rhadinostachya subsp. *inflata*	0.1	0.1
Enneapogon polyphyllus	0.4	0.1
Eremophila longifolia	1.2	0.1
Eulalia aurea	0.4	0.1
Euphorbia biconvexa	0.2	0.1
Goodenia prostrata	0.01	0.1
Hakea loreus subsp. *loreus*	3	2
Indigofera georgei	0.3	0.1
Lysiana murrayi		0.1
Maireana villosa	0.3	0.1
Panicum decompositum	0.5	0.1
Perotis rara	0.1	0.1
Pterocaulon sphacelatum	0.5	2
Ptilotus clementii	0.3	0.1
Ptilotus obovatus	0.5	0.1
Sida ?L (A.M. Ashby 4202)	0.4	0.1
Sida platycalyx	0.4	0.1
Teucrium teucriiflorum	0.4	0.1
Themeda triandra	0.5	32

Data Source: Rapallo (2021b)

Site Name: Q23RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 685632E 7466984N
Vegetation Type: 8

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.5	0.1
Acacia aptaneura	7	6
Acacia tenuissima	1.2	0.1
Alternanthera nana	0.2	0.1
Aristida contorta	0.4	2
Aristida inaequiglumis	0.6	5
Aristida lazaridis (P2)	0.5	0.1
Arivela viscosa	1	0.1
Chrysocephalum gilesii	0.3	0.1
Chrysopogon fallax	0.7	0.1
Cucumis variabilis		0.1
Digitaria ammophila	0.5	0.1
Duperreya commixta		0.1
Dysphania kalpari	0.2	0.1
Eremophila lanceolata	0.5	0.1
Eucalyptus xerothermica	8	1
Eulalia aurea	0.9	0.1
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1
Hakea loreus subsp. *loreus*	4	2
Panicum decompositum	0.6	0.1
Pterocaulon sphacelatum	0.4	0.1
Ptilotus obovatus	0.5	0.1
Sida ?L (A.M. Ashby 4202)	0.3	0.1
Sida platycalyx	0.5	0.1
Stemodia grossa	0.2	0.1
Themeda triandra	0.6	85
Trichodesma zeylanicum var. *zeylanicum*	1.5	0.1
Triodia melvillei	0.5	0.1

Data Source: Rapallo (2021b)

Site Name: Q24RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 685593E 7467197N

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon fraseri	0.4	0.1
Abutilon otocarpum	0.1	0.1
Acacia dictyophleba	2.5	0.1
Acacia elachantha	1.5	0.1
Acacia pachyacra	2.5	0.1
Acacia pruinocarpa	0.4	0.1
Alternanthera nana		0.1
Aristida contorta	0.2	0.1
Aristida inaequiglumis	0.5	15
Aristida lazaridis (P2)	0.3	0.1
Arivela viscosa	0.8	0.1
Chrysopogon fallax	0.8	0.1
Clerodendrum floribundum var. *angustifolium*	2.3	0.1
Cucumis variabilis	2	0.1
Digitaria ammophila	0.2	0.1
Duperreya commixta		0.1
Enneapogon polyphyllus	0.5	0.1
Eremophila longifolia	2	0.1
Eucalyptus xerothermica	9	0.1
Eulalia aurea	0.7	0.1
Evolvulus alsinoides var. *villosicalyx*	0.2	0.1
Hibiscus burtonii	0.6	0.1
Jasminum didymum subsp. *lineare*		0.1
Pterocaulon sphacelatum	1.1	0.1
Ptilotus obovatus	0.5	0.1
Sida ?L (A.M. Ashby 4202)	1	0.1
Themeda triandra	0.6	80
Trichodesma zeylanicum var. *zeylanicum*	1.2	0.1

Data Source: Rapallo (2021b)

Site Name: Q26RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 683979E 7468067N

SPECIES LIST

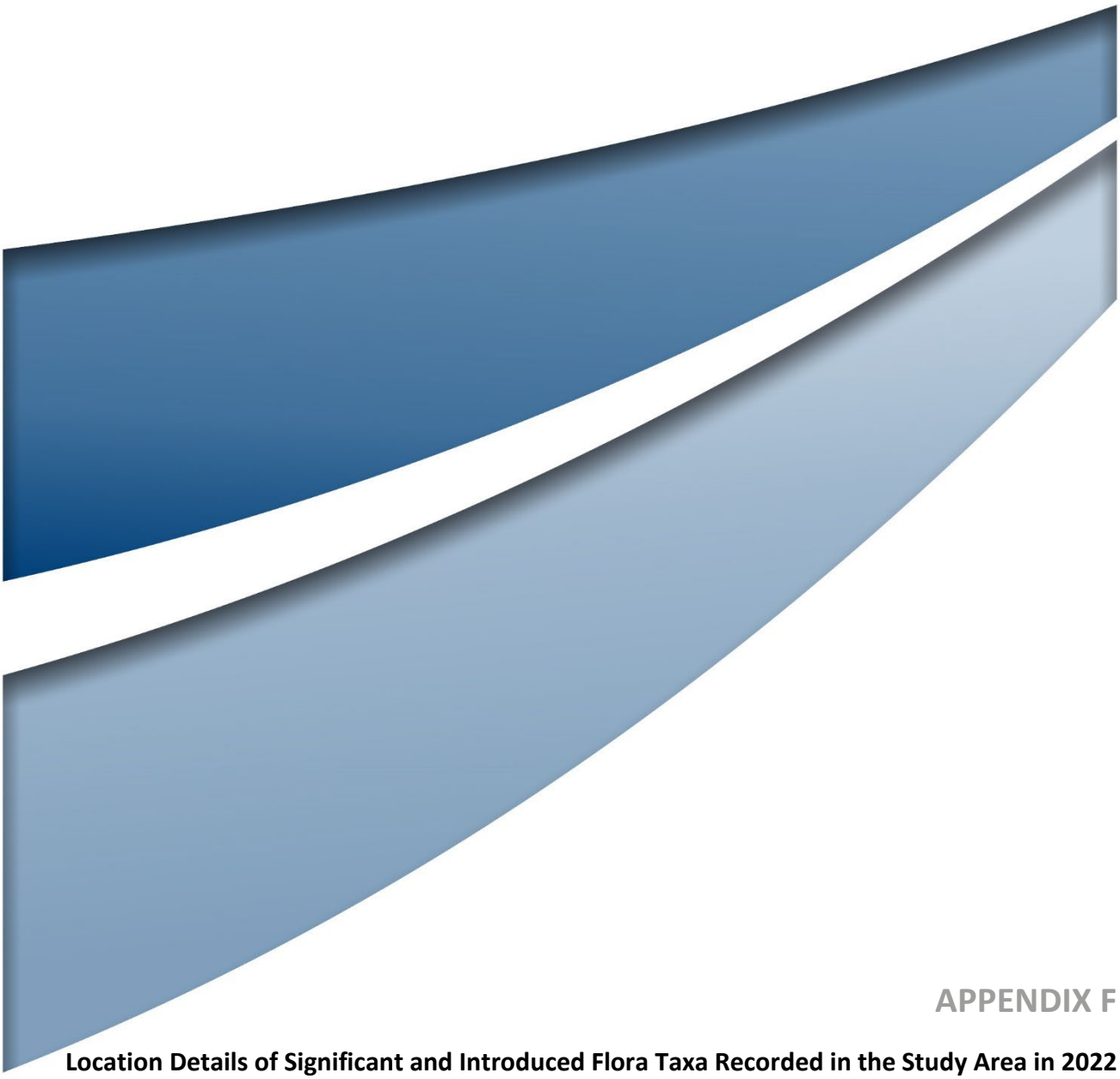
Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.3	0.1
Acacia aneura	1.2	2
Acacia aptaneura	4	20
Acacia tenuissima	1.2	5
Alternanthera nana	0.2	0.1
Aristida contorta	0.1	0.1
Aristida inaequiglumis	0.3	0.1
Aristida obscura	0.1	0.1
Cheilanthes sieberi subsp. *sieberi*	0.2	0.1
Chrysopogon fallax	0.4	0.1
Digitaria ammophila	0.5	0.1
Digitaria brownii	0.3	0.1
Duperreya commixta		0.1
Enneapogon caerulescens	0.3	0.1
Enneapogon polyphyllus	0.3	0.1
Enneapogon robustissimus	0.2	0.1
Eragrostis cumingii	0.1	0.1
Eriachne pulchella subsp. *pulchella*	0.1	0.1
Evolvulus alsinoides var. *villosicalyx*	0.2	0.1
Hibiscus burtonii	0.3	0.1
Indigofera georgei	0.3	0.1
Iseilema macratherum	0.2	0.1
Maireana villosa	0.2	0.1
Panicum decompositum	0.2	0.1
Paraneurachne muelleri	0.2	0.1
Perotis rara	0.1	0.1
Polygala glaucifolia	0.1	0.1
Ptilotus helipteroides	0.3	0.1
Ptilotus obovatus	0.2	0.1
Schizachyrium fragile	0.1	0.1
Sida ?L (A.M. Ashby 4202)	0.3	0.1
Sporobolus australasicus	1.3	0.1
Tribulus astrocarpus	0.1	0.1
Triodia melvillei	0.3	0.1

Data Source: Rapallo (2021b)

Site Name: Q27RAP
Site Type: QUADRAT
GPS Location: GDA94 Zone 50 684446E 7467636N
Vegetation Type: 8

SPECIES LIST

Taxon Name	Avg. Height	Cover Alive
Abutilon otocarpum	0.4	0.1
Acacia aptaneura	2	0.1
Alternanthera nana	0.3	0.1
Aristida contorta	0.2	20
Aristida inaequiglumis	0.4	10
Arivela viscosa	0.5	0.1
**Bidens bipinnata*	0.1	0.1
Bulbostylis barbata	0.05	0.1
Cheilanthes sieberi subsp. *sieberi*	0.3	0.1
Chrysopogon fallax	0.3	0.1
Cucumis variabilis		0.1
Dichanthium sericeum subsp. *humilius*	0.2	0.1
Duperreya commixta		0.1
Dysphania glomulifera subsp. *eremaea*	0.1	0.1
Enneapogon polyphyllus	0.4	10
Eragrostis pergracilis	0.1	0.1
Euphorbia biconvexa	0.1	0.1
Euphorbia aff. *ferdinandi*	0.1	0.1
Evolvulus alsinoides var. *villosicalyx*	0.2	0.1
Goodenia nuda	0.3	0.1
Goodenia prostrata	0.01	0.1
Hakea loreus subsp. *loreus*	5	2
Hibiscus coatesii	0.2	0.1
Iseilema macratherum	0.3	0.1
Panicum decompositum	0.1	0.1
Paspalidium rarum	0.2	0.1
Perotis rara	0.1	0.1
Portulaca oleracea	0.1	0.1
Pterocaulon sphacelatum	0.5	0.1
Ptilotus exaltatus	0.5	0.1
Ptilotus gaudichaudii	0.4	0.1
Ptilotus helipteroides	0.4	0.1
Ptilotus obovatus	0.4	0.1
Senna notabilis	0.1	0.1
Sida ?L (A.M. Ashby 4202)	0.3	0.1
Spermacoce brachystema	0.2	0.1
Stenopetalum nutans	0.3	0.1
**Stylosanthes hamata*	0.2	0.1
Themeda triandra	0.3	40



APPENDIX F

Location Details of Significant and Introduced Flora Taxa Recorded in the Study Area in 2022

Significant Flora Taxa

Note: all locations in GDA94 Zone 50.

Taxon	Status (WA)	Easting	Northing	Location	Count
Aristida jerichoensis var. *subspinulifera*	P3	685094	7467730	Q19	10
Aristida jerichoensis var. *subspinulifera*	P3	685028	7467724		8
Aristida jerichoensis var. *subspinulifera*	P3	685022	7467708		11
Aristida jerichoensis var. *subspinulifera*	P3	685008	7467693		50
Aristida jerichoensis var. *subspinulifera*	P3	685071	7467622		3
Aristida jerichoensis var. *subspinulifera*	P3	684587	7467576		1
Aristida jerichoensis var. *subspinulifera*	P3	685033	7467713		6
Aristida jerichoensis var. *subspinulifera*	P3	685023	7467714		8
Aristida lazaridis	P2	685350	7467249		2
Aristida lazaridis	P2	685267	7467689		1
Aristida lazaridis	P2	685112	7467908		1
Aristida lazaridis	P2	685612	7467169	Q24	60
Aristida lazaridis	P2	684623	7469253	Q03	200
Corchorus sp.	Potentially undescribed	682893	7472371		2
Corchorus sp.	Potentially undescribed	682714	7472360		3
Corchorus sp.	Potentially undescribed	682607	7472499		1
Corchorus sp.	Potentially undescribed	682423	7472612		1
Corchorus sp.	Potentially undescribed	682384	7472626		1
Corchorus sp.	Potentially undescribed	682371	7472670		6
Corchorus sp.	Potentially undescribed	682375	7472666		1
Corchorus sp.	Potentially undescribed	682383	7472661		1
Corchorus sp.	Potentially undescribed	682655	7472471	C50	
Corchorus sp.	Potentially undescribed	682681	7472451		1
Corchorus sp.	Potentially undescribed	682658	7472452		1
Corchorus sp.	Potentially undescribed	682646	7472439		1
Corchorus sp.	Potentially undescribed	682685	7472434		1
Corchorus sp.	Potentially undescribed	682732	7472341		2
Corchorus sp.	Potentially undescribed	682705	7472357		3
Corchorus sp.	Potentially undescribed	682681	7472381		1
Corchorus sp.	Potentially undescribed	682611	7472471		1
Corchorus sp.	Potentially undescribed	682463	7472576		1
Corchorus sp.	Potentially undescribed	682353	7472691		1
Corchorus sp.	Potentially undescribed	682363	7472689		1
Corchorus sp.	Potentially undescribed	682382	7472671		1
Corchorus sp.	Potentially undescribed	682382	7472672		1
Corchorus sp.	Potentially undescribed	682395	7472669		2
Eremophila naaykensii	P3	694892	7475906	C52	30

Taxon	Status (WA)	Easting	Northing	Location	Count
Eremophila naaykensii	P3	694263	7475775	C24	8
Euphorbia ferdinandi s. lat.	Potentially undescribed	684097	7467773	K49	
Euphorbia ferdinandi s. lat.	Potentially undescribed	684125	7467774		2
Euphorbia ferdinandi s. lat.	Potentially undescribed	684092	7467754		2
Euphorbia ferdinandi s. lat.	Potentially undescribed	684092	7467739		3
Euphorbia ferdinandi s. lat.	Potentially undescribed	684095	7467721		8
Euphorbia ferdinandi s. lat.	Potentially undescribed	684098	7467708		12
Euphorbia ferdinandi s. lat.	Potentially undescribed	684111	7467710		14
Euphorbia ferdinandi s. lat.	Potentially undescribed	684143	7467706		1
Euphorbia ferdinandi s. lat.	Potentially undescribed	684155	7467696		5
Euphorbia ferdinandi s. lat.	Potentially undescribed	684134	7467747		2
Euphorbia ferdinandi s. lat.	Potentially undescribed	684121	7467782		2
Euphorbia ferdinandi s. lat.	Potentially undescribed	684099	7467687		1
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	P2	694596	7474935	C35	2
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	P2	694263	7475775	C24	15
Rhagodia sp. Hamersley (M. Trudgen 17794)	P3	685016	7468258	Q14	3
Rhagodia sp. Hamersley (M. Trudgen 17794)	P3	684202	7468451	Q09	2
Rhagodia sp. Hamersley (M. Trudgen 17794)	P3	685034	7467719		2
Seringia exastia	T	685435	7466835	R01	
Seringia exastia	T	694512	7477652	C44	
Seringia exastia	T	692602	7477524	C46	
Seringia exastia	T	688022	7476843	C51	
Seringia exastia	T	690256	7476182	C49	
Seringia exastia	T	682655	7472471	C50	
Seringia exastia	T	693665	7477551	K43	500
Seringia exastia	T	689065	7476749	K44	
Seringia exastia	T	693931	7474952	K41	
Seringia exastia	T	694096	7477283	K34	10
Seringia exastia	T	685229	7475272	K31	1
Seringia exastia	T	686503	7476642	C25	
Seringia exastia	T	686365	7476227	C26	
Seringia exastia	T	686559	7475717	C27	
Seringia exastia	T	687732	7477441	C28	
Seringia exastia	T	684939	7474629	K30	100
Seringia exastia	T	692644	7477334	C38	
Seringia exastia	T	687487	7477012	C41	
Seringia exastia	T	690746	7475621	C34	

Taxon	Status (WA)	Easting	Northing	Location	Count
Seringia exastia	T	685084	7466905	K50	
Seringia exastia	T	685302	7474990	C30	
Seringia exastia	T	687045	7476252	K46	20
Seringia exastia	T	683724	7473601	K48	
Seringia exastia	T	683353	7473736	C09	
Seringia exastia	T	683289	7470037	K02	15
Seringia exastia	T	694872	7477203	C03	1
Seringia exastia	T	682983	7472173	K06	9
Seringia exastia	T	682677	7473210	C07	
Seringia exastia	T	691372	7477873	K12	25
Seringia exastia	T	684134	7473969	K27	50
Seringia exastia	T	688496	7476476	K29	7
Seringia exastia	T	692214	7475218	C19	
Seringia exastia	T	693450	7478092	C20	
Seringia exastia	T	692121	7477290	K14	20
Seringia exastia	T	690903	7474806	C15	
Seringia exastia	T	692303	7475877	K16	1
Seringia exastia	T	690825	7475207	C16	

Introduced Flora Taxa

Note: all locations in GDA94 Zone 50.

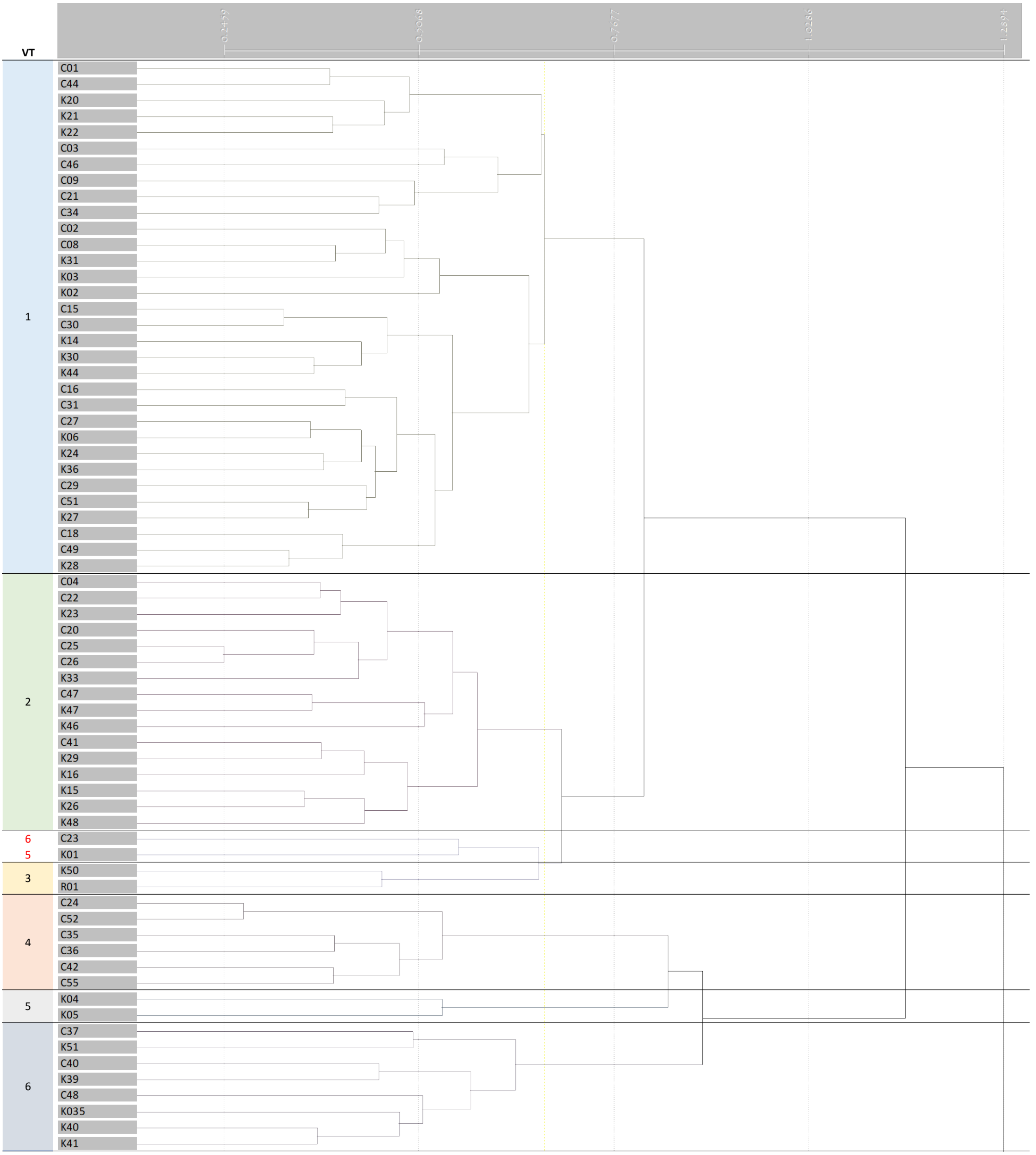
Taxon	Easting	Northing	Location	Count
Bidens bipinnata	692815	7476217		
Bidens bipinnata	692790	7476562		
Bidens bipinnata	691646	7477225		
Bidens bipinnata	684623	7469253	Q03	
Bidens bipinnata	684202	7468451	Q09	
Bidens bipinnata	685016	7468258	Q14	
Bidens bipinnata	684314	7468803	Q04	
Bidens bipinnata	693548	7476323	C55	
Bidens bipinnata	684002	7468043	Q26	
Bidens bipinnata	694893	7475906	C52	
Bidens bipinnata	683571	7474477	C53	
Bidens bipinnata	695073	7476656	C42	
Bidens bipinnata	692120	7478456	C43	
Bidens bipinnata	694413	7476472	C48	
Bidens bipinnata	684004	7469197	Q01	20
Bidens bipinnata	682550	7471981	K07	150
Bidens bipinnata	691203	7478652	K09	50
Bidens bipinnata	691372	7477873	K12	10
Bidens bipinnata	688930	7477533	C11	
Bidens bipinnata	690248	7478356	C12	
Bidens bipinnata	690820	7476485	C13	
Bidens bipinnata	691765	7475612	K17	500
Bidens bipinnata	691241	7475864	C17	
Bidens bipinnata	694263	7475775	C24	
Bidens bipinnata	684940	7474629	K30	20
Bidens bipinnata	689960	7476882	K37	
Bidens bipinnata	691601	7477763	K42	50
Bidens bipinnata	689021	7477252	K45	
Bidens bipinnata	691535	7476026	C32	
Bidens bipinnata	690740	7476199	C33	
Bidens bipinnata	693243	7475767	C36	
Cenchrus ciliaris	695073	7476656	C42	
Cenchrus ciliaris	689021	7477252	K45	10
Cenchrus ciliaris	691958	7477633	K13	20
Cenchrus ciliaris	682550	7471981	K07	100
Cenchrus ciliaris	683289	7470037	K02	10
Cenchrus ciliaris	691485	7476688		

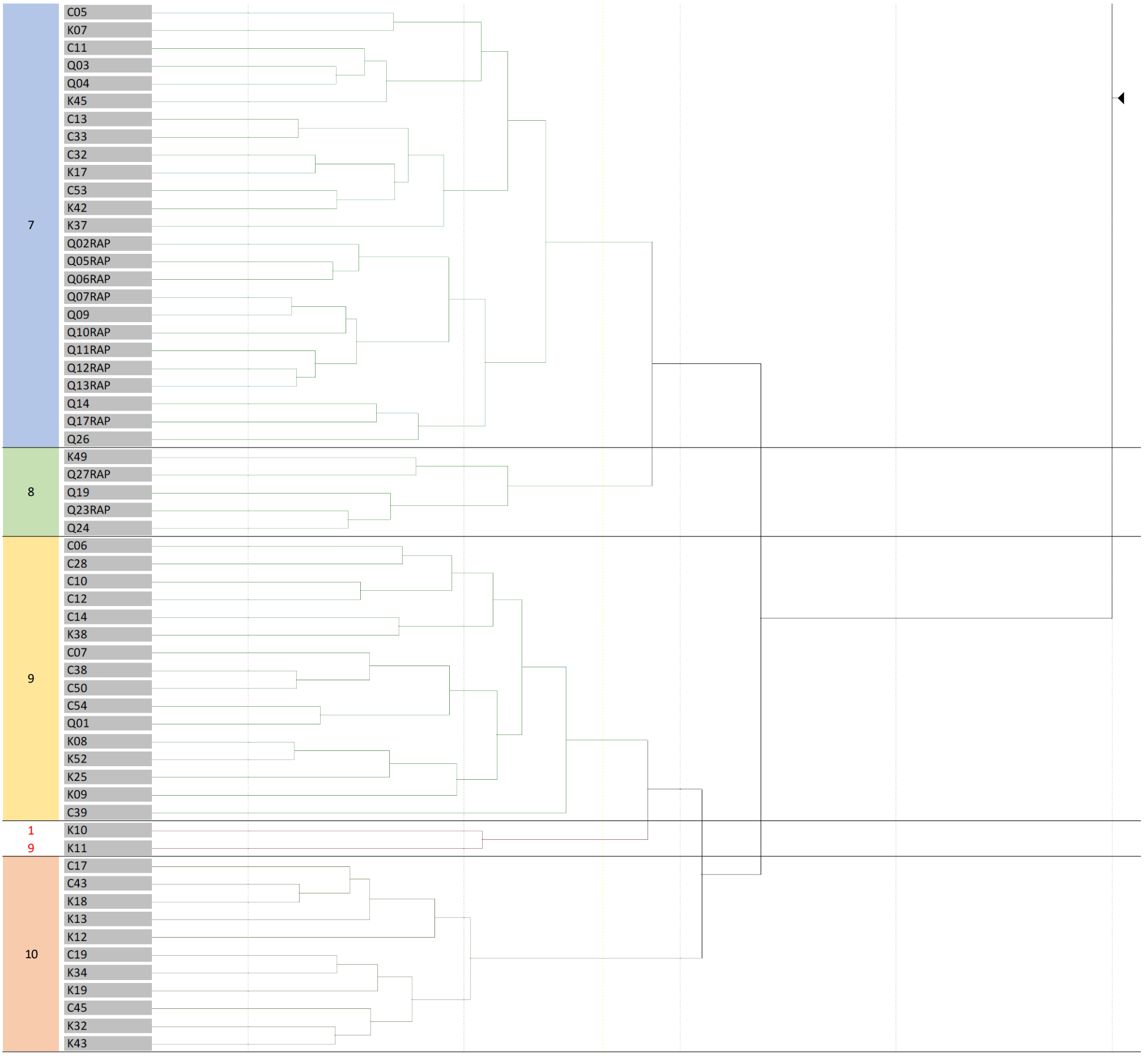
Taxon	Easting	Northing	Location	Count
Cenchrus ciliaris	691433	7476092		
Cenchrus ciliaris	691448	7475626		
Cenchrus ciliaris	691452	7476514		
Cenchrus ciliaris	692120	7478456	C43	
Cenchrus ciliaris	684623	7469253	Q03	
Cenchrus ciliaris	691120	7477292		
Cenchrus ciliaris	684314	7468803	Q04	
Cenchrus setiger	691454	7477317		
Cenchrus setiger	691452	7476514		
Cenchrus setiger	691448	7475626		
Cenchrus setiger	691433	7476092		
Cenchrus setiger	691445	7476241		
Cenchrus setiger	691485	7476688		
Cenchrus setiger	684623	7469253	Q03	
Cenchrus setiger	691372	7477873	K12	2
Cenchrus setiger	688930	7477533	C11	
Cenchrus setiger	691958	7477633	K13	40
Cenchrus setiger	691241	7475864	C17	
Cenchrus setiger	691294	7475133	K18	2000
Cenchrus setiger	692214	7475218	C19	
Cenchrus setiger	689960	7476882	K37	1
Cenchrus setiger	687589	7476671	K32	500
Cenchrus setiger	690740	7476199	C33	
Cenchrus setiger	689021	7477252	K45	100
Malvastrum americanum	692214	7475218	C19	
Malvastrum americanum	693298	7478450	K19	1
Malvastrum americanum	688930	7477533	C11	
Malvastrum americanum	691372	7477873	K12	10
Malvastrum americanum	689021	7477252	K45	50
Malvastrum americanum	691698	7477836		2
Malvastrum americanum	684314	7468803	Q04	
Malvastrum americanum	692120	7478456	C43	
Malvastrum americanum	683571	7474477	C53	
Malvastrum americanum	684623	7469253	Q03	
Malvastrum americanum	691445	7476241		
Portulaca pilosa	687488	7477012	C41	
Setaria verticillata	691294	7475133	K18	10
Setaria verticillata	692214	7475218	C19	
Setaria verticillata	689021	7477252	K45	6
Setaria verticillata	691535	7476026	C32	

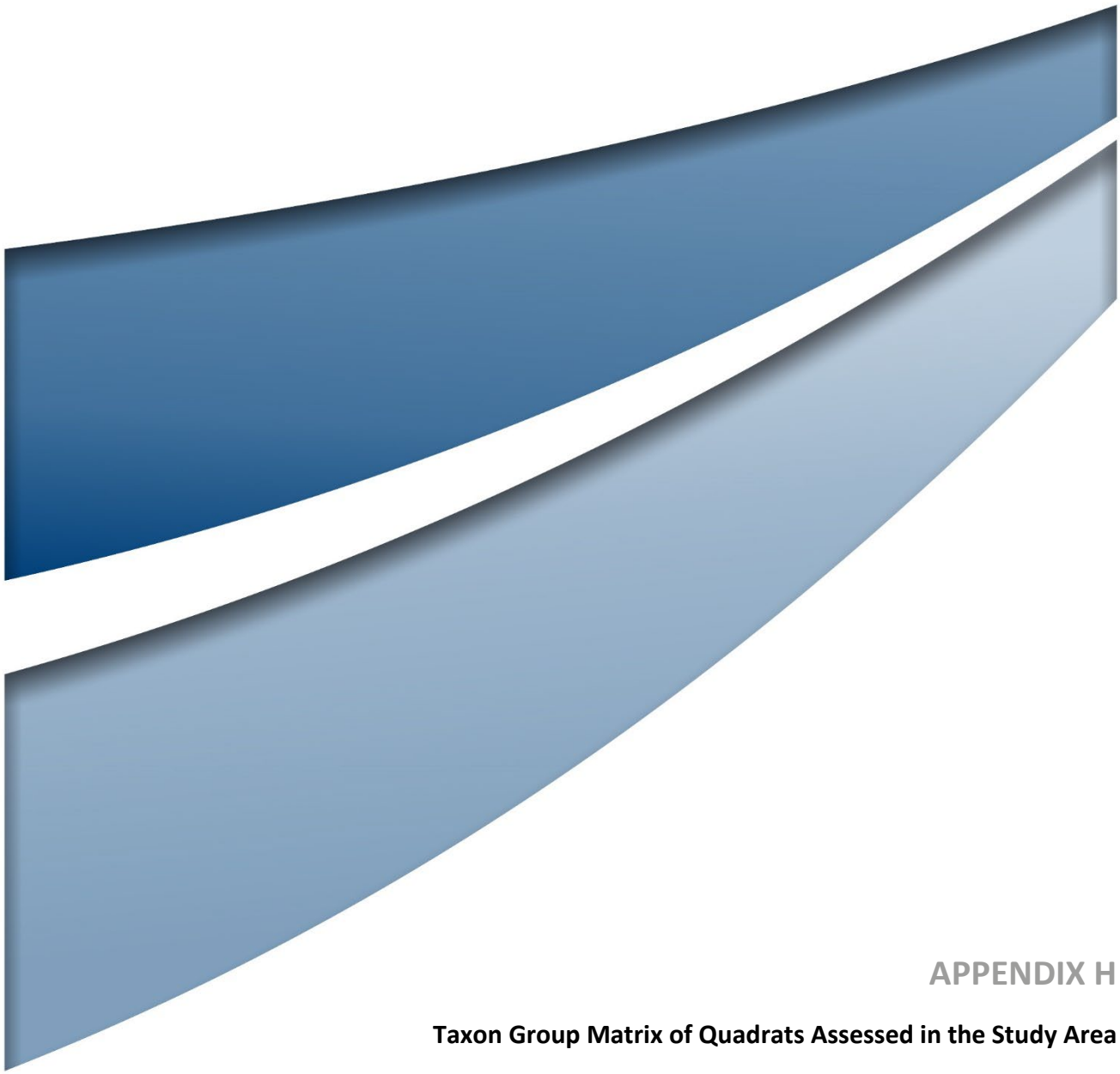
Taxon	Easting	Northing	Location	Count
Setaria verticillata	692120	7478456	C43	
Setaria verticillata	691445	7476241		
Tribulus terrestris	684623	7469253	Q03	
Tribulus terrestris	691400	7476113		3
Tribulus terrestris	684314	7468803	Q04	

APPENDIX G

Classification Analysis Dendrogram of Quadrats Assessed in the Study Area

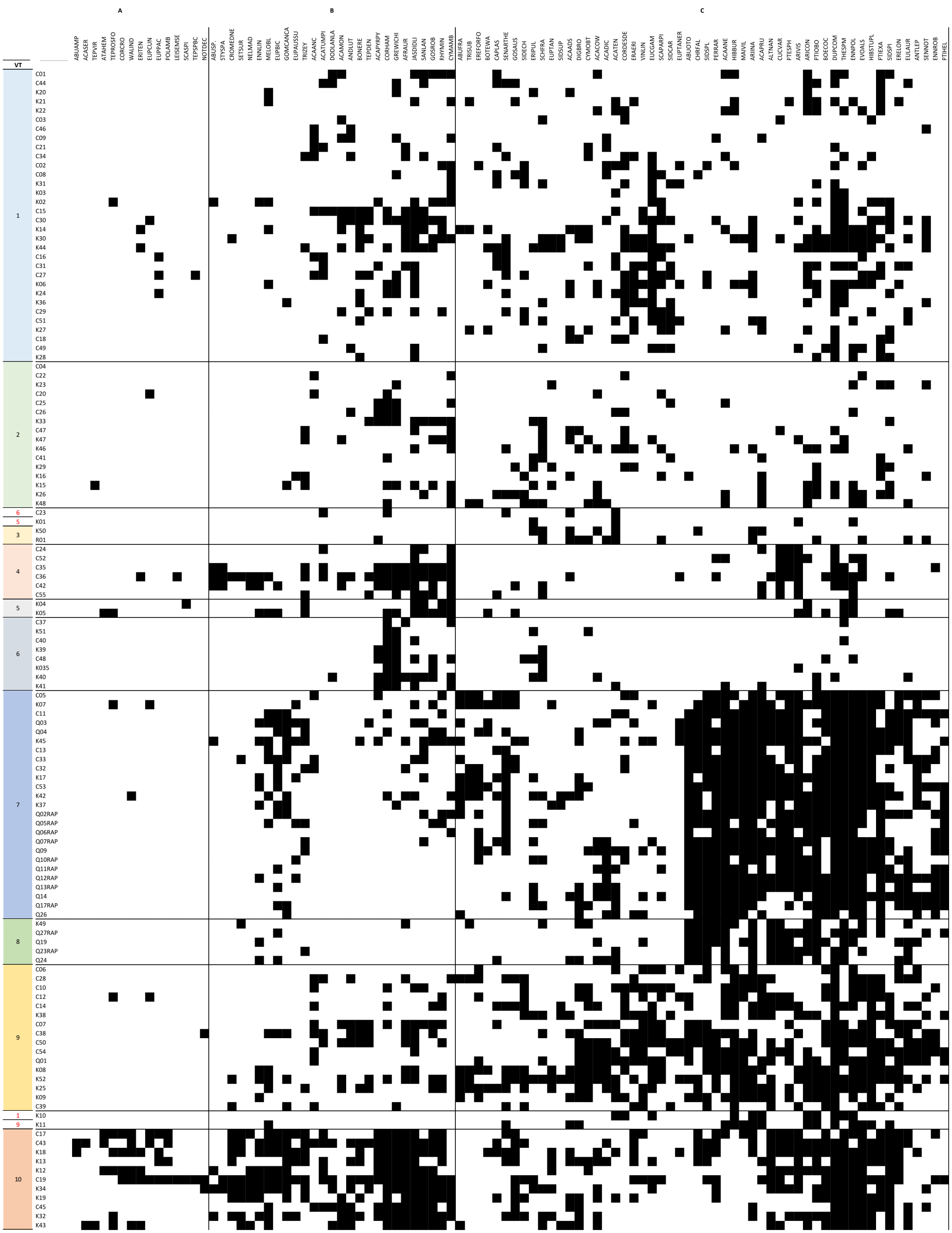

0.2459
0.5068
0.7677
1.0286
1.2894
VT
C01
C44
K20
K21
K22
C03
C46
C09
C21
C34
C02
C08
K31
K03
K02
C15
C30
K14
K30
K44
C16
C31
C27
K06
K24
K36
C29
C51
K27
C18
C49
K28
1
C04
C22
K23
C20
C25
C26
K33
C47
K47
K46
C41
K29
K16
K15
K26
K48
2
C23
K01
6
5
K50
R01
3
C24
C52
C35
C36
C42
C55
4
K04
K05
5
C37
K51
C40
K39
C48
K035
K40
K41
6

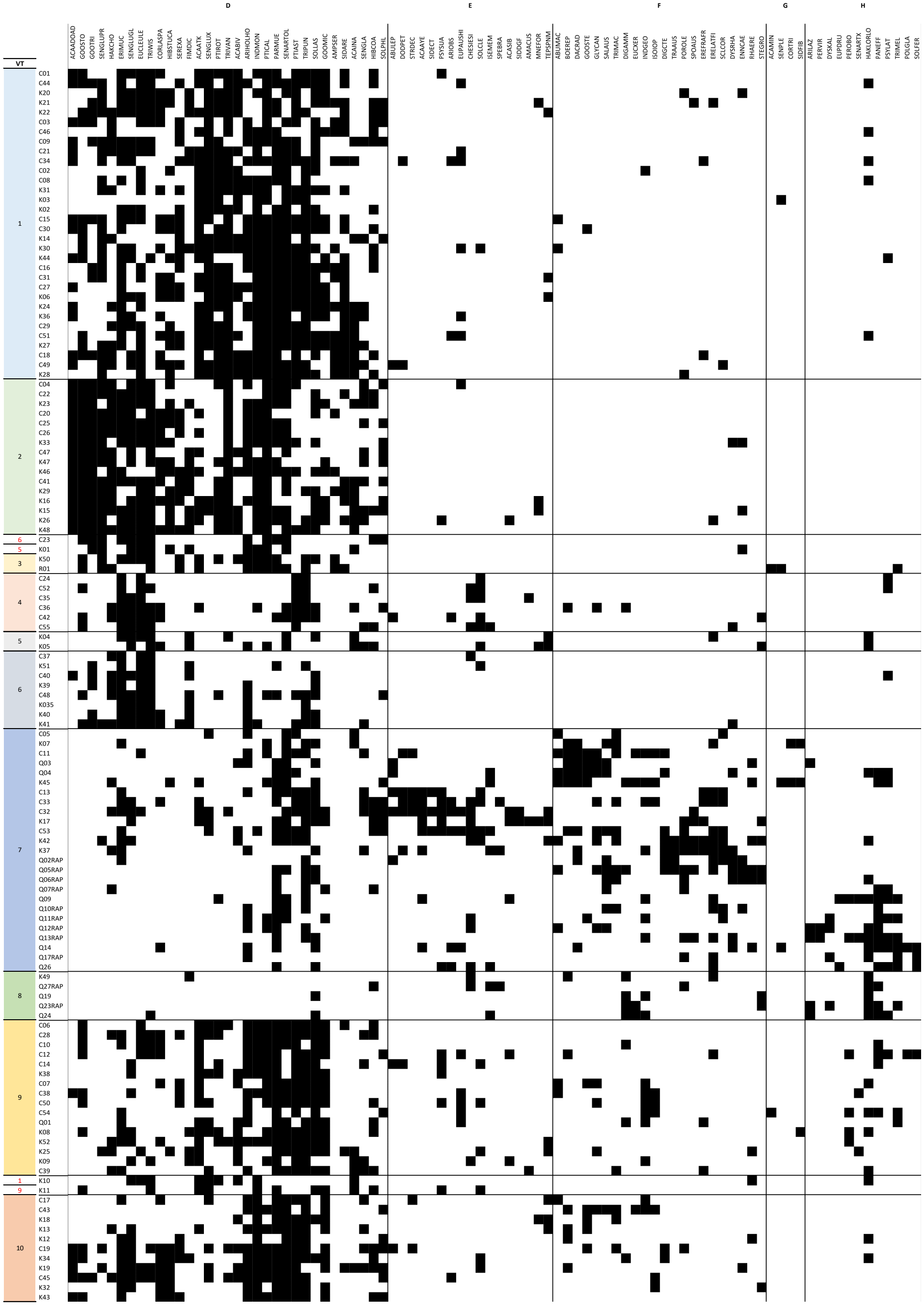

C05
K07
C11
Q03
Q04
K45
C13
C33
C32
K17
C53
K42
K37
Q02RAP
Q05RAP
Q06RAP
Q07RAP
Q09
Q10RAP
Q11RAP
Q12RAP
Q13RAP
Q14
Q17RAP
Q26
7
K49
Q27RAP
Q19
Q23RAP
Q24
8
C06
C28
C10
C12
C14
K38
C07
C38
C50
C54
Q01
K08
K52
K25
K09
C39
9
K10
K11
1
9
C17
C43
K18
K13
K12
C19
K34
K19
C45
K32
K43
10

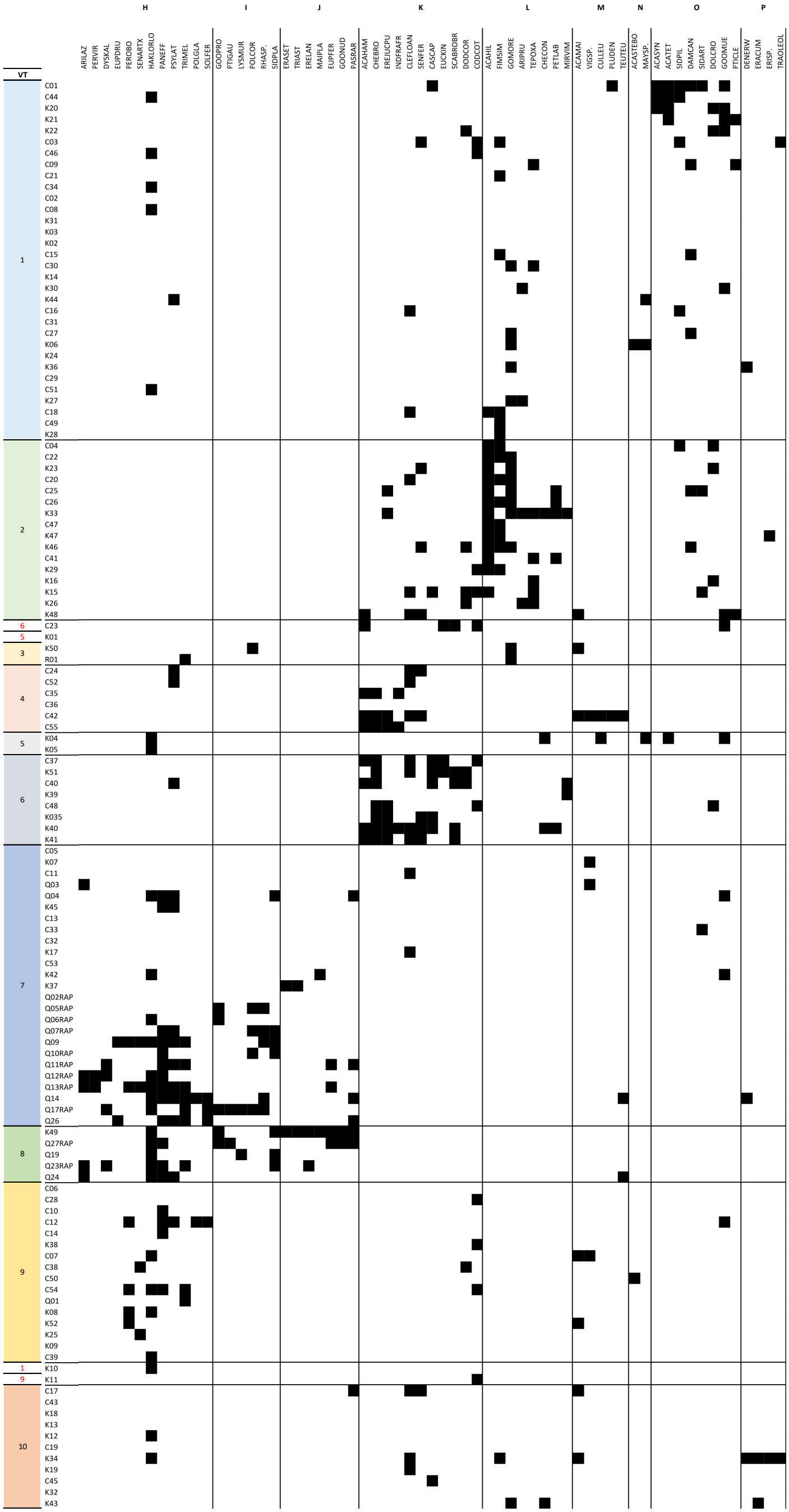


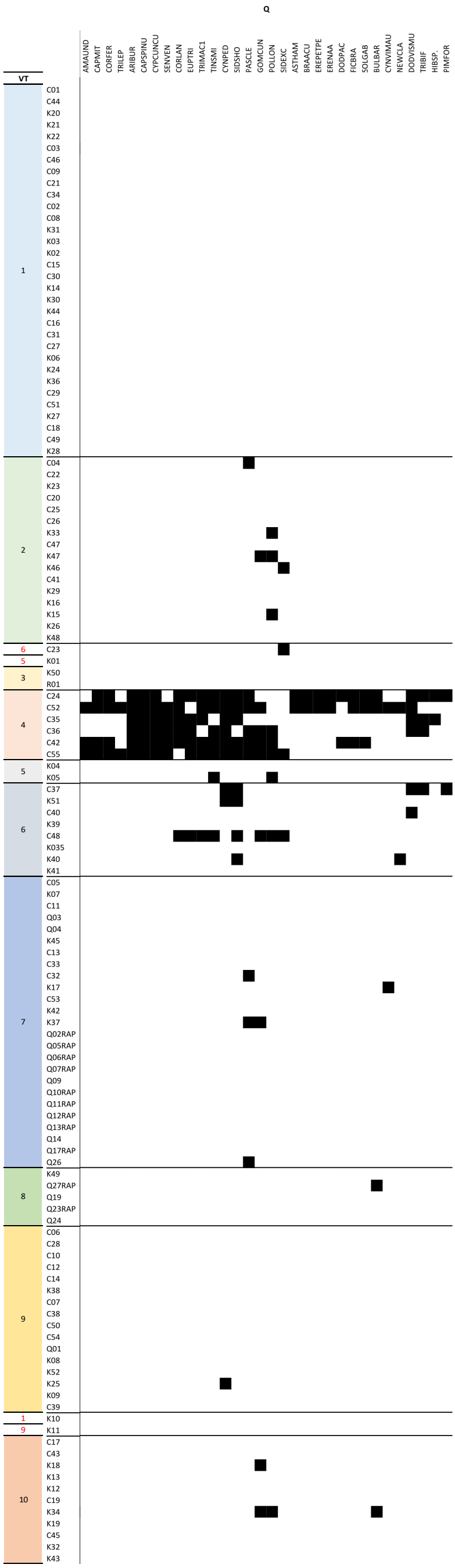
APPENDIX H

Taxon Group Matrix of Quadrats Assessed in the Study Area


A
B
C
ABUAMP ACASER TEPVIR ATAHEM TEPROSFO CORCRO WALIND ERITEN EUPCUN EUPPAC POLAMB LEISEMSE SCASPI TEPSPBC NOTDEC
ABUSP. STYSPA CROMEDNE SETSUR NELMAD ENNLIN MELOBL EUPBIC GOMCANCA EUPAUSSU TRIZEY ACAANC ACATUMPI DODLANLA ACAMON ANDLUT BONERE TEPDEN ACAPYRPY CORHAM GREWICHI AFRAUR JASDIDLI SANLAN GOSROB RHYMIN CYMAMB
ABUFRA TRISUB EREFORFO BOTEWA CAPLAS SENARTHE GOSAUS SIDECH ERIPUL SCHFRA EUPTAN SIDSUP ACAADS DIGBRO CYMOBT ACACOW ACADIC ACATEN CORDESDE ERAERI VINLIN EUCGAM SCAPARPI SIDCAR EUPTANER ABUOTO CHRFAL SIDSPL PERRAR ACAANE HIBBUR MAIVIL ARIINA ACAPRU ALTNAN CUCVAR PTESPH ARIVIS ARICON PTIOBO BOECOC DUPCOM THESPM ENNPOL EVOALS HIBSTUPL PTIEXA SIDSPI ERELON EULAUR ANTLEP SENNOT ENNROB PTIHEL
VT
1
C01 C44 K20 K21 K22 C03 C46 C09 C21 C34 C02 C08 K31 K03 K02 C15 C30 K14 K30 K44 C16 C31 C27 K06 K24 K36 C29 C51 K27 C18 C49 K28
2
C04 C22 K23 C20 C25 C26 K33 C47 K47 K46 C41 K29 K16 K15 K26 K48
6
C23
5
K01
3
K50 R01
4
C24 C52 C35 C36 C42 C55
5
K04 K05
6
C37 K51 C40 K39 C48 K035 K40 K41
7
C05 K07 C11 Q03 Q04 K45 C13 C33 C32 K17 C53 K42 K37 Q02RAP Q05RAP Q06RAP Q07RAP Q09 Q10RAP Q11RAP Q12RAP Q13RAP Q14 Q17RAP Q26
8
K49 Q27RAP Q19 Q23RAP Q24
9
C06 C28 C10 C12 C14 K38 C07 C38 C50 C54 Q01 K08 K52 K25 K09 C39
1
K10
9
K11
10
C17 C43 K18 K13 K12 C19 K34 K19 C45 K32 K43


D
E
F
G
H
ACAADOAD GOOSTO GOOTRI SENGLUPR HAKCHO ERIMUC SENGLUGL EUCLEULE TRIWIS CORLASPA HIBSTUCA SEREXA FIMDIC ACAATK SENGLUX PTIROT TRIVAN ACABIV ARIHOLHO INDMON PTICAL PARMUE SENARTOL PTIAST TRIPUN SOLLAS GOOMIC AMPSER SIDARE ACAINA SENGLA HIBCOA SOLPHL
ABULEP DODPET STRDEC ACAAYE SIDECT PSYSUA ARIOBS EUPAUSHI CHESIESI SOLCLE ISEMEM SPEBRA ACASIB SIDDGF AMACUS MNEFOR TEPSPNM
ABUMAC BOEREP DACRAD GOOSTE GLYCAN SALAUS TRIMAC DIGAMM EUCXER INDGEO ISOIOP DIGCTE TRAAUS POROLE SPOAUS EREFRAFR ERELATFI SCLCOR DYSRHA ENNCAE RHAERE STEGRO
ACAMIN SENPLE CORTRI SIDFIB
ARILAZ PERVIR DYSKAL EUPDRU PEROBO SENARTX HAKLORLO PANEFF PSYLAT TRIMEL POLGLA SOLFER
VT
1 C01 C44 K20 K21 K22 C03 C46 C09 C21 C34 C02 C08 K31 K03 K02 C15 C30 K14 K30 K44 C16 C31 C27 K06 K24 K36 C29 C51 K27 C18 C49 K28
2 C04 C22 K23 C20 C25 C26 K33 C47 K47 K46 C41 K29 K16 K15 K26 K48
6 C23
5 K01
3 K50 R01
4 C24 C52 C35 C36 C42 C55
5 K04 K05
6 C37 K51 C40 K39 C48 K035 K40 K41
7 C05 K07 C11 Q03 Q04 K45 C13 C33 C32 K17 C53 K42 K37 Q02RAP Q05RAP Q06RAP Q07RAP Q09 Q10RAP Q11RAP Q12RAP Q13RAP Q14 Q17RAP Q26
8 K49 Q27RAP Q19 Q23RAP Q24
9 C06 C28 C10 C12 C14 K38 C07 C38 C50 C54 Q01 K08 K52 K25 K09 C39
1 K10
9 K11
10 C17 C43 K18 K13 K12 C19 K34 K19 C45 K32 K43


H
I
J
K
L
M
N
O
P
ARILAZ
PERVIR
DYSKAL
EUPDRU
PEROBO
SENARTX
HAKLORLO
PANEFF
PSYLAT
TRIMEL
POLGLA
SOLFER
GOOPRO
PTIGAU
LYSMUR
POLCOR
RHASP.
SIDPLA
ERASET
TRIAST
ERELAN
MAIPLA
EUPFER
GOONUD
PASRAR
ACAHAM
CHEBRO
EREJUCPU
INDFRAFR
CLEFLOAN
SENFER
CASCAP
EUCKIN
SCABROBR
DODCOR
CODCOT
ACAHIL
FIMSIM
GOMORE
ARIPRU
TEPOXA
CHECON
PETLAB
MIRVIM
ACAMAI
VIGSP.
CULLEU
PLUDEN
TEUTEU
ACASTEBO
MAYSP.
ACASYN
ACATET
SIDPIL
DAMCAN
SIDART
DOLCRO
GOOMUE
PTICLE
DENERW
ERACUM
ERISP.
TRAOLEOL
VT
1
2
6
5
3
4
5
6
7
8
9
1
9
10


Q
AMAUND
CAPMIT
CORFER
TRILEP
ARIBUR
CAPSPINU
CYPCUNCU
SENVEN
CORLAN
EUPTRI
TRIMAC1
TINSMI
CYNPED
SIDSHO
PASCLE
GOMCUN
POLLON
SIDEXC
ASTHAM
BRAACU
EREPETPE
ERENAA
DODPAC
FICBRA
SOLGAB
BULBAR
CYNVIMAU
NEWCLA
DODVISMU
TRIBIF
HIBSP.
PIMFOR
VT
1
C01
C44
K20
K21
K22
C03
C46
C09
C21
C34
C02
C08
K31
K03
K02
C15
C30
K14
K30
K44
C16
C31
C27
K06
K24
K36
C29
C51
K27
C18
C49
K28
2
C04
C22
K23
C20
C25
C26
K33
C47
K47
K46
C41
K29
K16
K15
K26
K48
6
C23
5
K01
3
K50
R01
4
C24
C52
C35
C36
C42
C55
5
K04
K05
6
C37
K51
C40
K39
C48
K035
K40
K41
7
C05
K07
C11
Q03
Q04
K45
C13
C33
C32
K17
C53
K42
K37
Q02RAP
Q05RAP
Q06RAP
Q07RAP
Q09
Q10RAP
Q11RAP
Q12RAP
Q13RAP
Q14
Q17RAP
Q26
8
K49
Q27RAP
Q19
Q23RAP
Q24
9
C06
C28
C10
C12
C14
K38
C07
C38
C50
C54
Q01
K08
K52
K25
K09
C39
1
K10
9
K11
10
C17
C43
K18
K13
K12
C19
K34
K19
C45
K32
K43

APPENDIX I

Summary of Misclassified and Manually Reassigned Quadrats Assessed in the Study Area

Quadrat	Original Group	Reassigned VT	Reasoning
C23	VT 3	VT 6	This quadrat grouped with K01 split at a higher level to remainder of quadrats originally grouped into VT 3, indicating a lower level of similarity. Quadrat C23 is within transitional vegetation and has been relatively recently burnt (~4-5 years ago). Allocated to VT 6 based on dominant taxa present and its occurrence on an ironstone crest.
K01	VT 3	VT 5	This quadrat grouped with quadrat C23 split at a higher level to remainder of quadrats originally grouped into VT 3, indicating a lower level of similarity. Quadrat K23 is within transitional vegetation and has been relatively recently burnt (~4-5 years ago). Allocated to VT 5 based on dominant taxa present, it's location and occurrence on an upperslope with ironstone within the McKay soil landscape system.
K10	Separate grouping (located between VT 9 / 10 in dendrogram)	VT 1	This quadrat grouped with K11 within the dendrogram, however the two quadrats were not sufficiently floristically similar to form a unique VT. Allocated to VT 1 based on floristics, soil, landform and location.
K11	Separate grouping (located between VT 9 / 10 in dendrogram)	VT 9	This quadrat grouped with K10 in the dendrogram, however the two quadrats were not sufficiently floristically similar to form a unique VT. Allocated to VT 9 based on floristics, soil, landform and location.

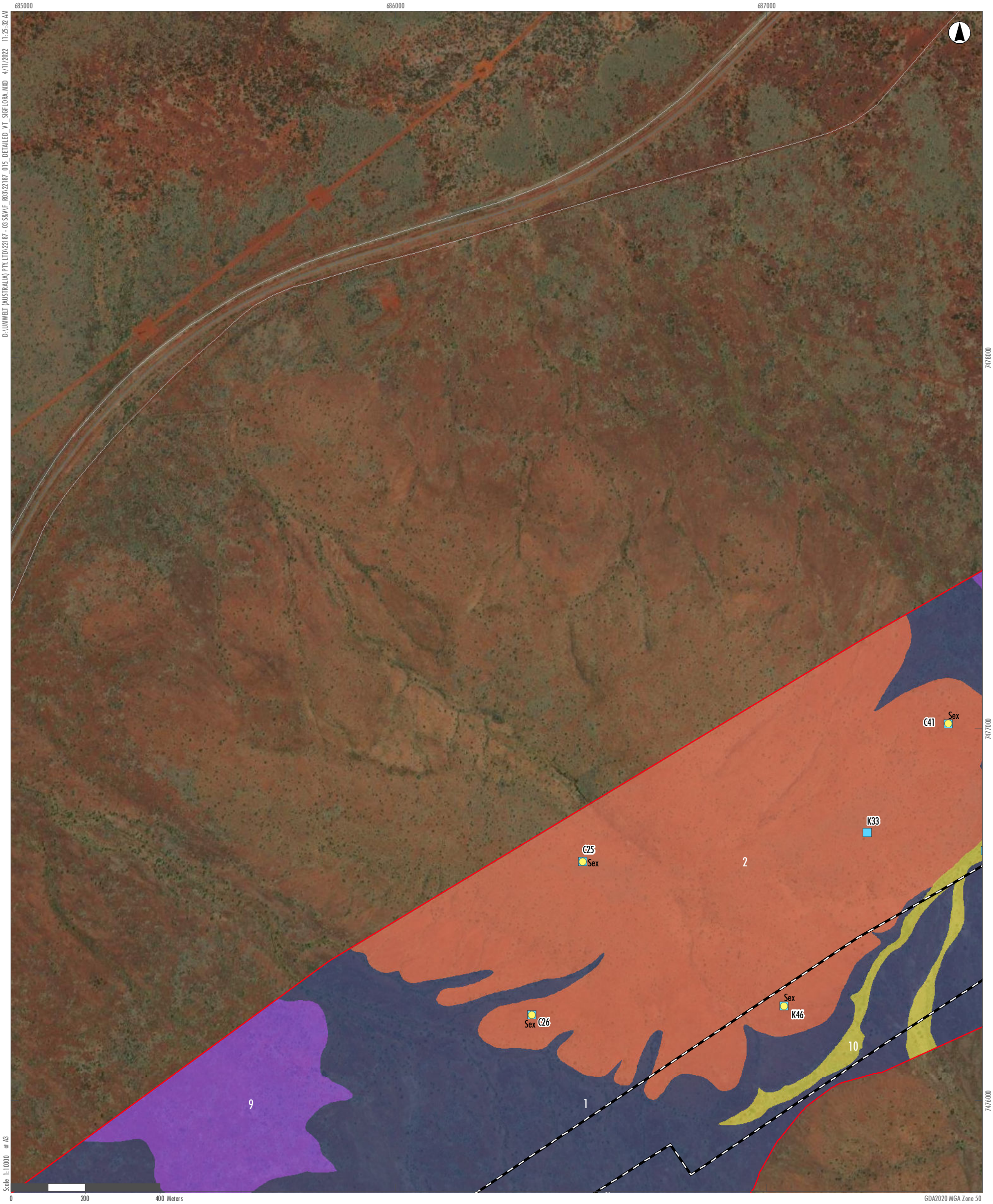
APPENDIX J

Detailed Mapping of Vegetation Types and Significant Flora Locations of the Study Area

D:\UMWELT (AUSTRALIA) PTY. LTD\22187 - 03 S&V\F_R03\22187_015_DETAILED_VT_SIGFLORA.MXD 4/11/2022 11:25:32 AM

685000 686000 687000

7478000 7477000 7476000



Scale 1:10000 at A3

0 200 400 Meters

GDA2020 MGA Zone 50

Legend

- Study Area
- Proposed Development Envelope
- Quadrat

Vegetation Types

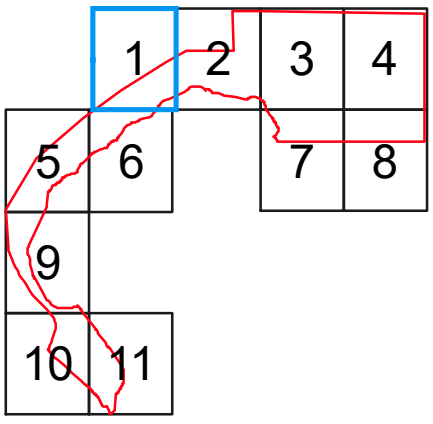
- 1
- 2
- 9
- 10

Significant Flora (Umwelt, 2022)

- Ajes *Aristida jerichoensis* var. *subspinulifera* (P3)
- Alaz *Aristida lazaridis* (P2)
- Csp *Corchorus* sp. (Potentially Undescribed)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
- HspGR *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)
- Sex *Seringia exastia* (T)

Significant Flora (Rapallo, 2021b)

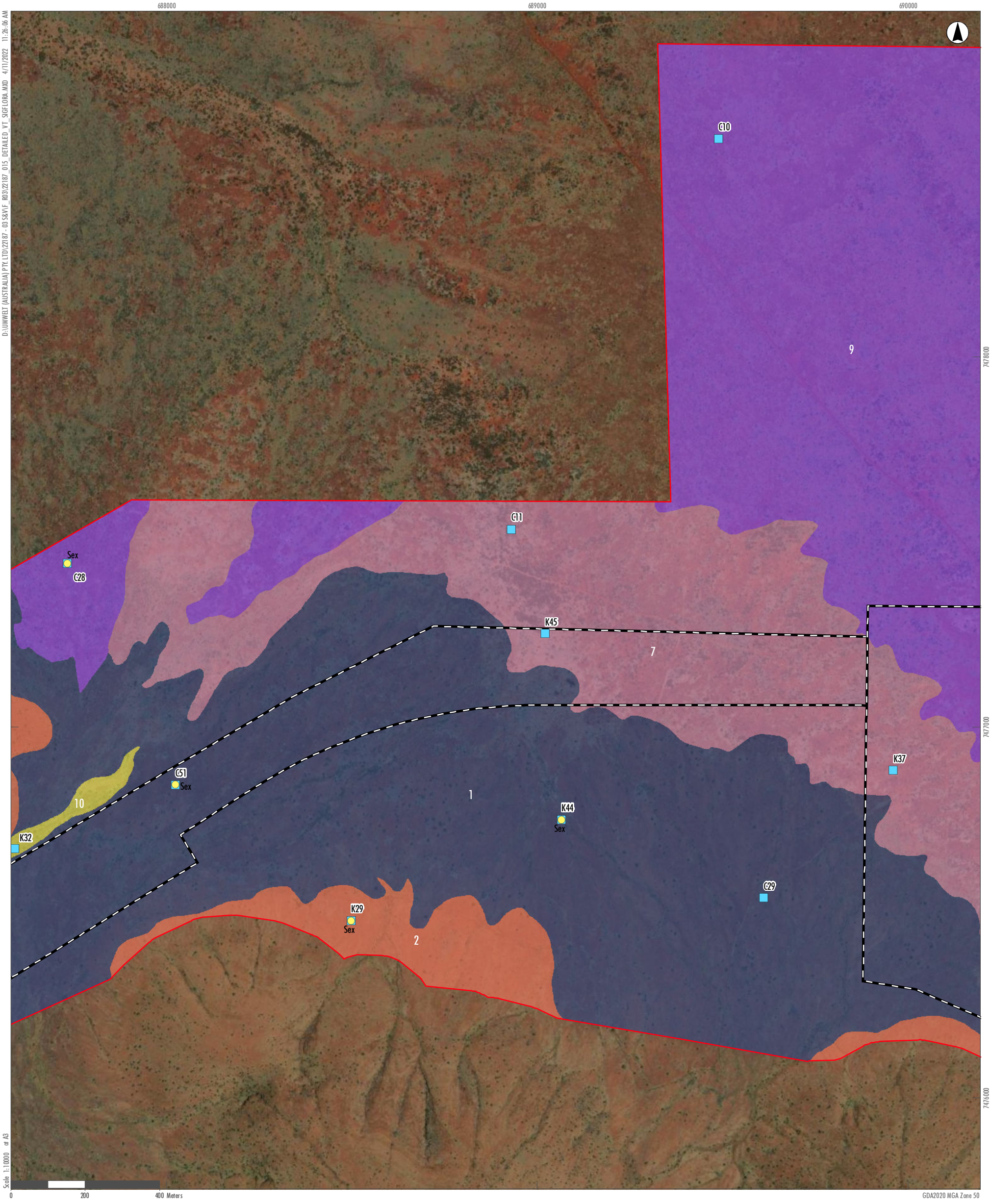
- Alaz *Aristida lazaridis* (P2)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)



APPENDIX J

Detailed Mapping of Vegetation Types and Significant Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Rapallo (2021), Umwelt (2022)



Legend

- Study Area
- Proposed Development Envelope
- Quadrat

Vegetation Types

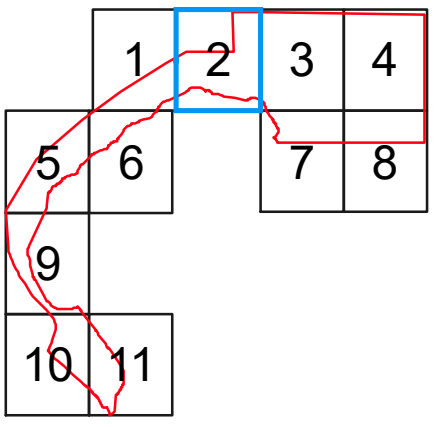
- 1
- 2
- 7
- 9
- 10

Significant Flora (Umwelt, 2022)

- Ajes *Aristida jerichoensis* var. *subspinulifera* (P3)
- Alaz *Aristida lazaridis* (P2)
- Csp *Corchorus* sp. (Potentially Undescribed)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
- HspGR *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)
- Sex *Seringia exastia* (T)

Significant Flora (Rapallo, 2021b)

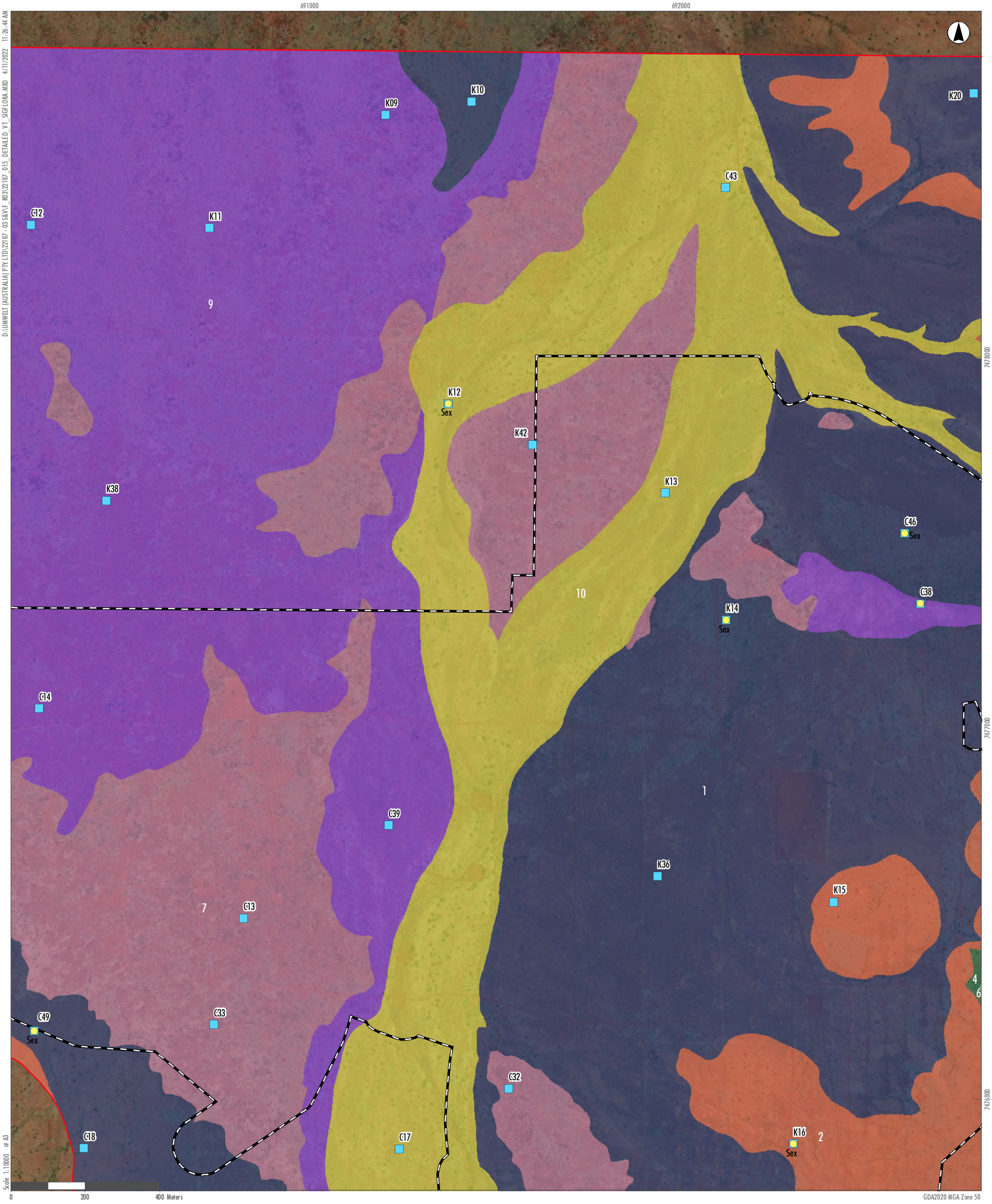
- Alaz *Aristida lazaridis* (P2)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)



APPENDIX J

Detailed Mapping of Vegetation Types and Significant Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Rapallo (2021), Umwelt (2022)



Legend

- Study Area
- Proposed Development Envelope
- Quadrat

Vegetation Types

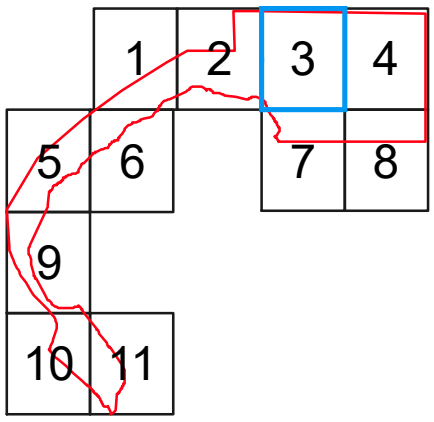
- 1
- 2
- 4
- 6
- 7
- 9
- 10

Significant Flora (Umwelt, 2022)

- Ajes *Aristida jerichoensis* var. *subspinulifera* (P3)
- Alaz *Aristida lazaridis* (P2)
- Csp *Corchorus* sp. (Potentially Undescribed)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
- HspGR *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)
- Sex *Seringia exastia* (T)

Significant Flora (Rapallo, 2021b)

- Alaz *Aristida lazaridis* (P2)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)



APPENDIX J

Detailed Mapping of Vegetation Types and Significant Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Rapallo (2021), Umwelt (2022)

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693000 694000 695000

7478000 7477000 7476000

K05 K01 K19 K04 K21 C20 Sex C45 K22 K43 Sex C44 Sex C01 K34 Sex C21 C03 Sex C47 C22 CR03 C04 C42 CR01 C48 CR05 C55 CR04 K035 C40 K51 C23 Ena C52 C36 C24 Ena HspGR Ena

5 1 10 9 2 6 4

Scale 1:10000 at A3

0 200 400 Meters

GDA2020 MGA Zone 50

Legend

- Study Area
- Proposed Development Envelope
- Quadrat
- Relevé

Vegetation Types

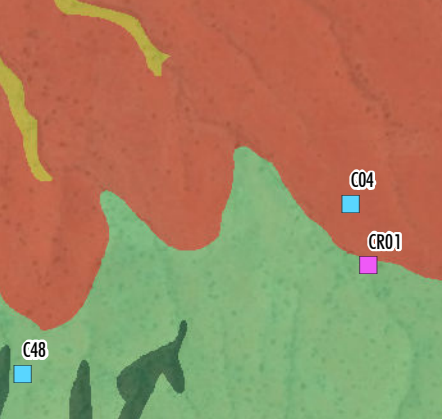
- 1
- 2
- 4
- 5
- 6
- 9
- 10

Significant Flora (Umwelt, 2022)

Ajes	*Aristida jerichoensis* var. *subspinulifera* (P3)
Alaz	*Aristida lazaridis* (P2)
Csp	*Corchorus* sp. (Potentially Undescribed)
Ena	*Eremophila naaykensii* (P3)
Efe	*Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
HspGR	*Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
RspH	*Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
Radl	*Rostellularia adscendens* var. *latifolia* (P3)
Sex	*Seringia exastia* (T)

Significant Flora (Rapallo, 2021b)

Alaz	*Aristida lazaridis* (P2)
Ena	*Eremophila naaykensii* (P3)
Efe	*Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
RspH	*Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
Radl	*Rostellularia adscendens* var. *latifolia* (P3)



APPENDIX J

Detailed Mapping of Vegetation Types and Significant Flora Locations of the Study Area

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683000 684000 7475000 7474000 7473000

K25 K28 K26 Radl K27 Sex C53 7 1 C09 Sex CR02 2 K48 Sex C07 Sex C08 K52 9 Csp K08

Scale 1:10000 at A3

0 200 400 Meters

GDA2020 MGA Zone 50

Legend

- Study Area
- Proposed Development Envelope
- Quadrat
- Relevé

Vegetation Types

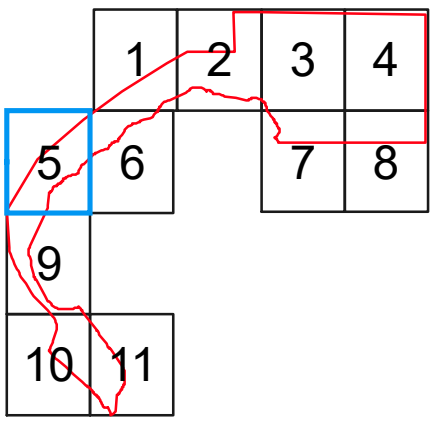
- 1
- 2
- 7
- 9

Significant Flora (Umwelt, 2022)

- Ajes *Aristida jerichoensis* var. *subspinulifera* (P3)
- Alaz *Aristida lazaridis* (P2)
- Csp *Corchorus* sp. (Potentially Undescribed)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
- HspGR *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)
- Sex *Seringia exastia* (T)

Significant Flora (Rapallo, 2021b)

- Alaz *Aristida lazaridis* (P2)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)



APPENDIX J

Detailed Mapping of Vegetation Types and Significant Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Rapallo (2021), Umwelt (2022)

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685000 686000 687000

7475000 7474000 7473000

9 1

C27 Sex
C31
K31 Sex
C30
K30 Sex

Scale 1:10000 at A3

0 200 400 Meters

GDA2020 MGA Zone 50

Legend

- Study Area
- Proposed Development Envelope
- Quadrat

Vegetation Types

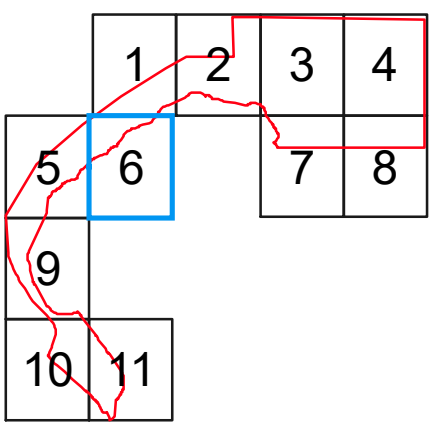
- 1
- 9

Significant Flora (Umwelt, 2022)

Ajes	*Aristida jerichoensis* var. *subspinulifera* (P3)
Alaz	*Aristida lazaridis* (P2)
Csp	*Corchorus* sp. (Potentially Undescribed)
Ena	*Eremophila naaykensii* (P3)
Efe	*Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
HspGR	*Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
RspH	*Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
Radl	*Rostellularia adscendens* var. *latifolia* (P3)
Sex	*Seringia exastia* (T)

Significant Flora (Rapallo, 2021b)

Alaz	*Aristida lazaridis* (P2)
Ena	*Eremophila naaykensii* (P3)
Efe	*Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
RspH	*Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
Radl	*Rostellularia adscendens* var. *latifolia* (P3)



APPENDIX J

Detailed Mapping of Vegetation Types and Significant Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Rapallo (2021), Umwelt (2022)

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691000 692000 7475000 7474000 7473000

9 2 7 1 10 K17 C34 Sex C16 Sex K18 C19 Sex K24 C15 Sex

Scale 1:10000 at A3

0 200 400 Meters

GDA2020 MGA Zone 50

Legend

- Study Area
- Proposed Development Envelope
- Quadrat

Vegetation Types

- 1
- 2
- 7
- 9
- 10

Significant Flora (Umwelt, 2022)

- Ajes *Aristida jerichoensis* var. *subspinulifera* (P3)
- Alaz *Aristida lazaridis* (P2)
- Csp *Corchorus* sp. (Potentially Undescribed)
- Ena *Eremophila naaykensii* (P3)
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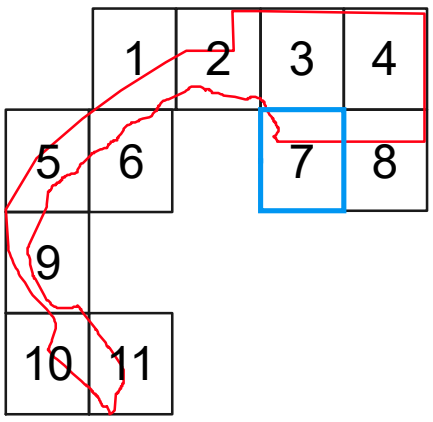
- HspGR *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)
- Sex *Seringia exastia* (T)

Significant Flora (Rapallo, 2021b)

- Alaz *Aristida lazaridis* (P2)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)



APPENDIX J

Detailed Mapping of Vegetation Types and Significant Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Rapallo (2021), Umwelt (2022)

693000 694000 695000

747500 747400 747300

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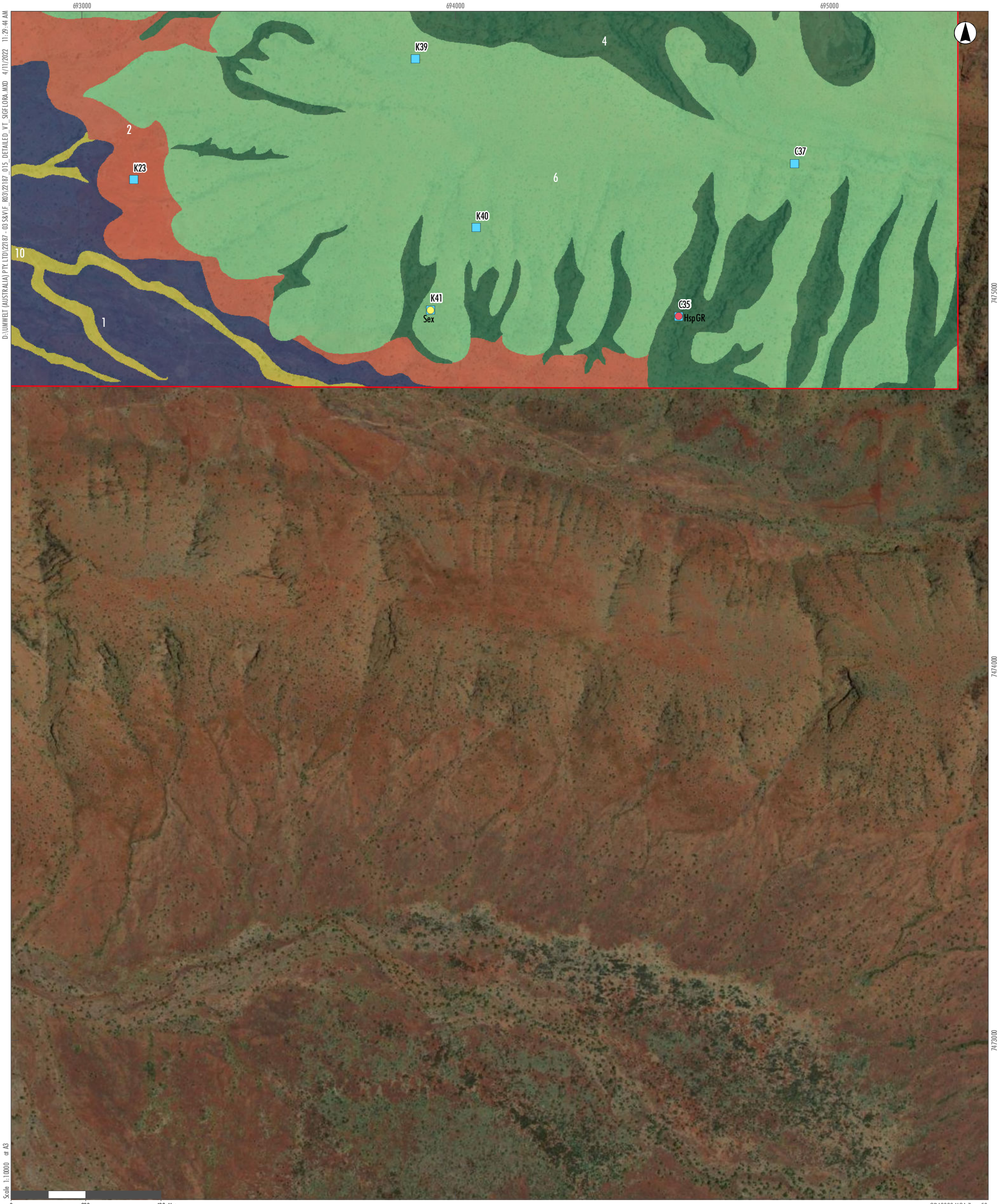


Scale 1:10000 at A3

0 200 400 Meters

GDA2020 MGA Zone 50

Legend

Study Area

Quadrat

Vegetation Types

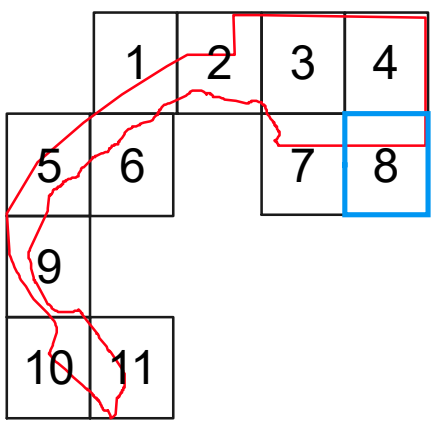
1
2
4
6
10

Significant Flora (Umwelt, 2022)

Ajes	*Aristida jerichoensis* var. *subspinulifera* (P3)
Alaz	*Aristida lazaridis* (P2)
Csp	*Corchorus* sp. (Potentially Undescribed)
Ena	*Eremophila naaykensii* (P3)
Efe	*Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
HspGR	*Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
RspH	*Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
Radl	*Rostellularia adscendens* var. *latifolia* (P3)
Sex	*Seringia exastia* (T)

Significant Flora (Rapallo, 2021b)

Alaz	*Aristida lazaridis* (P2)
Ena	*Eremophila naaykensii* (P3)
Efe	*Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
RspH	*Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
Radl	*Rostellularia adscendens* var. *latifolia* (P3)



APPENDIX J

Detailed Mapping of Vegetation Types and Significant Flora Locations of the Study Area

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683000

684000

7472000

7471000

7470000

C50
Sex
Csp
9
K06
Sex
K07
7
C06
C05
C02
1
K02
Sex
K03
Alaz

Scale 1:10000 at A3

0 200 400 Meters

GDA2020 MGA Zone 50

Legend

- Study Area
- Proposed Development Envelope
- Quadrat

Vegetation Types

- 1
- 7
- 9

Significant Flora (Umwelt, 2022)

- Ajes *Aristida jerichoensis* var. *subspinulifera* (P3)
- Alaz *Aristida lazaridis* (P2)
- Csp *Corchorus* sp. (Potentially Undescribed)
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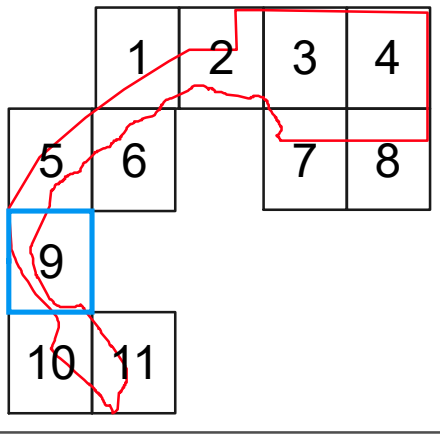
- Radl *Rostellularia adscendens* var. *latifolia* (P3)
- Sex *Seringia exastia* (T)

Significant Flora (Rapallo, 2021b)

- Alaz *Aristida lazaridis* (P2)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)



APPENDIX J

Detailed Mapping of Vegetation Types and Significant Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Rapallo (2021), Umwelt (2022)

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683000 684000 7469000 7468000 7467000

RspH Alaz Q01 Q02RAP Q03 Q04 Q05RAP Q06RAP Q09 Q10RAP Q11RAP Q12RAP Q13RAP Q26 K49 Efe Q27RAP Ajes

1 9 7 C 8 3

Scale 1:10000 at A3

0 200 400 Meters

GDA2020 MGA Zone 50

Legend

- Study Area
- Proposed Development Envelope
- Quadrat
- Rapallo Quadrat (2020b)

Vegetation Types

- 1
- 3
- 7
- 8
- 9
- C

Significant Flora (Umwelt, 2022)

- Ajes *Aristida jerichoensis* var. *subspinulifera* (P3)
- Alaz *Aristida lazaridis* (P2)
- Csp *Corchorus* sp. (Potentially Undescribed)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
- HspGR *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
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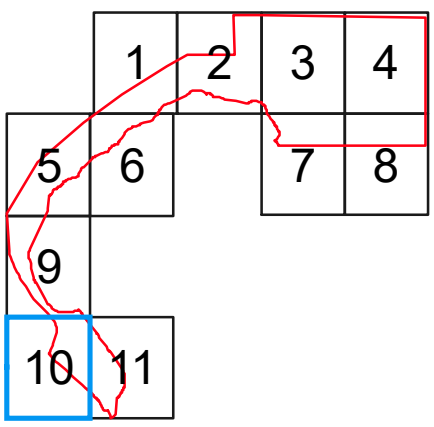
- Sex *Seringia exastia* (T)

Significant Flora (Rapallo, 2021b)

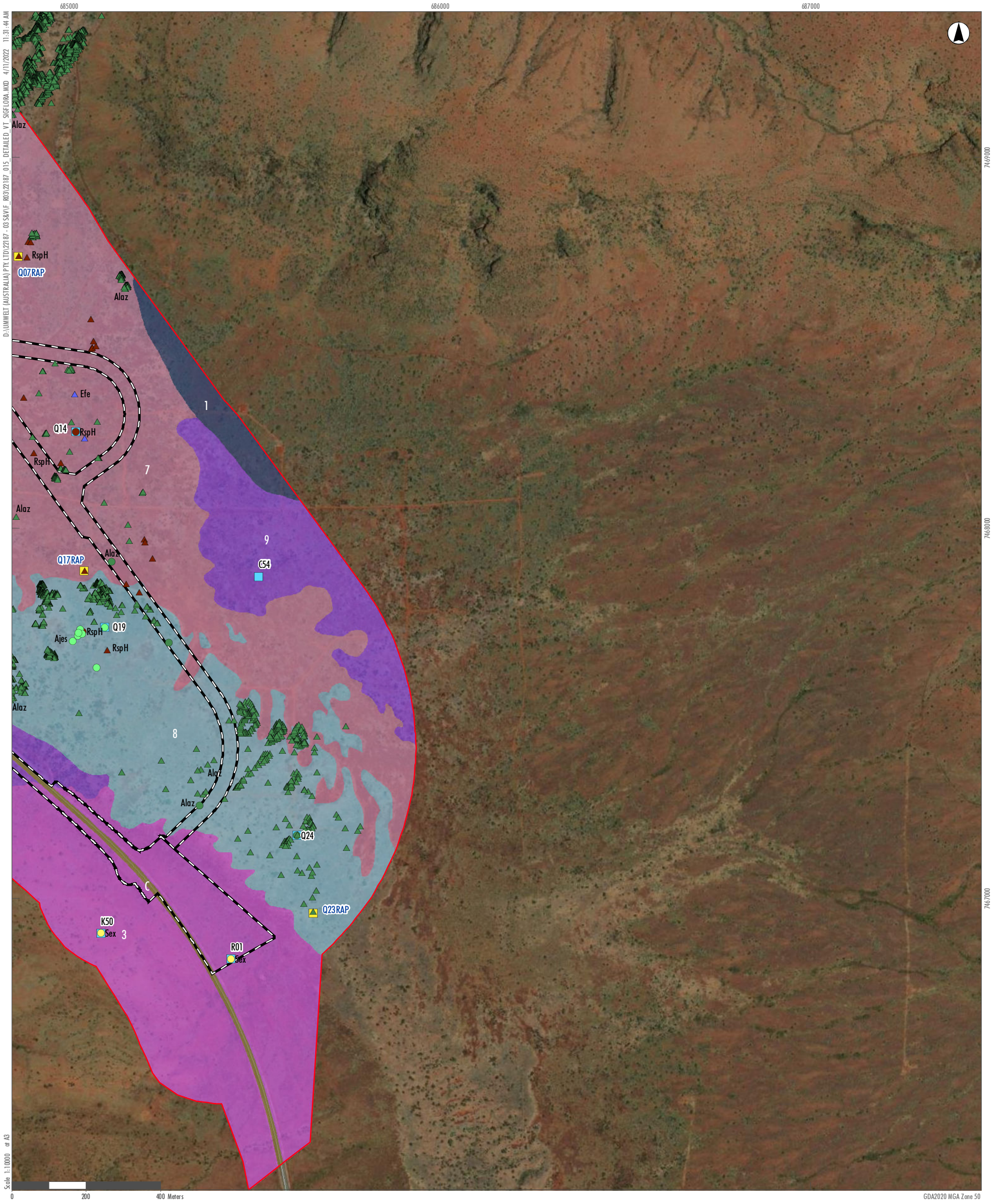
- Alaz *Aristida lazaridis* (P2)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)



APPENDIX J

Detailed Mapping of Vegetation Types and Significant Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Rapallo (2021), Umwelt (2022)



Legend

- Study Area
- Proposed Development Envelope
- Quadrat
- Rapallo Quadrat (2020b)

Vegetation Types

- 1
- 3
- 7
- 8
- 9
- C

Significant Flora (Umwelt, 2022)

- Ajes *Aristida jerichoensis* var. *subspinulifera* (P3)
- Alaz *Aristida lazaridis* (P2)
- Csp *Corchorus* sp. (Potentially Undescribed)
- Ena *Eremophila naaykensii* (P3)
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- HspGR *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
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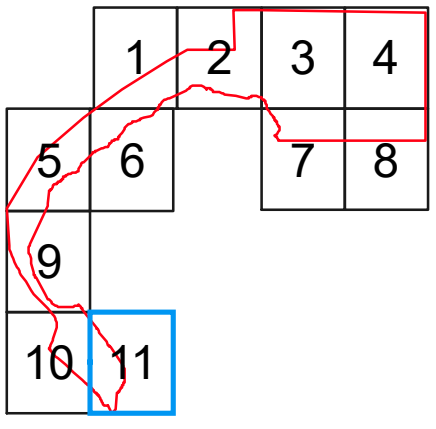
- Radl *Rostellularia adscendens* var. *latifolia* (P3)
- Sex *Seringia exastia* (T)

Significant Flora (Rapallo, 2021b)

- Alaz *Aristida lazaridis* (P2)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* s. lat. (Potentially Undescribed)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)



APPENDIX J

Detailed Mapping of Vegetation Types and Significant Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Rapallo (2021), Umwelt (2022)

APPENDIX K

Matrix of Vascular Plant Taxa Recorded within Each VT Described in the Study Area

Taxon	VT									
	1	2	3	4	5	6	7	8	9	10
Abutilon amplum										x
Abutilon cunninghamii										x
Abutilon fraseri							x			
Abutilon fraseri subsp. *fraseri*	x						x		x	x
Abutilon lepidum	x			x			x		x	x
Abutilon macrum	x						x		x	x
Abutilon otocarpum	x	x					x	x	x	
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	x			x			x			x
Acacia adoxa var. *adoxa*	x	x				x			x	x
Acacia adsurgens	x	x	x	x		x	x	x	x	x
Acacia ancistrocarpa	x	x					x		x	x
Acacia aneura	x						x		x	
Acacia aptaneura	x	x		x		x	x	x	x	x
Acacia atkinsiana	x	x	x	x			x		x	x
Acacia ayersiana							x			
Acacia bivenosa	x	x	x				x		x	x
Acacia cowleana	x	x	x			x	x	x	x	x
Acacia dictyophleba	x	x	x				x	x	x	x
Acacia elachantha	x	x					x		x	
Acacia hamersleyensis		x		x		x				
Acacia hilliana	x	x								
Acacia inaequilatera	x	x		x	x		x		x	x
Acacia maitlandii		x	x	x					x	x
Acacia marramamba			x							
Acacia minyura			x						x	

Taxon	VT									
	1	2	3	4	5	6	7	8	9	10
Acacia monticola	x	x	x	x					x	x
Acacia pachyacra							x	x	x	
Acacia pruinocarpa	x	x	x	x		x	x		x	x
Acacia pyrifolia var. *pyrifolia*	x	x	x	x		x	x			x
Acacia rhodophloia x sibirica			x							
Acacia sericophylla										x
Acacia sibirica		x					x		x	
Acacia steedmanii subsp. *borealis*	x								x	
Acacia synchronicia	x									
Acacia tenuissima	x	x	x		x	x	x	x	x	x
Acacia tetragonophylla	x				x					
Acacia tumida var. *pilbarensis*	x			x		x	x		x	x
Afrohybanthus aurantiacus	x			x		x	x	x	x	x
Alternanthera nana				x			x	x	x	x
Amaranthus cuspidifolius				x			x		x	
Amaranthus undulatus				x						
Amphipogon sericeus	x	x	x							
?Androcalva loxophylla	x								x	
Androcalva luteiflora	x	x		x					x	x
Anthobolus leptomerioides							x	x	x	x
Areocleome oxalidea								x		
Aristida burbidgeae				x						
Aristida contorta	x	x		x	x		x	x	x	x
Aristida holathera var. *holathera*	x	x	x		x	x	x		x	x
Aristida inaequiglumis	x	x	x				x	x	x	x

Taxon	VT									
	1	2	3	4	5	6	7	8	9	10
Aristida jerichoensis var. *subspinulifera* (P3)								x		
Aristida lazaridis (P2)							x	x		
Aristida obscura	x			x			x			x
Aristida pruinosa	x	x								
Arivela viscosa	x	x		x	x	x	x	x	x	x
Astrotricha hamptonii				x						
Atalaya hemiglauca					x					x
**Bidens bipinnata*	x			x		x	x	x	x	x
Boerhavia coccinea	x			x	x	x	x	x	x	x
Boerhavia repleta				x			x	x	x	x
Boerhavia schomburgkiana							x			
Bonamia erecta	x						x		x	x
Bonamia pilbarensis										x
Bothriochloa ewartiana	x				x		x		x	x
Brachychiton acuminatus				x						
Bulbostylis barbata				x				x		x
Capparis lasiantha	x	x		x			x	x	x	x
Capparis mitchellii				x						
Capparis spinosa subsp. *nummularia*				x						
Cassytha capillaris	x	x				x				x
**Cenchrus ciliaris*	x			x			x			x
**Cenchrus setiger*							x			x
Cheilanthes brownii				x		x				
Cheilanthes contigua		x			x	x				x
Cheilanthes sieberi subsp. *sieberi*				x		x	x	x	x	

Taxon	VT									
	1	2	3	4	5	6	7	8	9	10
Chrysocephalum apiculatum subsp. *pilbarense*							x			
Chrysocephalum gilesii								x		
Chrysopogon fallax	x		x				x	x	x	x
Clerodendrum floribundum var. *angustifolium*	x	x		x		x	x			x
Codonocarpus cotinifolius	x	x				x			x	
Commelina ensifolia							x			
Corchorus crozophorifolius	x									x
Corchorus incanus subsp. *lithophilus*	x	x			x	x			x	x
Corchorus laniflorus				x		x				
Corchorus lasiocarpus subsp. *parvus*	x	x		x		x	x		x	x
Corchorus tridens							x			
Corchorus sp. (potentially undescribed)									x	
Corymbia deserticola subsp. *deserticola*	x	x	x				x		x	
Corymbia ferriticola				x						
Corymbia hamersleyana	x	x	x	x	x	x	x		x	x
Crotalaria medicaginea var. *neglecta*	x			x					x	x
Cucumis variabilis	x	x		x			x	x	x	x
Cullen leucochaites				x	x					
Cymbopogon ambiguus	x	x	x	x	x	x	x		x	x
Cymbopogon obtectus	x	x	x			x	x	x	x	x
Cynanchum pedunculatum				x		x			x	
Cynanchum viminale subsp. *australe*				x			x			
Cyperus cunninghamii subsp. *cunninghamii*				x						
Dactyloctenium radulans							x			
Dampiera candicans	x	x								

Taxon	VT									
	1	2	3	4	5	6	7	8	9	10
Dendrophyllanthus erwinii	x						x			x
Dichanthium sericeum subsp. *humilius*								x		
Digitaria ammophila				x			x	x	x	x
Digitaria brownii	x	x	x				x	x	x	x
Digitaria ctenantha							x			x
Diplatia grandibractea				x						
Dodonaea coriacea	x	x				x			x	
Dodonaea lanceolata var. *lanceolata*	x					x				x
Dodonaea pachyneura				x						
Dodonaea petiolaris	x						x		x	
Dodonaea viscosa subsp. *mucronata*				x		x				
Dolichocarpa crouchiana	x	x				x				
Duperreya commixta	x	x		x		x	x	x	x	x
Dysphania glomulifera subsp. *eremaea*								x		
Dysphania kalpari							x	x		
Dysphania rhadinostachya		x		x		x	x			
Dysphania rhadinostachya subsp. *inflata*							x			
?Enchylaena tomentosa							x			
Enneapogon caerulescens	x	x			x		x			x
Enneapogon lindleyanus	x			x	x		x	x	x	x
Enneapogon polyphyllus	x	x		x	x	x	x	x	x	x
Enneapogon robustissimus				x			x		x	x
Eragrostis cumingii										x
Eragrostis eriopoda	x	x					x		x	x
Eragrostis pergracilis								x		

Taxon	VT									
	1	2	3	4	5	6	7	8	9	10
Eragrostis setifolia							x	x		
Eragrostis tenellula				x						
Eremophila forrestii subsp. *forrestii*	x	x					x		x	
Eremophila fraseri subsp. *fraseri*	x						x		x	
Eremophila jucunda subsp. *pulcherrima*		x		x		x				
Eremophila lanceolata								x		
Eremophila latrobei subsp. *filiformis*	x	x			x		x	x	x	
Eremophila latrobei × *forrestii*	x									
Eremophila longifolia	x				x		x	x	x	x
Eremophila naaykensii (P3)				x						
Eremophila petrophila subsp. *petrophila*				x						
Eriachne aristidea										x
Eriachne lanata	x									
Eriachne mucronata	x	x	x	x	x	x	x		x	x
Eriachne pulchella subsp. *dominii*	x	x	x		x	x	x		x	x
Eriachne pulchella subsp. *pulchella*							x			
Eriachne tenuiculmis	x			x						x
Eriachne sp. Dugald River (B.K. Simon+ 3007)		x								x
Eucalyptus gamophylla	x	x	x				x		x	x
Eucalyptus kingsmillii						x				
Eucalyptus leucophloia subsp. *leucophloia*	x	x	x	x	x	x	x		x	x
Eucalyptus xerothermica							x	x		x
Eulalia aurea	x	x	x			x	x	x	x	x
Euphorbia australis var. *subtomentosa*		x					x			x
Euphorbia australis var. *hispidula*	x	x					x		x	

Taxon	VT									
	1	2	3	4	5	6	7	8	9	10
Euphorbia biconvexa				x	x		x	x	x	x
Euphorbia coghlanii							x			
Euphorbia drummondii							x			
Euphorbia ferdinandi s. lat.								x		
Euphorbia aff. *ferdinandi*							x	x		
Euphorbia tannensis subsp. *eremophila*	x			x			x		x	x
Euphorbia trigonosperma		x		x		x	x		x	
Euploca cunninghamii	x	x					x		x	x
Euploca pachyphylla	x									x
Euploca tanythrix	x	x					x		x	x
Evolvulus alsinoides	x	x	x	x			x	x	x	x
Evolvulus alsinoides var. *villosicalyx*							x	x	x	
Evolvulus alsinoides var. *decumbens*							x		x	x
Ficus brachypoda				x						
Fimbristylis dichotoma	x	x			x	x		x	x	x
Fimbristylis simulans	x	x								x
Glycine canescens				x			x		x	x
Gompholobium oreophilum	x	x	x							x
Gomphrena canescens subsp. *canescens*	x	x					x		x	x
Gomphrena cunninghamii		x		x		x	x			x
Gomphrena kanisii							x			
Goodenia microptera	x	x					x		x	x
Goodenia muelleriana	x	x			x	x	x		x	
Goodenia nuda								x		
Goodenia prostrata							x	x		

Taxon	VT									
	1	2	3	4	5	6	7	8	9	10
Goodenia stellata	x						x		x	x
Goodenia stobbsiana	x	x	x	x		x			x	x
Goodenia triodiophila	x	x			x	x				x
Gossypium australe	x	x		x	x		x		x	x
Gossypium robinsonii	x	x		x	x	x	x		x	x
Grevillea berryana		x						x		
Grevillea pyramidalis subsp. *leucadendron*					x					
Grevillea wickhamii subsp. *hispidula*	x	x		x	x	x	x		x	x
Hakea chordophylla	x	x	x	x		x	x		x	x
Hakea loreus subsp. *loreus*	x				x		x	x	x	x
Hibiscus burtonii	x	x					x	x	x	
Hibiscus coatesii	x	x		x	x	x	x	x	x	x
Hibiscus leptocladus	x									
Hibiscus sturtii var. *platychlamys*	x						x		x	x
Hibiscus sturtii var. *campylochlamys*	x	x			x		x		x	x
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)				x						
Indigofera fractiflexa subsp. *fractiflexa*				x		x				
Indigofera georgei	x						x	x	x	x
Indigofera monophylla	x	x	x	x	x	x	x		x	x
Indigofera rugosa					x					
Ipomoea polymorpha							x			
Iseilema macratherum								x		
Iseilema membranaceum				x			x	x		
Isotropis iophyta							x		x	x
Jasminum didymum subsp. *lineare*	x	x		x	x	x	x		x	x

Taxon	VT									
	1	2	3	4	5	6	7	8	9	10
Leiocarpa semicalva subsp. *semicalva*				x						x
Lepidium pedicellosum	x									
Lysiana murrayi							x	x		
Maireana planifolia							x	x		
Maireana villosa	x						x	x	x	x
**Malvastrum americanum*							x			x
Maytenus sp. Mt Windell (S. van Leeuwen 846)	x				x					
Melhania oblongifolia	x			x	x		x		x	x
Mirbelia viminalis		x				x				
Mnesithea formosa	x	x			x		x			x
Nellica maderaspatensis				x						x
Newcastelia clavipetala				x		x				
Nicotiana benthamiana				x						
Notoleptopus decaisnei									x	x
Olearia xerophila				x						
Panicum decompositum							x	x		
Panicum effusum							x	x	x	
Paraneurachne muelleri	x	x	x	x		x	x		x	x
Paspalidium clementii		x		x			x			
Paspalidium rarum							x	x		x
Paspalidium tabulatum				x						
Peripleura obovata							x		x	
Peripleura virgata							x			
Perotis rara	x			x			x	x	x	x
Petalostylis labicheoides	x	x				x				

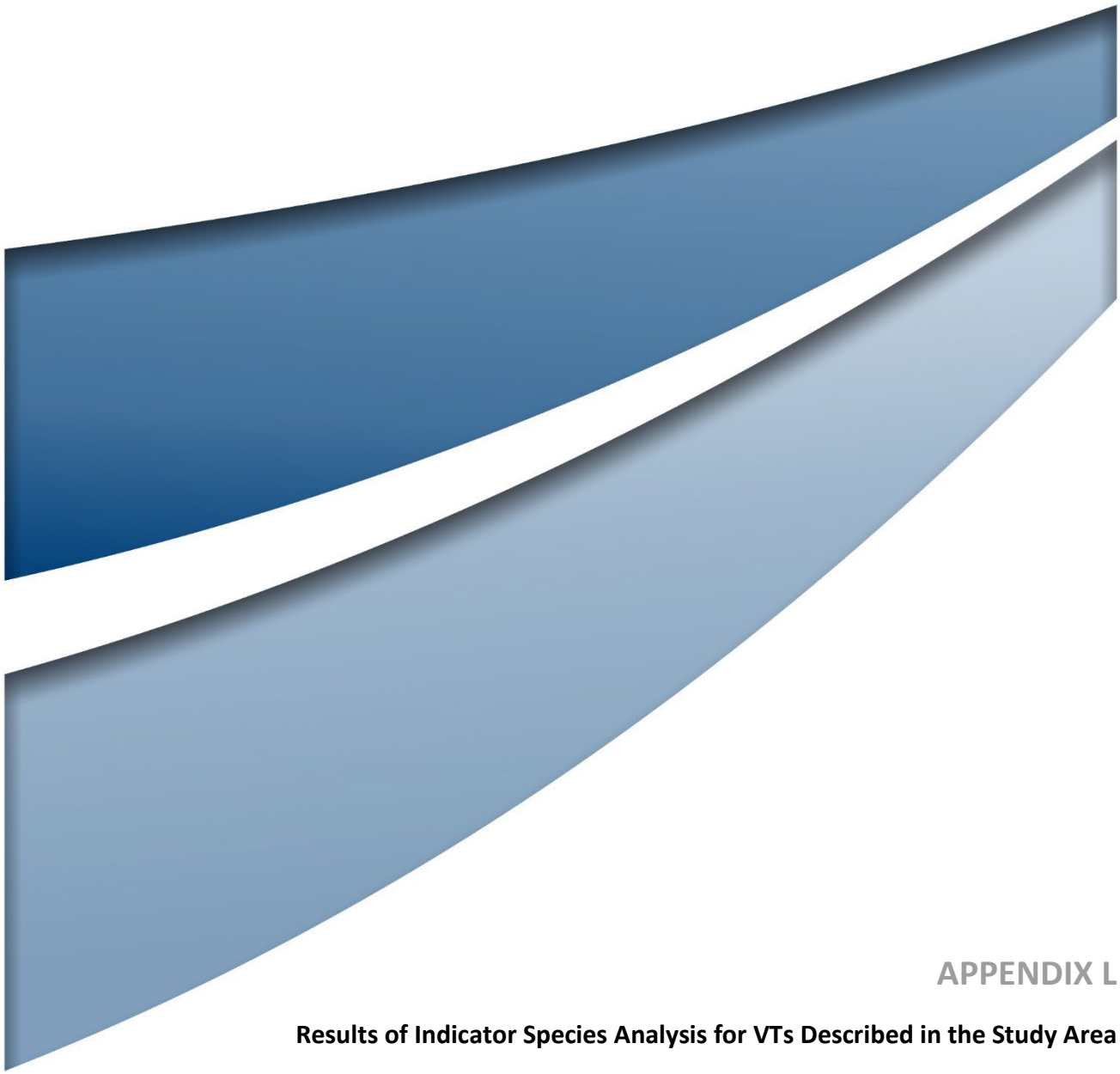
Taxon	VT									
	1	2	3	4	5	6	7	8	9	10
Pimelea forrestiana				x		x				
Pluchea dentex	x			x						
Pluchea tetranthera								x		
Polycarpaea corymbosa var. *corymbosa*			x				x			
Polycarpaea holtzei		x								
Polycarpaea longiflora		x		x	x	x				x
Polygala glaucifolia							x		x	
Polymeria ambigua										x
Portulaca oleracea	x						x	x		x
**Portulaca pilosa*		x								
Prostanthera albiflora				x						
Psydrax latifolia	x			x		x	x	x	x	
Psydrax rigidula	x						x			
Psydrax suaveolens	x	x					x		x	
Pterocaulon serrulatum var. *velutinum*				x						
Pterocaulon sphacelatum	x			x			x	x	x	x
Ptilotus astrolasius	x	x		x		x	x		x	x
Ptilotus calostachyus	x	x	x		x	x	x		x	x
Ptilotus ?carinatus	x	x					x	x	x	x
Ptilotus clementii	x	x								
Ptilotus exaltatus	x						x	x	x	x
Ptilotus fusiformis				x						
Ptilotus gaudichaudii							x	x		
Ptilotus helipteroides							x	x	x	x
Ptilotus obovatus							x	x		

Taxon	VT									
	1	2	3	4	5	6	7	8	9	10
Ptilotus obovatus var. *obovatus*	x	x	x			x	x	x	x	x
Ptilotus rotundifolius	x	x	x			x	x		x	
Ptilotus schwartzii var. *schwartzii*								x		
Rhagodia eremaea	x						x		x	x
Rhagodia sp. Hamersley (M. Trudgen 17794) (P3)							x			
Rhynchosia minima	x	x		x	x		x		x	x
Salsola australis							x			x
Santalum lanceolatum	x	x		x	x	x	x		x	x
Scaevola amblyanthera var. *centralis*										x
Scaevola browniana subsp. *browniana*						x				
Scaevola parvifolia subsp. *pilbarae*	x	x	x				x		x	x
Scaevola parvifolia subsp. *parvifolia*							x			
Scaevola spinescens	x				x					x
Schizachyrium fragile	x	x	x	x		x	x	x	x	x
Sclerolaena cornishiana	x						x			
Sclerolaena tetragona								x		
Senna artemisioides subsp. *helmsii*	x	x				x	x		x	x
Senna artemisioides subsp. *oligophylla*	x	x	x	x	x	x	x		x	x
Senna artemisioides subsp. *x artemisioides*							x		x	
Senna ferraria	x	x		x		x				x
Senna glaucifolia	x	x		x	x	x	x		x	x
Senna glutinosa subsp. *glutinosa*	x	x	x	x	x	x	x		x	x
Senna glutinosa subsp. *x luerssenii*	x	x					x		x	x
Senna glutinosa subsp. *pruinosa*	x	x	x		x	x	x		x	x
Senna notabilis	x	x	x				x	x	x	x

Taxon	VT									
	1	2	3	4	5	6	7	8	9	10
Senna pleurocarpa var. *pleurocarpa*	x		x				x			
Senna pleurocarpa var. *angustifolia*							x			
Senna stricta	x									
Senna symonii	x									
Senna venusta				x						
Seringia exastia (T)	x	x	x			x			x	x
Setaria surgens				x			x	x		x
**Setaria verticillata*							x			x
Sida arenicola	x	x	x						x	x
Sida cardiophylla	x	x							x	
Sida echinocarpa	x	x				x	x		x	x
Sida ectogama							x			
Sida fibulifera							x		x	
Sida platycalyx							x	x		
Sida sp. Articulation below (A.A. Mitchell PRP 1605)	x	x					x			
Sida sp. dark green fruits (S. van Leeuwen 2260)							x			
Sida sp. Excedentifolia (J.L. Egan 1925)		x		x		x				
Sida sp. L (A.M. Ashby 4202)	x						x	x	x	x
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	x	x								
Sida sp. Shovelanna Hill (S. van Leeuwen 3842)				x		x				
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	x	x		x	x		x		x	x
Sida sp. Supplejack Station (T.S. Henshall 2345)	x						x		x	x
Solanum cleistogamum	x			x	x	x	x		x	x
Solanum ferocissimum							x		x	
Solanum gabrielae				x						

Taxon	VT									
	1	2	3	4	5	6	7	8	9	10
Solanum ?horridum							x			
Solanum lasiophyllum	x	x	x	x	x	x	x	x	x	x
Solanum phlomoides	x	x		x		x	x		x	x
Spermacoce brachystema							x	x		
Sporobolus australasicus	x						x			
Stemodia grossa				x	x		x	x		x
Stenopetalum nutans								x		
Streptoglossa bubakii	x									
Streptoglossa decurrens							x			x
Stylobasium spathulatum				x						x
**Stylosanthes hamata*								x		
?Swainsona decurrens					x					
Tephrosia densa	x	x		x			x		x	x
Tephrosia oxalidea	x	x								
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	x				x		x		x	x
Tephrosia virens		x								x
Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)	x								x	x
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	x				x		x		x	x
Tephrosia sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)	x									
Teucrium teucriiflorum				x			x	x		
Themeda triandra					x		x	x		
Themeda sp. Mt Barricade (M.E. Trudgen 2471)	x	x		x	x	x	x	x	x	x
Tinospora smilacina				x	x	x				
Trachymene oleracea subsp. *oleracea*	x									x
Tragus australianus							x			

Taxon	VT									
	1	2	3	4	5	6	7	8	9	10
Trianthema glossostigmum	x									
Tribulus astrocarpus							x	x		
Tribulus macrocarpus							x		x	x
Tribulus suberosus	x	x					x	x	x	
**Tribulus terrestris*							x			
Trichodesma zeylanicum var. *zeylanicum*	x	x		x	x		x	x	x	x
Triodia biflora				x		x				
Triodia melvillei			x				x	x	x	
Triodia pungens	x	x	x	x		x	x		x	x
Triodia vanleeuwenii	x	x			x		x		x	x
Triodia wiseana	x	x	x	x	x	x		x	x	x
Tripogonella loliiformis				x						
Triumfetta leptacantha				x						
Triumfetta maconochieana				x		x				
Urochloa occidentalis var. *ciliata*							x			
Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)				x			x		x	
Vincetoxicum lineare	x						x	x	x	x
Waltheria indica							x			x



APPENDIX L

Results of Indicator Species Analysis for VTs Described in the Study Area

Note: Shading denotes highest INDVAL values per taxon and VT. INDVAL values are only shown for taxa that were significant at $p < 0.05$. p values are indicated by:

* = $p < 0.05$

** = $p < 0.01$

*** = $p < 0.001$.

Taxon	INDVAL Value (%)									
	1	2	3	4	5	6	7	8	9	10
*Ptilotus rotundifolius***	29	11	11	0	0	1	0	0	5	0
Senna glutinosa subsp. x *luerssenii****	43	1	0	0	0	0	1	0	11	6
Acacia adoxa var. *adoxa****	9	49	0	0	0	1	0	0	0	10
*Acacia hilliana****	0	78	0	0	0	0	0	0	0	0
*Fimbristylis simulans**	4	32	0	0	0	0	0	0	0	1
*Goodenia stobbsiana**	3	25	25	6	0	3	0	0	5	3
*Goodenia triodiophila****	3	42	0	0	5	19	0	0	0	0
*Ptilotus calostachyus***	15	19	19	0	8	1	1	0	9	8
*Triodia vanleeuwenii****	30	39	0	0	4	0	0	0	1	1
*Acacia adsurgens**	1	1	37	1	0	0	0	1	5	8
*Acacia atkinsiana****	19	5	28	1	0	0	1	0	22	0
*Acacia minyura**	0	0	45	0	0	0	0	0	1	0
*Acacia tenuissima, Acacia pachyacra**	3	0	30	0	3	1	2	5	7	1
*Amphipogon sericeus****	10	2	63	0	0	0	0	0	0	0
*Gompholobium oreophilum***	1	11	60	0	0	0	0	0	0	0
*Schizachyrium fragile**	1	4	31	3	0	6	1	1	2	2
Senna glutinosa subsp. *pruinosa***	11	23	30	0	3	1	0	0	0	1

Taxon	INDVAL Value (%)									
	1	2	3	4	5	6	7	8	9	10
Senna pleurocarpa var. *angustifolia*, *Senna pleurocarpa* var. *pleurocarpa**	0	0	44	0	0	0	0	0	0	0
Seringia exastia (T)***	11	9	36	0	0	0	0	0	2	5
*Triodia pungens**	10	1	18	12	0	5	7	0	12	14
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)*	0	0	0	30	0	0	0	0	0	9
*Amaranthus undulatus****	0	0	0	50	0	0	0	0	0	0
*Aristida burbidgeae****	0	0	0	100	0	0	0	0	0	0
*Astrotricha hamptonii**	0	0	0	33	0	0	0	0	0	0
*Brachychiton acuminatus**	0	0	0	33	0	0	0	0	0	0
*Capparis mitchellii****	0	0	0	67	0	0	0	0	0	0
Capparis spinosa subsp. *nummularia****	0	0	0	100	0	0	0	0	0	0
*Corymbia ferriticola****	0	0	0	67	0	0	0	0	0	0
*Corchorus laniflorus***	0	0	0	74	0	1	0	0	0	0
*Cucumis variabilis**	0	0	0	27	0	0	16	27	1	11
*Cymbopogon ambiguus**	2	9	0	28	12	5	1	0	0	6
*Cynanchum pedunculatum****	0	0	0	78	0	4	0	0	0	0
Cyperus cunninghamii subsp. *cunninghamii****	0	0	0	100	0	0	0	0	0	0
*Dodonaea pachyneura**	0	0	0	33	0	0	0	0	0	0
Dodonaea viscosa subsp. *mucronata***	0	0	0	50	0	6	0	0	0	0
Eremophila naaykensii (P3)*	0	0	0	33	0	0	0	0	0	0
Eremophila petrophila subsp. *petrophila**	0	0	0	33	0	0	0	0	0	0
*Euphorbia trigonosperma***	0	0	0	74	0	1	0	0	0	0
*Ficus brachypoda***	0	0	0	50	0	0	0	0	0	0

Taxon	INDVAL Value (%)									
	1	2	3	4	5	6	7	8	9	10
*Gomphrena cunninghamii***	0	0	0	42	0	1	0	0	0	3
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)*	0	0	0	33	0	0	0	0	0	0
*Paspalidium clementii***	0	0	0	68	0	0	1	0	0	0
*Ptilotus astrolasius****	14	1	0	23	0	1	2	0	18	19
*Senna venusta****	0	0	0	83	0	0	0	0	0	0
Sida sp. Shovelanna Hill (S. van Leeuwen 3842)**	0	0	0	54	0	15	0	0	0	0
*Solanum cleistogamum**	0	0	0	37	6	1	1	0	3	2
*Solanum gabrielae***	0	0	0	50	0	0	0	0	0	0
*Stylobasium spathulatum**	0	0	0	37	0	0	0	0	0	5
*Tinospora smilacina***	0	0	0	54	9	1	0	0	0	0
*Triodia biflora**	0	0	0	41	0	2	0	0	0	0
*Triumfetta leptacantha**	0	0	0	33	0	0	0	0	0	0
*Triumfetta maconochieana***	0	0	0	74	0	1	0	0	0	0
*Acacia inaequilatera****	6	8	0	1	42	0	0	0	2	0
*Fimbristylis dichotoma**	1	11	0	0	35	15	0	1	1	0
Tephrosia sp. Newman (A.A. Mitchell PRP 29)*	1	0	0	0	35	0	1	0	1	6
*Cassytha capillaris***	0	1	0	0	0	42	0	0	0	1
*Cheilanthes brownii***	0	0	0	20	0	47	0	0	0	0
*Eucalyptus kingsmillii**	0	0	0	0	0	33	0	0	0	0
Scaevola browniana subsp. *browniana***	0	0	0	0	0	56	0	0	0	0
*Acacia aptaneura, Acacia aneura****	1	1	0	1	0	0	30	30	12	0
*Acacia ayersiana, Acacia acradenia, Acacia ?ayersiana**	0	0	0	0	0	0	32	0	0	0

Taxon	INDVAL Value (%)									
	1	2	3	4	5	6	7	8	9	10
*Acacia pruinocarpa***	0	3	8	8	0	0	26	0	11	1
*Dactyloctenium radulans**	0	0	0	0	0	0	36	0	0	0
*Duperreya commixta****	9	1	0	13	0	0	19	7	19	15
*Enneapogon polyphyllus**	2	2	0	8	18	0	18	3	11	15
*Enneapogon robustissimus**	0	0	0	2	0	0	33	0	5	3
*Maireana villosa****	0	0	0	0	0	0	47	2	21	0
*Perotis rara***	0	0	0	4	0	0	29	13	6	10
*Ptilotus helipteroides**	0	0	0	0	0	0	32	4	5	1
*Salsola australis**	0	0	0	0	0	0	33	0	0	2
*Sclerolaena cornishiana**	0	0	0	0	0	0	33	0	0	0
*Abutilon otocarpum****	0	0	0	0	0	0	31	40	11	0
*Alternanthera nana***	0	0	0	1	0	0	11	31	13	21
*Aristida inaequiglumis**	2	0	22	0	0	0	19	22	13	5
*Chrysopogon fallax***	0	0	8	0	0	0	24	31	5	4
*Digitaria ammophila***	0	0	0	2	0	0	1	51	1	1
*Eremophila lanceolata**	0	0	0	0	0	0	0	40	0	0
*Goodenia nuda**	0	0	0	0	0	0	0	40	0	0
*Panicum effusum, Panicum decompositum**	0	0	0	0	0	0	13	29	4	0
*Ptilotus obovatus***	4	2	6	0	0	1	18	23	4	9
*Sida platycalyx***	0	0	0	0	0	0	3	47	0	0
Sida sp. L (A.M. Ashby 4202)***	0	0	0	0	0	0	26	34	12	5
*Goodenia microptera**	9	5	0	0	0	0	1	0	25	25
*Hibiscus burtonii****	2	0	0	0	0	0	34	2	39	0

Taxon	INDVAL Value (%)									
	1	2	3	4	5	6	7	8	9	10
Hibiscus sturtii var. *platychlamys****	3	0	0	0	0	0	19	0	33	20
*Paraneurachne muelleri****	13	7	18	0	0	2	9	0	18	15
*Vincetoxicum lineare**	3	0	0	0	0	0	2	3	34	2
*Afrohybanthus aurantiacus****	2	0	0	9	0	2	1	2	5	38
Androcalva luteiflora, *?Androcalva loxophylla**	3	0	0	2	0	0	0	0	4	32
*Bonamia erecta**	8	0	0	0	0	0	0	0	5	26
*Corchorus crozophorifolius**	0	0	0	0	0	0	0	0	0	36
*Corymbia hamersleyana**	1	5	0	7	3	26	0	0	1	26
Crotalaria medicaginea var. *neglecta***	0	0	0	3	0	0	0	0	1	51
Dodonaea lanceolata var. *lanceolata**	1	0	0	0	0	2	0	0	0	31
Euphorbia australis var. *subtomentosa**	0	0	0	0	0	0	10	0	0	26
Evolvulus alsinoides var. *decumbens*, *Evolvulus alsinoides* var. *villosicalyx***	2	1	5	5	0	0	19	8	10	21
Gomphrena canescens subsp. *canescens***	0	0	0	0	0	0	13	0	2	44
*Gossypium australe**	0	1	0	1	6	0	2	0	3	34
*Indigofera monophylla***	15	14	21	1	2	0	0	0	6	21
*Melhania oblongifolia**	1	0	0	1	5	0	4	0	4	33
*Nellica maderaspatensis**	0	0	0	13	0	0	0	0	0	34
*Polymeria ambigua**	0	0	0	0	0	0	0	0	0	36
Senna artemisioides subsp. *oligophylla***	11	11	4	2	17	0	6	0	7	17
*Setaria surgens***	0	0	0	2	0	0	0	4	0	47
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)****	3	3	0	1	3	0	10	0	11	31
Themeda sp. Mt Barricade (M.E. Trudgen 2471), *Themeda triandra**	4	0	0	5	8	1	17	19	4	19

Taxon	INDVAL Value (%)									
	1	2	3	4	5	6	7	8	9	10
*Waltheria indica***	0	0	0	0	0	0	0	0	0	51

APPENDIX M

Detailed Vegetation Condition Mapping and Introduced Flora Locations of the Study Area

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685000 686000 687000

7478000 7477000 7476000

Ppi

Scale 1:10000 at A3

0 200 400 Meters

GDA2020 MGA Zone 50

Legend

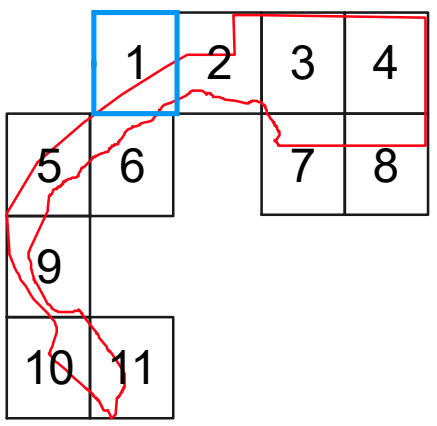
- Study Area
- Proposed Development Envelope

Vegetation Condition

- Excellent
- Very Good

Introduced Flora Taxa (Umwelt 2022)

- Bib **Bidens bipinnata*
- Cec **Cenchrus ciliaris*
- Cse **Cenchrus setiger*
- Maa **Malvastrum americanum*
- Ppi **Portulaca pilosa*
- Sev **Setaria verticillata*
- Trt **Tribulus terrestris*



APPENDIX M

Detailed Vegetation Condition Mapping and Introduced Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Umwelt (2022)

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Legend

- Study Area
- Proposed Development Envelope

Vegetation Condition

- Excellent
- Very Good

Introduced Flora Taxa (Umwelt 2022)

- Bib **Bidens bipinnata*
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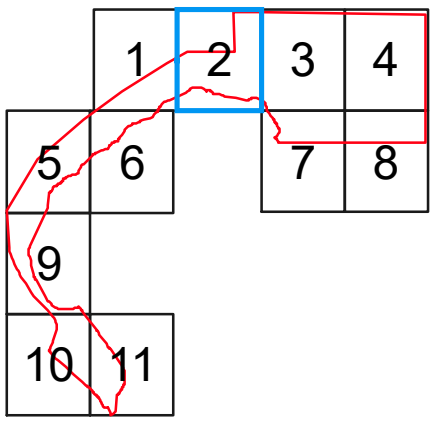

APPENDIX M

Detailed Vegetation Condition Mapping and Introduced Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Umwelt (2022)

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691000 692000 7478000 7477000 7476000

Bib Sev Cec Maa Cse Trt

Scale 1:10000 at A3

0 200 400 Meters

GDA2020 MGA Zone 50

Legend

Study Area
Proposed Development Envelope

Vegetation Condition
Excellent
Very Good
Good

Introduced Flora Taxa (Umwelt 2022)
Bib *Bidens bipinnata
Cec *Cenchrus ciliaris
Cse *Cenchrus setiger
Maa *Malvastrum americanum
Ppi *Portulaca pilosa
Sev *Setaria verticillata
Trt *Tribulus terrestris

1 2 3 4 5 6 7 8 9 10 11

APPENDIX M

Detailed Vegetation Condition Mapping and Introduced Flora Locations of the Study Area

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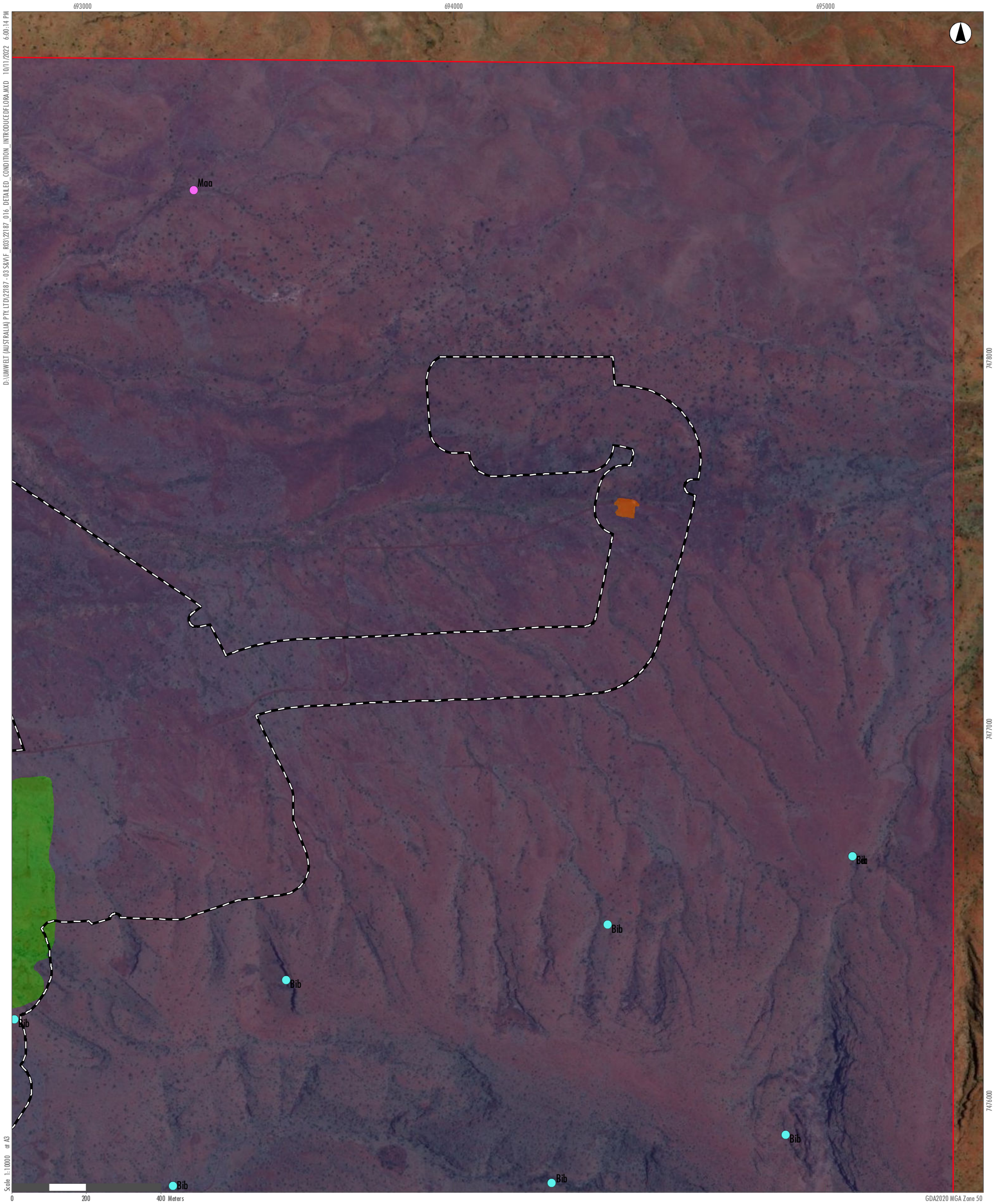

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Legend

- Study Area
- Proposed Development Envelope

Vegetation Condition

- Excellent
- Very Good
- Good

Introduced Flora Taxa (Umwelt 2022)

- Bib **Bidens bipinnata*
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- Sev **Setaria verticillata*
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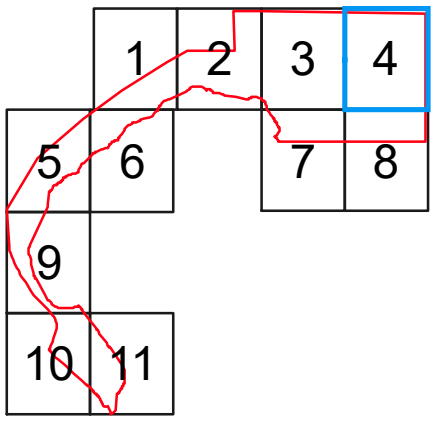

APPENDIX M

Detailed Vegetation Condition Mapping and Introduced Flora Locations of the Study Area

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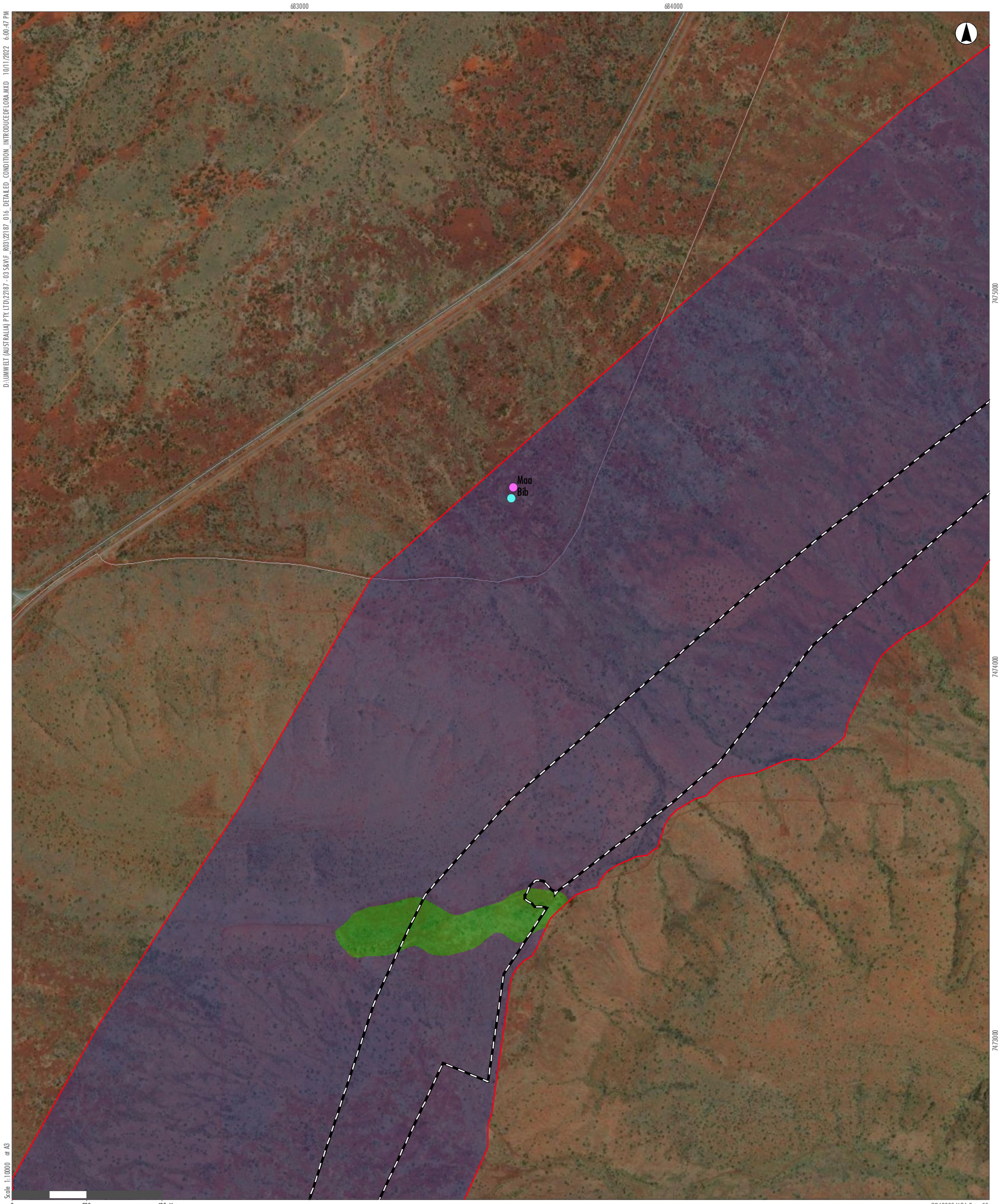

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Legend

- Study Area
- Proposed Development Envelope

Vegetation Condition

- Excellent
- Very Good

Introduced Flora Taxa (Umwelt 2022)

- Bib **Bidens bipinnata*
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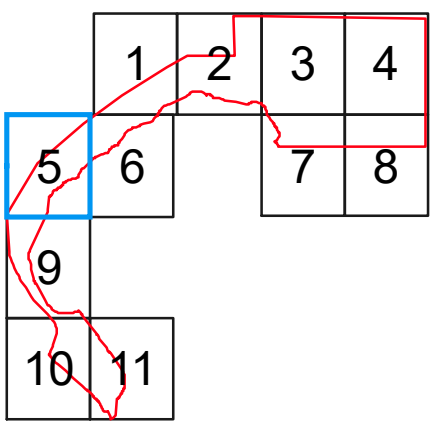

APPENDIX M

Detailed Vegetation Condition Mapping and Introduced Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Umwelt (2022)

685000 686000 687000

7475000 7474000 7473000

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Bib

Scale 1:10000 at A3

0 200 400 Meters

GDA2020 MGA Zone 50

Legend

Study Area

Proposed Development Envelope

Vegetation Condition

Excellent

Introduced Flora Taxa (Umwelt 2022)

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- Sev **Setaria verticillata*
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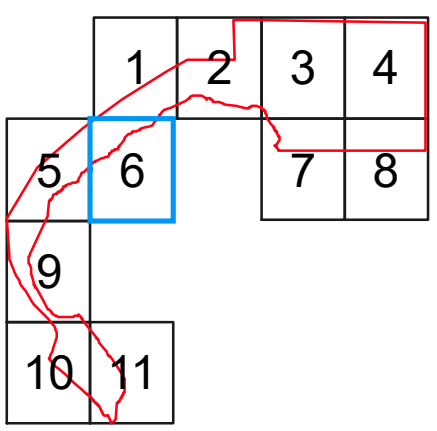

APPENDIX M

Detailed Vegetation Condition Mapping and Introduced Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Umwelt (2022)

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691000

692000

7475000

7474000

7473000

Cse
Cec
Bib
Maa
Sev
Cse
Cse
Sev

Scale 1:10000 at A3

0 200 400 Meters

GDA2020 MGA Zone 50

Legend

Study Area

Proposed Development Envelope

Vegetation Condition

Excellent

Very Good

Good

Introduced Flora Taxa (Umwelt 2022)

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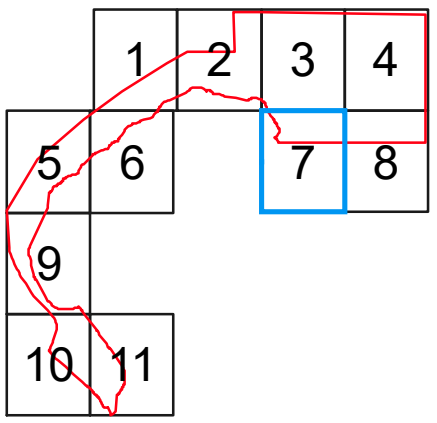

APPENDIX M

Detailed Vegetation Condition Mapping and Introduced Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Umwelt (2022)

693000 694000 695000

7475000 7474000 7473000

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Scale 1:10000 at A3

0 200 400 Meters

GDA2020 MGA Zone 50

Legend

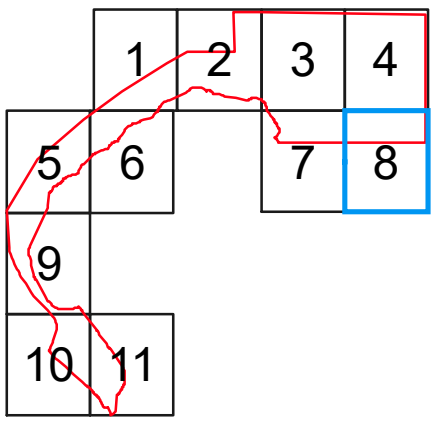
Study Area

Vegetation Condition

Excellent

Introduced Flora Taxa (Umwelt 2022)

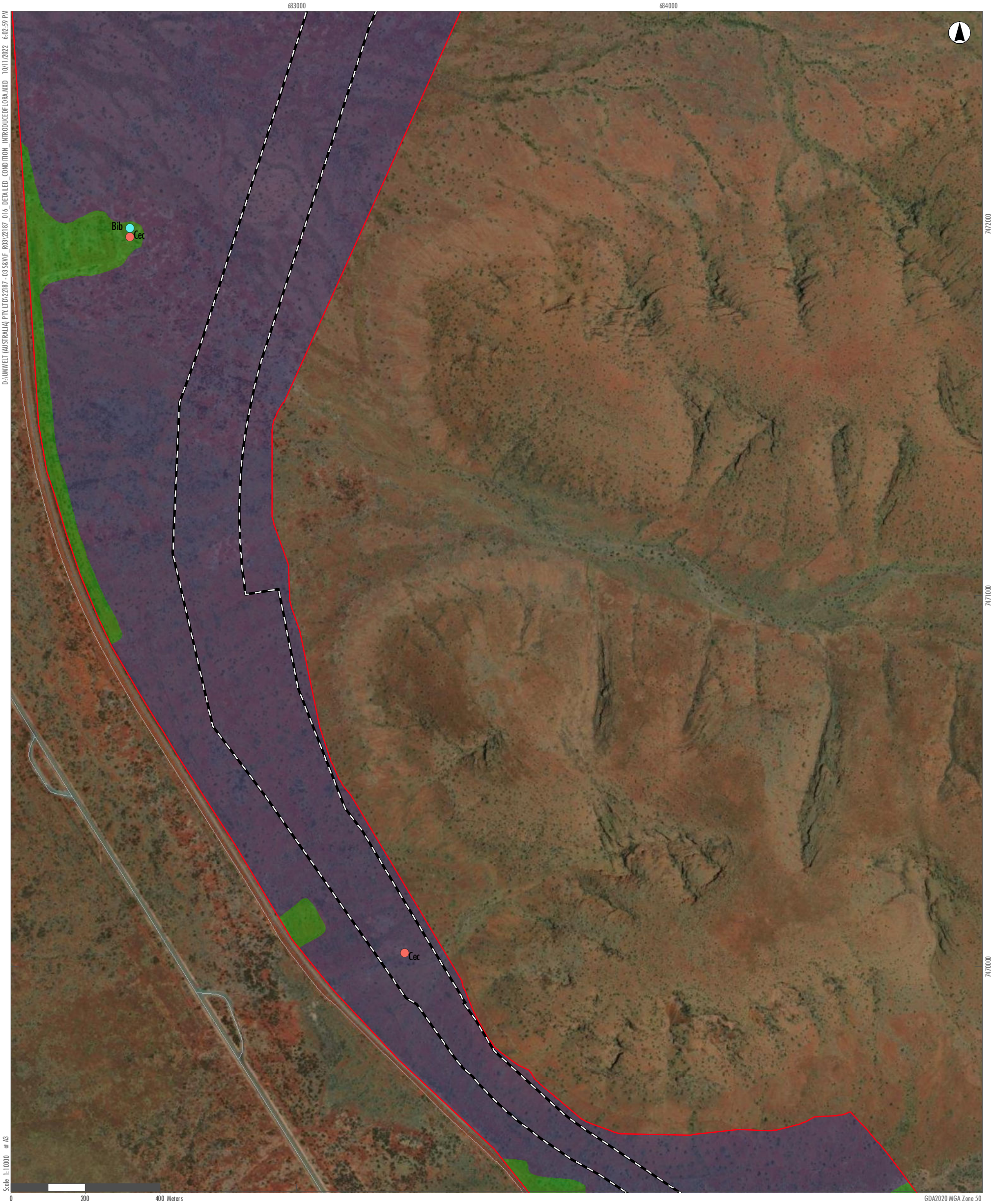
- Bib *Bidens bipinnata*
- Cec *Cenchrus ciliaris*
- Cse *Cenchrus setiger*
- Maa *Malvastrum americanum*
- Ppi *Portulaca pilosa*
- Sev *Setaria verticillata*
- Trt *Tribulus terrestris*



APPENDIX M

Detailed Vegetation Condition Mapping and Introduced Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Umwelt (2022)



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Legend

- Study Area
- Proposed Development Envelope

Vegetation Condition

- Excellent
- Very Good

Introduced Flora Taxa (Umwelt 2022)

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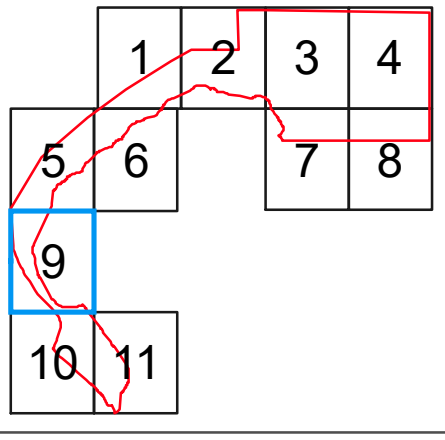

APPENDIX M

Detailed Vegetation Condition Mapping and Introduced Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Umwelt (2022)

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683000

684000

7469000

7468000

7467000

Bib
Cse Maa
Bib Cec
Trt
Maa
Cec
Trt
Bib
Bib
Bib

Scale 1:10000 at A3

0 200 400 Meters

GDA2020 MGA Zone 50

Legend

- Study Area
- Proposed Development Envelope

Vegetation Condition

- Excellent
- Very Good
- Good
- Cleared

Introduced Flora Taxa (Umwelt 2022)

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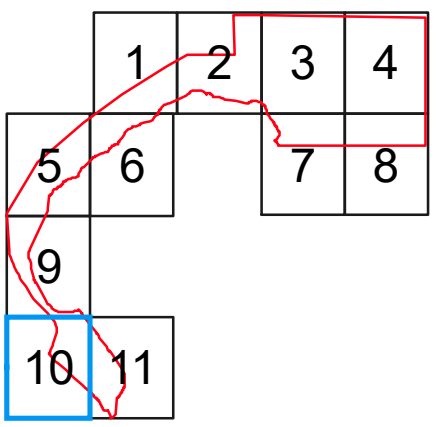
- Maa **Malvastrum americanum*
- Ppi **Portulaca pilosa*
- Sev **Setaria verticillata*
- Trt **Tribulus terrestris*



APPENDIX M

Detailed Vegetation Condition Mapping and Introduced Flora Locations of the Study Area

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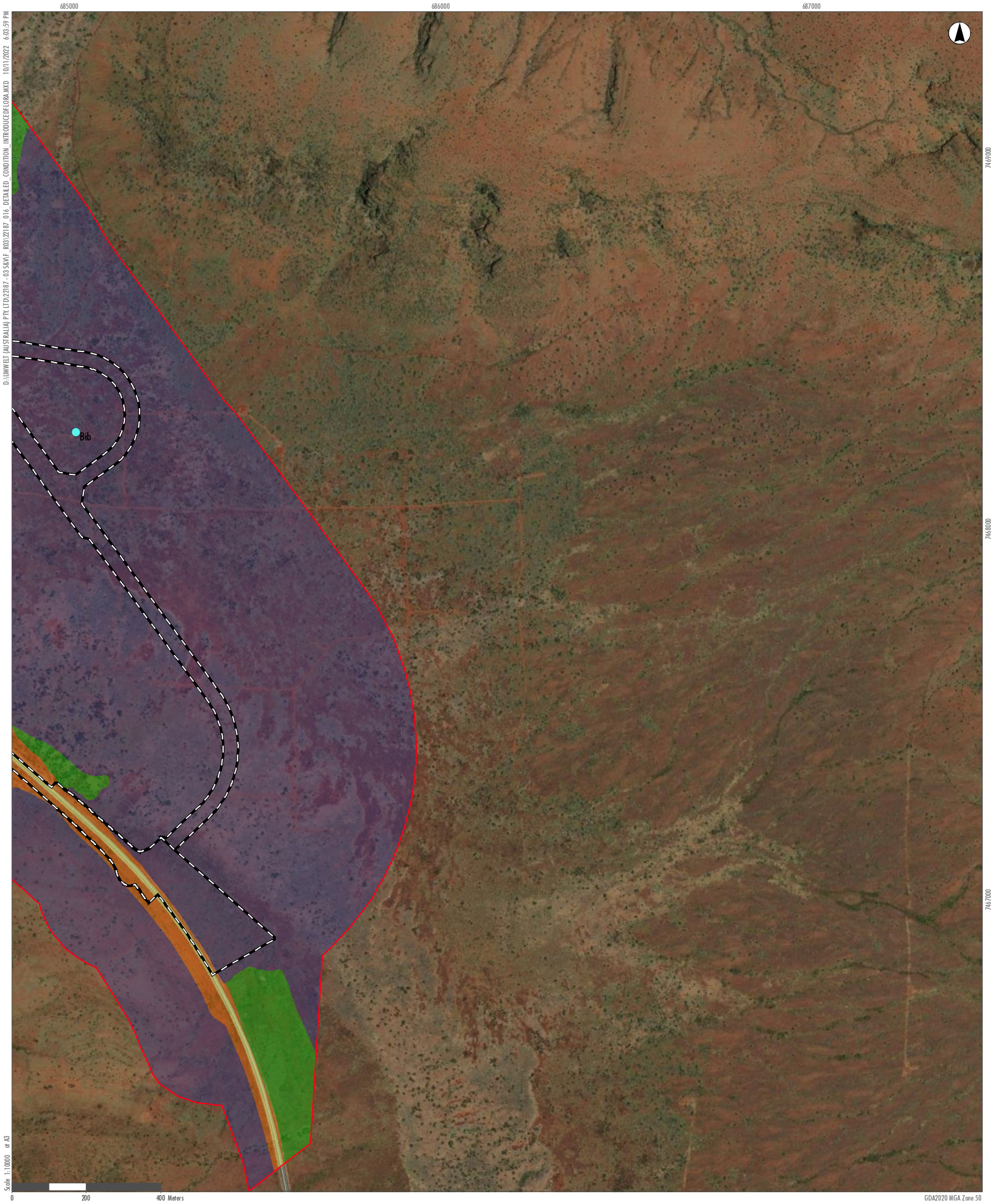

Legend

Study Area

Proposed Development Envelope

Vegetation Condition

- Excellent
- Very Good
- Good
- Cleared

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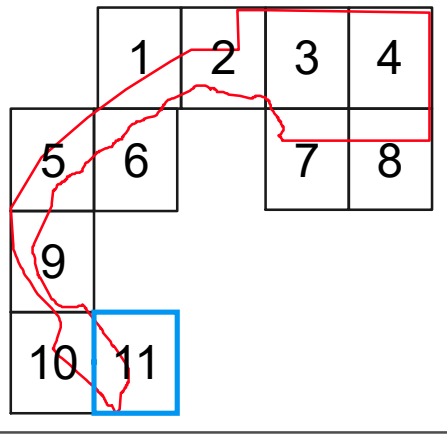
- Sev **Setaria verticillata*
- Trt **Tribulus terrestris*



APPENDIX M

Detailed Vegetation Condition Mapping and Introduced Flora Locations of the Study Area

Image Source: ESRI Basemap (2022) Data source: Umwelt (2022)

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MINERAL RESOURCES

LAMB CREEK PROJECT

Flora and Vegetation Impact Assessment

FINAL

November 2022

LAMB CREEK PROJECT

Flora and Vegetation Impact Assessment

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
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Report No.	22187/R02
Date:	November 2022

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This report was prepared using Umwelt's ISO 9001 certified Quality Management System.

Acknowledgement of Country

Umwelt would like to acknowledge the traditional custodians of the country on which we work and pay respect to their cultural heritage, beliefs, and continuing relationship with the land. We pay our respect to the Elders – past, present, and future.

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Document Status

Rev No.	Reviewer		Approved for Issue	
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V1	Cathy Godden	11/11/2022	Greg Woodman	11/11/2022
Final	Cielito Marbus	24/11/2022	Greg Woodman	24/11/2022

Executive Summary

Mineral Resources Limited (MinRes) are exploring mining opportunities associated with the Lamb Creek Deposit (the Project), located approximately 120 kilometres (km) northwest of Newman. Baseline flora and vegetation surveys were completed over 2020 to 2022 by Rapallo (2021b) and Umwelt (in prep) including detailed and targeted level assessments, to inform the Environmental Impact Assessment (EIA) process for the Project (the Baseline Surveys). This Impact Assessment considers the potential significance of significant flora populations and vegetation in a regional context and the significance of potential direct and indirect impacts to them.

The extent of proposed direct impacts are presented in quantifiable terms (numbers of individuals and locations, and area of preferred habitat, of significant flora taxa within the Disturbance Footprint). Indirect impacts are presented quantitatively (regarding edge effects) where possible, with comments provided otherwise. All local data for flora and vegetation was based on data collected by the Baseline Surveys, (Rapallo, 2021a, b; Umwelt, 2022) with regional data sourced from relevant government databases.

Nine significant flora taxa were considered in the impact assessment. Of these, three have records within the proposed indicative footprint (the Disturbance Footprint) being *Aristida lazaridis* (P2), *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) and *Seringia exastia* (T), and an additional one (*Aristida jerichoensis* var. *subspinulifera* (P3)) occurring in the Indirect Impact Assessment Zone (IIAZ). The occurrence of further significant flora taxa within the Disturbance Footprint is considered unlikely (Appendix A). It should be noted that recent changes to the understanding of the Threatened taxon *S. exastia* mean that it is now considered common and widespread (Binks, *et al*., 2020) and whilst it is no longer recognised as Threatened under WA's BC ACT, it remains listed as Threatened under the EPBC Act (Department of Premier and Cabinet (DPC) 2018). Until such time as it can be delisted the new understanding of the taxon's distribution would be considered in the EIA process.

At a regional scale, the potential direct impacts are unlikely to be significant for any of the significant flora taxa occurring within the Disturbance Footprint due to the relatively low percentage of impact to plant numbers and the extent of known records and preferred habitat outside the Disturbance Footprint in the local area.

There is potential for indirect impacts via interruption of surface water flows (including sheet flow) or changes in water quality to areas downstream or downslope of the Disturbance Footprint, where those areas contain vegetation that are reliant on surface water inputs. These include Mulga grove and riparian vegetation, and the significant flora that those habitats potentially support. It is recommended that the volume, spread, and quality of surface water flows be maintained over the course of construction and mine life.

Any potential fragmentation impacts to significant flora through separation (or increasing existing separation) are likely to be negligible and not significant.

A total of 10 vegetation types (VTs) were defined and mapped across the Study Area by Umwelt's (in prep) Baseline Survey, and all but one VT occurs in the Disturbance Footprint. None of the VTs were considered to represent any formally listed Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs). In addition, none of the VTs described in the Study Area are considered to be significant for reasons other than formal listing. While a small number of VTs are not well-represented

within the Study Area, there are very low potential direct impacts to these VTs. In addition all VTs mapped in the Study Area and Disturbance Footprint are either known to, or considered likely to, extend outside the Study Area to some extent, based on field observations and aerial photography interpretation.

The local impact of the Disturbance Footprint on all VTs is relatively low in terms of the percentage of impact, and not likely to be significant at the local scale. Consequently, and considering that none of the VTs in the Disturbance Footprint are significant, the potential regional impact to VTs is unlikely to be significant. Similarly, the regional impact of the Disturbance Footprint to pre-European vegetation system associations (VSAs) and soil-landscape units is unlikely to be significant.

Predicted potential combined impacts to VTs of the Study Area was calculated, which considered direct impacts as a result of clearing of the Disturbance Footprint and complete removal/deterioration of vegetation in the Indirect Impact Assessment Zone (IIAZ). However, total permanent loss of vegetation in the IIAZ is considered unlikely. Although the combined impact assessment is considered to represent a worst-case scenario, the impacts to VTs at a combined scale are unlikely to be significant for any assessed VT.

Abbreviations

Term	Definition
Baseline Surveys	Rapallo (2021a, 2021b) and Umwelt (in prep)
Combined impacts	Potential impacts on significant flora and vegetation values as a combination of direct and indirect impacts by Project activities
DBCA	Department of Biodiversity, Conservation and Attractions
Development Envelope	The area within which clearing of vegetation will be contained. Approximately 894 ha in size. Contains the Footprint.
Direct impacts	Impacts on environment values occurring as a result of direct removal of significant flora and/or vegetation components by Project activities
Disturbance Footprint	Proposed indicative footprint, approximately 661 ha in size
EIA	Environmental Impact Assessment
EPA	Environmental Protection Authority
EPBC Act	Environment Protection Biodiversity Conservation Act 1999
EP Act	Environmental Protection Act 1986
GIS	Geographic Information System
GDE	Groundwater Dependent Ecosystem
GDV	Groundwater Dependent Vegetation
ha	Hectares
IBRA	Interim Biogeographic Regionalisation for Australia
IIAZ	Indirect Impact Assessment Zone, a 20 m buffer around the Disturbance Footprint utilised for the assessment of indirect impacts to flora and vegetation. Approximately 119 ha in size.
Indicative regional populations	Populations of significant flora taxa within WA, determined by review of distribution of known flora taxa locations according to DBCA databases (using the DBCA (2017) definition of a population, as a discrete group of individuals of a taxon separated by more than 500 m from the nearest discrete group of individuals), or from the results of intensive surveys of significant flora taxa over their known range
Indirect impacts	Impacts on environmental values occurring via indirect pathways as a result of Project activities
km	Kilometres
Listed	Pertaining to listed taxa or vegetation - those that are formally listed as conservation significant under the *Environment Protection and Biodiversity Conservation Act 1999*, or the *Biodiversity Conservation Act 2016*. Refer to
Local	Known distribution of significant flora and vegetation within the Study Area and relevant contiguous habitat
Local population	Local significant flora populations, defined using the DBCA (2017) definition of a population as a discrete group of individuals of a taxon separated by more than 500 m from the nearest discrete group of individuals
m	Metres
MinRes	Mineral Resources Limited
P	Priority
PEC	Priority Ecological Community

Term	Definition
the Project	Lamb Creek Project
Regional	Known distribution of significant flora and vegetation within WA
Significant flora	As defined in **Section 1.3**
Significant vegetation	As defined in **Section 1.3**
Study Area	Area within which the Baseline Survey was conducted, approximately 24,868 ha in size. Contains the Development Envelope and the Footprint
T	Threatened
TEC	Threatened Ecological Community
Umwelt	Umwelt (Australia) Pty Ltd
VSA	Vegetation System Association
VT	Vegetation Type
WA	Western Australia

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Appendices

Appendix A	Likelihood of Occurrence of Further Significant Flora Taxa

1.0 Introduction

1.1 Project Overview

Mineral Resources Limited (MinRes) are actively exploring mining opportunities associated with the Lamb Creek Deposit (the Project), located approximately 120 kilometres (km) northwest of Newman in Western Australia (WA). The exploration area consists of a proposed mining area and associated infrastructure corridor linking the proposed mining area to Great Northern Highway.

Previous flora and vegetation surveys conforming to different levels of survey under various Environmental Protection Authority (EPA) Guidance Statements (EPA, 2004, 2016b) have been conducted for the Project. A gap analysis and peer review of previous survey work, as undertaken by Umwelt (Australia) Pty Ltd (Umwelt) (2022), recommended additional targeted survey and a detailed flora and vegetation survey (as per Sections 4.2 and 4.3 of EPA (2016b)).

MinRes commissioned Umwelt to undertake a flora and vegetation survey of the Project to support the Environmental Impact Assessment (EIA) process for the Project, and to use the data collected with that of Rapallo (2021a, b) to develop a flora and vegetation impact assessment report utilising a supplied Development Envelope and Indicative Footprint.

1.2 Purpose and Scope

This report presents a summary of the significant features of the Project area with respect to flora and vegetation, and an assessment of potential aspects of the Project that will impact flora and vegetation, including discussion of the potential significance of any such impacts, using the information collected by the Baseline Surveys (Rapallo, 2021a, b; Umwelt, 2022).

Direct and indirect impacts are presented as quantitative data where possible. Where indirect impacts cannot be assessed quantitatively, a qualitative discussion is presented.

1.3 Terminology and Definitions

The following definitions apply with reference to the Project area and are presented on **Figure 1.1** (with the exception of the Indirect Impact Assessment Zone, which is too narrow to present meaningfully on this figure):

- **Study Area:** an area of 3,785 ha, defined in consultation with MinRes and representing a buffered area on the Proposed Development Envelope and MinRes tenements, sufficient to provide contextual information relevant to interpreting impacts. Detailed vegetation survey was undertaken within the Study Area by Umwelt (in prep).
- **Development Envelope:** the area (approximately 894 ha) within which clearing of vegetation will be contained. The development envelope is composed of three parts: the Great Northern Highway Intersection Development Envelope (GNHI DE); the Access Road Development Envelope (Access Rd DE); and the Mine Development Envelope (Mine DE), containing the waste rock dumps, pit area and other infrastructure relevant to the mining operations. These three areas are displayed on **Figure 1.1**.

- **Disturbance Footprint:** the proposed indicative area (approximately 661 ha) within the Development Envelope that is planned to be cleared for the Project. The Disturbance Footprint encompasses the infrastructure design, from which avoidance areas have been excised (heritage) or impact minimised (flora), and has been utilised in this assessment to calculate potential impacts to flora and vegetation as a result of the project.

- **Indirect Impact Assessment Zone (IIAZ):** a potential indirect impact zone surrounding the Disturbance Footprint to an extent of 20 m. The IIAZ is approximately 119 ha in size. The IIAZ is designed to capture potential quantitative impact of some indirect impact pathways as listed below, including edge effects through dust, clearing, water and sediment run-off and the introduction of weeds. The buffer distance of 20 m is considered sufficient to assess edge effects, based on field observations of flora and vegetation adjacent to impact areas at Lamb Creek. It is considered unlikely that there would be any edge effects beyond this distance.

Direct, indirect and combined impacts in the context of this assessment are defined as below:

- **Direct impacts:** impacts on environment values occurring as a result of direct removal of flora taxa and vegetation by clearing and other ground disturbance activities for the Project. This results in both removal of known locations, death of individuals at these locations, and removal of habitat.

- **Indirect impacts:** impacts on environmental values occurring via indirect pathways as a result of Project activities. Such impacts may occur as a result of processes including, but not limited to:

    - Smothering of plants from dust emissions, causing potential decline in health or death of individual plants, and reduction in the overall condition of vegetation.

    - Degradation of vegetation through edge effects associated with clearing activities.

    - Water and/or sediment run off (e.g. erosion after significant rainfall from waste rock landforms, and spillage of saline water/tailings/hydrocarbons), causing potential smothering of individual plants and vegetation, resulting in decline in health or death.

    - Altered hydrology and drainage shadow, causing potential reduction or removal of seasonal surface water flow, resulting in either death or loss of condition to individual plants or vegetation.

    - Introduction of weeds, leading to increased competition for available resources with individual plants, and reduction in the overall condition of vegetation.

    - Changes to groundwater levels in groundwater dependent ecosystems (GDEs), causing potential death of phreatophytic taxa and change in composition of groundwater dependent vegetation (GDV).

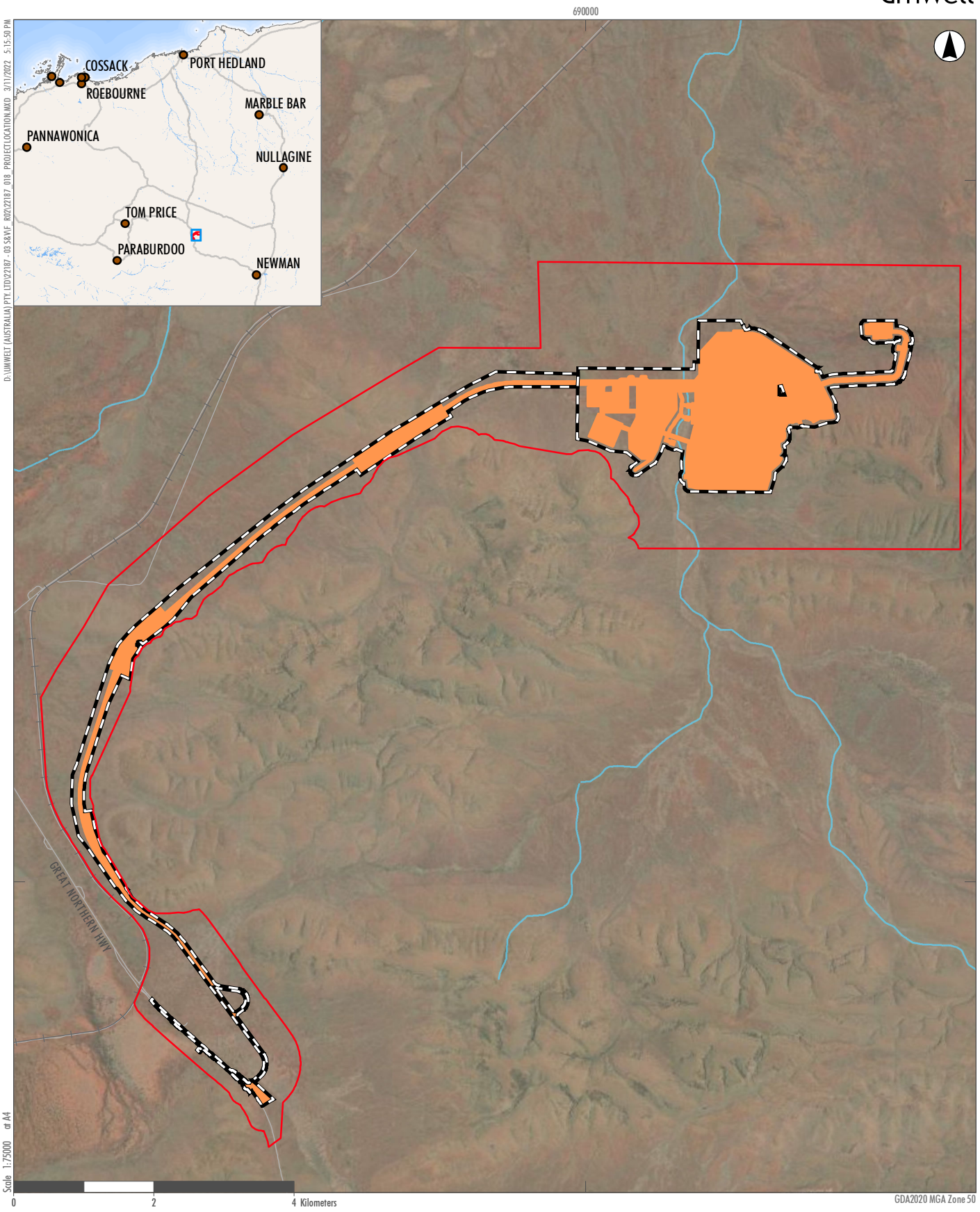
    - Fragmentation of local populations of significant flora taxa and vegetation, leading to a decline in health and quality of populations/patches of vegetation, or loss of genetic diversity through isolation of segments of a population, resulting in reduced genetic fitness of remaining populations.

- **Combined impacts:** the total impact on environmental values from direct and indirect impacts as a result of the Project, as far as they can be assessed.

The following definitions apply with reference to significant flora and vegetation:

- **Significant flora:** flora taxa that belong to one of the following categories as defined by EPA (2016a, 2016b):
    - taxa identified as a Threatened (T) or Priority (P) species (formally listed significant taxa – includes taxa listed under both State and Commonwealth legislation, and classified as Priority by DBCA)
    - locally endemic taxa or taxa associated with a restricted habitat type (e.g. surface water or GDEs)
    - new species or taxa having anomalous features that indicate a potential new species
    - representative of the range of a species (particularly at the extremes of range, recently discovered range extensions, or isolated outliers of the main range)
    - unusual species, including restricted subspecies, varieties or naturally occurring hybrids
    - having a relictual status, being representative of taxonomic groups that no longer occur widely in the broader landscape.
- **Significant vegetation:** vegetation communities that belong to one of the following categories as defined by EPA (2016a, 2016b):
    - being identified as a Threatened Ecological Community (TEC) or Priority Ecological Community (PEC) (formally listed significant vegetation – includes vegetation listed under State or Commonwealth legislation, or classified as a PEC by DBCA)
    - having a restricted distribution
    - having a degree of historical impact from threatening processes
    - playing a role as a refuge
    - providing an important function required to maintain ecological integrity of a significant ecosystem.
- **Local:** the known distribution of significant flora taxa and vegetation within the Study Area (**Figure 1.1**) and verified, contiguous habitat outside the Study Area. Therefore, local impacts are defined as impacts to significant flora taxa or Vegetation Types (VTs) located within the Study Area and surrounding contiguous habitat, as per the results of the Baseline Survey (Umwelt, 2022). Note that narrow, natural breaks such as creeks and rivers are not considered barriers to contiguous habitat in a local context. Given that the extent of contiguous habitat will be different for each significant flora taxon, and limited survey for significant flora has been undertaken outside the Study Area, an 'overall' local area cannot be specifically mapped.
- **Regional:** the known distribution of significant flora taxa and vegetation within WA. Therefore, regional impacts are defined as impacts to significant flora taxa or VTs across their total known distributions in WA.
- **Local populations:** flora populations within the Study Area, defined using the DBCA (2017) definition of a population (a discrete group of individuals of a taxon separated by more than 500 metres (m) from the nearest discrete group of individuals). Note that this definition can only be tentatively applied if the intervening 500 m has not been surveyed and should consider whether appropriate habitat extends within this area.

- **Indicative regional populations:** populations of significant flora taxa within WA, determined by review of distribution of known locations according to DBCA databases (via NatureMap (DBCA, 2007) and Florabase (WA Herbarium, 1998)), and using the DBCA (2017) definition of populations as provided above. However, if the characteristics of regional populations of a significant flora taxon has been surveyed intensively over its known range, the values presented in these reports or literature publications will be used instead, provided this data is considered current and reliable.



Legend

- Study Area
- Proposed Development Envelope
- Disturbance Footprint
- Roads
- Rail
- Drainage Line

FIGURE 1.1

Project Location

Image Source: ESRI Basemap (2021) Data source: Landgate (2022), MRL (2022)

2.0 Background

Baseline Survey data relevant to this assessment were recorded over 2020 to 2022, encompassing:

- Detailed flora and vegetation assessment across the Study Area, conducted by:
    - Rapallo (2021a) in May 2021
    - Umwelt (in prep) over March and April 2022; and
- Targeted Survey over the Development Envelope conducted by
    - Rapallo (2021b) in April 2020 and May 2021; and
    - Umwelt (in prep) in April, June and July 2022.

These baseline surveys encompassed the establishment of vegetation survey quadrats and relevés in the Study Area, targeted searching for significant flora taxa in the Development Envelope, and description of VTs following statistical analysis of quadrat data. The assessment was conducted to the requirements of EPA's *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016b). The results of the Baseline Survey relating to significant flora and vegetation are summarised in the following sections.

2.1 Significant Flora

Over 2020 to 2022, targeted surveys by Rapallo (2021b) and Umwelt (in prep.) were undertaken across the Development Envelope, with the exception of some small areas identified as Australia Heritage Sites that could not be accessed. Targeted searching for significant flora taxa was also undertaken outside the Development Envelope to provide context for the assessment.

The Threatened taxon *Seringia exastia* has been recorded within the Development Envelope and wider Study Area, which despite being no longer recognised as Threatened under WA's BC ACT, remains listed as Threatened under the EPBC Act (Department of Premier and Cabinet (DPC) 2018). Correspondence with the Department of Biodiversity, Conservation and Attractions (DBCA) Species and Communities Assessment Team (dated 4th August 2022) has provided clarity with regards to the treatment of this taxon. It is not expected that the taxon would be removed from the official published Threatened flora listing before September – October 2022, however no exact date can be provided. It is understood that the synonymisation of *S. elliptica* under *S. exastia* means that *S. exastia* is now considered common and widespread (Binks, *et al*., 2020). However, until changes are officially made to the threatened species list, *S. exastia* is still legally listed as threatened flora and should be treated as such. Authorisation to take under section 40 of the *Biodiversity Conservation Act 2016* is still required, however the new understanding of the taxon's distribution would be considered in the EIA process by the DBCA.

A further eight significant flora taxa were recorded within the Study Area including six DBCA listed Priority (P) taxa, and two taxa considered significant as a 'new species or species with anomalous features that indicate a potential new species' as defined in EPA (2016a, 2016b) (**Figure 2.1)**. Rapallo's (2021a, b) study recorded three locations of *Goodenia nuda* within the Study Area, however this taxon has since been delisted (formerly P4).

The potentially undescribed *Corchorus* sp. is considered taxonomically significant as it is not able to be matched to any other specimen within the WA Herbarium collection. The WA Herbarium has advised that a precautionary approach would also see it regarded as a plant of conservation significance, whilst noting that its poorly collected nature and potential geographical restriction make this difficult to formally assess (M. Hislop, *pers. comm*. June 2022). Six specimens of *Corchorus* sp. from the 2022 survey have been submitted for lodgement with the WA Herbarium to facilitate this assessment going forward.

The potentially undescribed entity *Euphorbia ferdinandi* s. lat is currently under review by the WA Herbarium. In response to consultation the WA Herbarium have advised in the interim to treat the entity as a plant of taxonomic significance (M. Hislop, *pers. comm.* August 2022).

A summary of data relating to significant flora taxa recorded in the Study Area by the Baseline Survey is presented in **Table 2.1**. Of the nine significant flora taxa known to occur in the Study Area, three have been recorded in the Disturbance Footprint (**Figure 2.1, Table 2.1**)**.** All other significant flora taxa recorded within the Study Area or identified by the Desktop Study (Umwelt, 2022) have been assessed as unlikely to occur within the Disturbance Footprint (**Appendix A**).

A likelihood of occurrence assessment (**Appendix A**) of the remaining significant flora taxa identified by the Desktop Study, resolved that 41 significant taxa could possibly occur within the Study Area (excluding the Development Envelope), in addition to those already recorded, based on the presence of suitable habitat and the known range of the taxon.

The likelihood that any further significant flora taxa may occur within the Development Envelope has been assessed as unlikely (**Appendix A**).

Table 2.1 Summary of Significant Flora Taxa Recorded by the Baseline Surveys Within the Study Area (Rapallo 2021b, Umwelt, 2022)

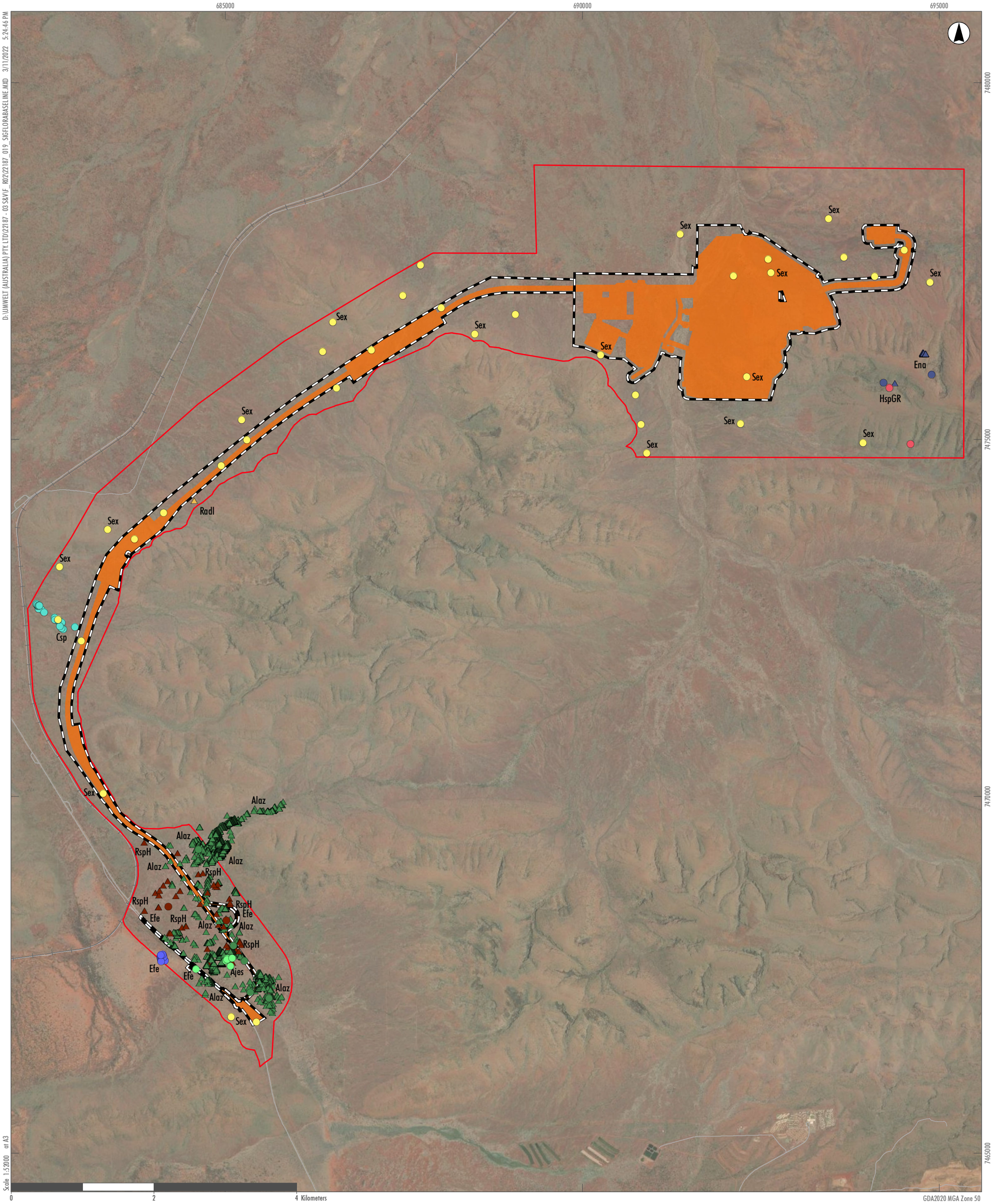
Taxon	Status (WA)	Disturbance Footprint		Development Envelope (excluding Disturbance Footprint)		Study Area (excluding Footprint and Development Envelope)		Total		Vegetation Types*
		No. Locations	No. Locations	No. Locations	No. Locations	No. Locations	No. Locations	No. Locations	No. Locations	
Aristida jerichoensis var. subspinulifera	P3	NR	NR	1	1	7	96	8	97	8~
Aristida lazaridis	P2	63	77	11	12	3020	7128	3094	7217	7~; 8~; 3, 9
Corchorus sp.	Potentially undescribed	NR	NR	NR	NR	23	35	23	35	9~
Eremophila naaykensii	P3	NR	NR	NR	NR	37	73	37	73	4~, 6~
Euphorbia ferdinandi s. lat.	Potentially undescribed	NR	NR	NR	NR	19	60	19	60	8~, 7
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	P2	NR	NR	NR	NR	2	17	2	17	4~
Rhagodia sp. Hamersley (M. Trudgen 17794)	P3	3	3	0	0	46	50	49	53	7~; 8; 9
Rostellularia adscendens var. latifolia	P3	NR	NR	NR	NR	1	1	1	1	1
Seringia exastia	T	11	211	3	11	23	561	37	783	1~, 2, 3, 6, 9, 10

* Refer to **2.2.2** for VT descriptions.

~ Designates preferred habitat, based on proportional location representation and landforms/soils.

^ Counts not undertaken for taxon by the Baseline Survey.

NR – not recorded.



Legend

- Study Area
- Proposed Development Envelope
- Disturbance Footprint

Significant Flora (Umwelt, 2022 in prep)

- Ajes *Aristida jerichoensis* var. *subspinulifera* (P3)
- Alaz *Aristida lazaridis* (P2)
- Csp *Corchorus* sp. (Potentially Undescribed)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* S. lat (Potentially Undescribed)
- HspGR *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)
- Sex *Seringia exastia* (T)

Significant Flora (Rapallo, 2021b)

- Alaz *Aristida lazaridis* (P2)
- Ena *Eremophila naaykensii* (P3)
- Efe *Euphorbia ferdinandi* S. lat (Potentially Undescribed)
- RspH *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Radl *Rostellularia adscendens* var. *latifolia* (P3)

FIGURE 2.1

Significant Flora Recorded by the Baseline Surveys (Rapallo, 2021b; Umwelt, in prep)

Image Source: ESRI Basemap (2022) Data source: Rapallo (2021b), Umwelt (2022 - in prep)

2.2 Vegetation

2.2.1 Regional Vegetation

The Study Area is located within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) Bioregion, and specifically within the Hamersley IBRA Subregion (PIL3) (DAWE 2020). The Hamersley Subregion comprises mainly of mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges (Kendrick, 2001).

The vegetation of WA as it was presumed to have existed prior to European settlement has been mapped at a scale of 1:250,000 as vegetation system associations (VSAs) (DBCA, 2019), with the pre-European Vegetation spatial database subsequently created (DPIRD, 2019). The Study Area occurs across two VSAs, as summarised in **Table 2.3**. **Table 2.3** also presents the current extent of each VSA in relation to its pre-European extent within the Hamersley IBRA Subregion, and the percentage of the current extent of each VSA currently protected for conservation in all DBCA-managed land (as a proportion of the current extent) within the Hamersley IBRA Subregion (Government of Western Australia 2019), as well as area (ha) and extent (as percentage) in the Study Area.

There is over 99 % of the pre-European extent of both VSAs remaining, and both have some areas protected for conservation.

Table 2.2 Vegetation System Associations of the Study Area

Vegetation System Association	Description *	Mapped Extent (ha)				Pre-European Extent Remaining (%)*	Current Extent Protected for Conservation (%)*
		Disturbance Footprint	Development Envelope	Study Area	Current Extent*		
Hamersley_18	Low woodland, open low woodland or sparse woodland	412.74	594.40	2,432.9	575,808	99.2	29.6
Hamersley_82	Low tree-steppe	247.89	299.73	1,352.8	2,146,708	99.4	13.7

* Data from DBCA (2019).

Soil landscape mapping of WA (previously referred to as land system mapping) has been compiled from the results of various surveys across the state by the Department of Agriculture (now the Department of Primary Industries and Regional Development (DPIRD)) (DPIRD 2019). Data from van Vreeswyk *et al.* (2004) has been used to map soil landscape units in the region within which the Desktop Study Area is located. This data includes general ecological information, vegetation physiognomy and composition, patterns of variation, conservation status, gradational association and land system representation (van Vreeswyk *et al*., 2004).

The Study Area occurs across five soil landscape systems, as summarised in **Table 2.3.** None of these soil landscape systems are listed as TECs under the EPBC Act (DAWE 2021a) or as TECs or PECs under the BC Act (DBCA 2018; 2022a), and all are detailed as being common in the Pilbara landscape mapping Study Area (van Vreeswyk *et al.* 2004).

Table 2.3 Soil Landscape Units of the Study Area

	Description*	Mapped Extent (ha)			
		Indicative Footprint	Development Envelope	Study Area	Total*
Boolgeeda (285Bg)	Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands and mulga shrublands. Predominantly colluvium on gently sloping plains; widespread and common Stony lower slopes, level stony plains and narrow sub-parallel drainage floors, relief up to 20 m. A common system in shallow valleys below hill systems such as Newman and Rocklea. Noted to be subject to fairly frequent burning.	588.41	790.68	2,510.3	774,800
McKay (285Mk)	Hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands. Predominantly sedimentary rocks on hills; widespread and common. Erosional surfaces; hill tracts, ridges, plateaux remnants and breakaways with steep upper slopes and more gently inclined lower footslopes, restricted stony plains and interfluves; moderately spaced tributary drainage patterns incised in narrow valleys in upper parts becoming broader and more widely spaced downstream. Relief up to 100 m.	12.70	20.07	213.1	420,200
Newman (285Ne)	Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands Predominantly jaspilite on ridges and plateaux; very common in the southern half of the Landscape mapping Study Area Rugged high mountains, ridges and plateaux with near vertical escarpments of jaspilite, chert and shale, the second largest system in the survey area and prominent in southern parts (e.g. Ophthalmia Range, Hamersley Range), relief up to 450 m.	44.53	54.01	654.3	1,458,000
Platform (285Pl)	Dissected slopes and raised plains supporting hard spinifex grasslands Predominantly colluvium on incised slopes; common in the central and south-west of the Landscape mapping Study Area Narrow, raised plains and highly dissected slopes on partly consolidated colluvium below the footslopes of hill systems such as Newman, relief mostly up to about 30 m but occasionally considerably greater.	10.25	22.90	301.2	1,570,000

	Description*	Mapped Extent (ha)			
		Indicative Footprint	Development Envelope	Study Area	Total*
Wannamunna (285Wn)	Hardpan plains and internal drainage tracts supporting mulga shrublands and woodlands (and occasionally Eucalypt woodlands) Predominately alluvium on hardpan plains, internal drainage flats; common in the central and south of the Landscape mapping Study Area Level alluvial plains with prominent grove patterns of vegetation and shallow loamy soils over hardpan and broad internal drainage plains with deeper more clayey soils, relief up to 5 m. The system is found in south central parts of the survey area as broad flats within the Hamersley Ranges (Newman land system).	4.75	6.47	106.8	57,700

* Data from DPIRD (2018)

2.2.2 Local Vegetation

Three flora and vegetation surveys have been previously undertaken at Lamb Creek (see Umwelt (in prep) for a summary of previous surveys conducted within and in the vicinity of the Study Area); however two of these have been considered out of date and/or unlikely to be sufficient to support assessment under current EPA Guidance and Policy (Umwelt, 2022). Furthermore, previous flora and vegetation assessments have been conducted utilising a variety of survey methods and naming conventions, and/or were not undertaken using the methods detailed in EPA's *Technical Guidance—Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016b). Therefore, assessment of impacts from the Project to vegetation is undertaken using the VT dataset presented by Umwelt (in prep), which was conducted in line with EPA (2016b) requirements, and is considered to supersede all previous flora and vegetation surveys undertaken in the Study Area.

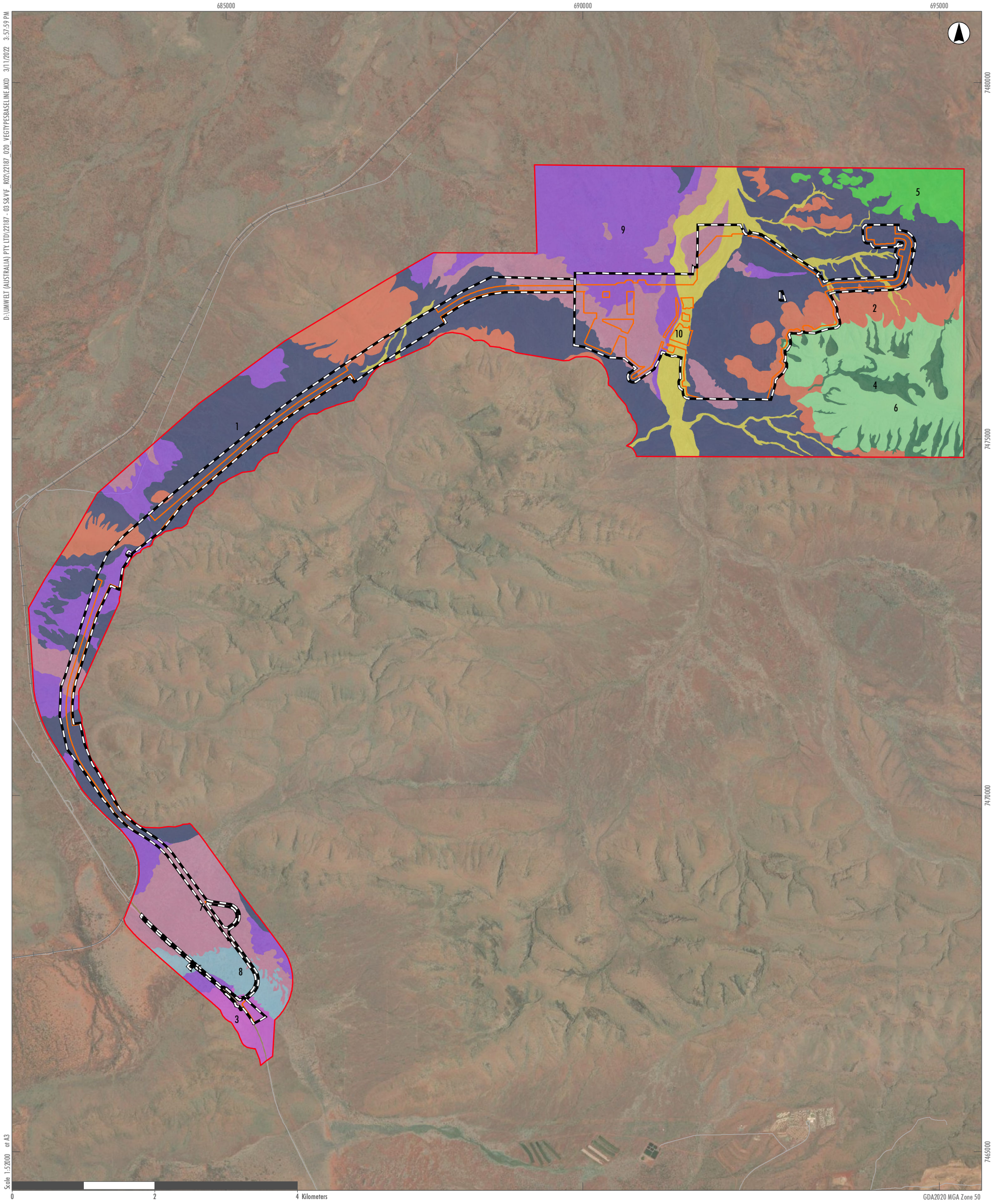
The 10 Vegetation Types determined by Umwelt (in prep) were derived through analysis of a total of 127 quadrats recorded by Rapallo (2021a) and Umwelt (in prep) which were established over 2021 and 2022. The quadrat locations were established across the Study Area, targeting all landform types identified via aerial photography interpretation and field observations. Floristic composition classification and subsequent examination of quadrat data resulted in the definition of 10 VTs across the Study Area, as presented on **Figure 2.2** (Umwelt, 2022).

Table 2.4 presents a summary of the extent of VTs mapped within the Study Area and Disturbance Footprint. All but one VT mapped in the Study Area occurs in the Disturbance Footprint.

None of the VTs defined by the Baseline Survey were considered to represent any formally listed TECs (DAWE, 2021a; DBCA, 2018) or PECs (DBCA, 2021). In addition, none of the VTs described in the Study Area are considered to be significant for reasons other than formal listing (**Section 1.3**). While a small number of VTs are not well-represented within the Study Area (i.e. mapped over < 3 % of the Study Area), based on field observations and aerial photography interpretation, all VTs mapped in the Study Area and Disturbance Footprint are either known to, or considered likely to, extend outside the Study Area to some extent (Umwelt, 2022).

Table 2.4 Vegetation Types of the Study Area and Disturbance Footprint Mapped by the Baseline Survey (Umwelt, 2022)

Vegetation Type	Mapped Extent in Study Area (ha)	Percent of Study Area (%)	Mapped Extent in Disturbance Footprint (ha)	Percent of Disturbance Footprint (%)
1	1,429.16	37.75	343.39	51.98
2	382.30	10.10	76.30	11.55
3	48.16	1.27	6.32	0.96
4	95.32	2.52	0.62	0.09
5	100.95	2.67	0.00	0.00
6	316.61	8.36	0.84	0.13
7	523.39	13.83	118.88	17.99
8	68.93	1.82	2.93	0.44
9	600.81	15.87	68.28	10.34
10	215.50	5.69	41.11	6.22
Cleared	4.62	0.12	1.95	0.30



Legend

- Study Area
- Proposed Development Envelope
- Disturbance Footprint

Vegetation Types

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- C

FIGURE 2.2

Vegetation Types described by the Baseline Survey (Umwelt, in prep)

Image Source: ESRI Basemap (2022) Data source: Umwelt (2022 - in prep)

D:\UMWELT (AUSTRALIA) PTY LTD\22187 - 03 S&VF_R02\22187_020_VEGTYPESBASELINELEGEND.MXD 3/11/2022 5:28:25 PM

Legend

Vegetation Types

1 Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and/or *E. gamophylla* with isolated *Corymbia deserticola* subsp. *deserticola* over low to mid sparse to open shrubland dominated by species including *Acacia atkinsiana* and *A. ancistrocarpa* over low open hummock grassland of *Triodia pungens, T. vanleeuwenii* and *T. wiseana* and low open tussock grassland of *Themeda* sp. Mt Barricade (M.E. Trudgen 2471) and *Paraneurachne muelleri* on red-brown sandy clay loam to clay loam on gently inclined mid to lower slopes and associated drainage lines

2 Low open woodland of *Eucalyptus leucophloia* subsp. *leucophloia* with occasional *Corymbia deserticola* subsp. *deserticola* and *C. hamersleyana* over low sparse shrubland of *Acacia hilliana* and *Hakea chordophylla* over open hummock grassland of *Triodia vanleeuwenii* and *T. wi*seana on red-brown clay loam with ironstone pebbles on gently inclined lower to upper slopes

3 Isolated trees of *Corymbia hamersleyana, Eucalyptus leucophloia* subsp. *leucophloia* and *E. gamophylla* over low sparse shrubland of mixed Acacia species over low hummock grassland of *Triodia pungens* and *T. wiseana* on red-brown sandy clay loam on mid to lowerslopes with ironstone pebbles

4 Low open woodland of *Corymbia ferriticola* or *Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* with *Ficus brachypoda* occurring on gorge and gully areas, over low sparse shrubland of mixed species dominated by *Corchorus laniflorus, Dodonaea viscosa* subsp. *mucronata* and *Gossypium robinsonii* over sparse hummock grassland dominated by *Triodia pungens* with *T. wiseana* and tussock grasses including *Cymbopogon ambiguus* and *Aristida burbidgeae* on red brown clay loam on steep upperslopes, gullies, breakaways and gorges with significant ironstone outcropping

5 Occasional *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* over mixed isolated shrubs including *Acacia inaequilatera* and *Senna artemisioides* subsp. *glutinosa* over low hummock grassland of *Triodia wiseana* on steep upperslopes and associated drainage lines on red-brown clay loam with exposed ironstone and dolerite

6 Low woodland to open woodland of *Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* and occasional *E. kingsmillii* over mid isolated shrubs of *Acacia hamersleyensis* and *Grevillea wickhamii* ?subsp. *hispidula* over low hummock grassland of *Triodia wiseana* on red brown sandy clay loam on steep mid to upperslopes with exposed ironstone

7 Isolated trees of *Corymbia hamersleyana, Eucalyptus leucophloia* subsp. *leucophloia* and *Eucalyptus xerothermica* over low open to sparse shrubland dominated by *Acacia aptaneura, A. aneura* and *A. pruinocarpa* over low tussock grassland to sparse tussock grassland dominated by *Themeda* sp. Mt Barricade (M.E. Trudgen 2471), *Enneapogon polyphyllus, Chrysopogon fallax* and *Aristida* spp. with occasional *Triodia pungens* on red brown clay loam with some ironstone pebbles on plains

8 Isolated trees of *Eucalyptus xerothermica* over tall open to sparse shrubland of *Hakea lorea* subsp. *lorea* and *Acacia aptaneura* over low open tussock grassland of *Aristida contorta, A. inaequiglumis* and *Themeda triandra* on red-brown sandy clay to clay on plains

9 Low open woodland of *Corymbia hamersleyana, C. deserticola* subsp. *deserticola, Eucalyptus gamophylla* and *Eucalyptus leucophloia* subsp. *leucophloia* over tall sparse shrubland of *Acacia atkinsoniana* and occasional *A. ancistrocarpa* and *A. aptaneura* over low hummock grassland dominated by *Triodia pungens* and occasional *T. wiseana* with *Paraneurachne muelleri* also dominant on red-brown clay loam with ironstone pebbles on plains

10 Low open woodland of *Corymbia hamersleyana* with occasional *Eucalyptus gamophylla, E. leucophloia* subsp. *leucophloia* and *E. xerothermica* over tall open shrubland dominated by taxa including *Acacia cowleana, A. tumida* var. *pilbarensis, Gossypium robinsonii* and *A. pyrifolia* over low open hummock grassland of *Triodia pungens* and tussock grassland dominated by *Themeda* sp. Mt Barricade (M.E. Trudgen 2471) and *Aristida* spp. on red-brown clay loams on major and minor drainage lines

C Cleared Land (road and verge)

FIGURE 2.2

LEGEND - Vegetation Types described by the Baseline Survey (Umwelt, in prep)

3.0 Methods

3.1 Conservation Significance Ratings and Direct Impacts

The assessment of direct impacts to significant flora and vegetation is provided by quantification of the Project layout (i.e. Disturbance Footprint) in a Geographic Information System (GIS) environment on the known extent and range of significant environmental factors in the Study Area and local area. Therefore, the Project is expected to directly impact no more than 661 ha within an 894 ha Development Envelope.

3.1.1 Significant Flora

As previously mentioned, the significant flora dataset collected by the Baseline Surveys (Rapallo, 2021b, Umwelt, 2022) has been utilised for the flora component of this impact assessment.

A qualitative assessment of the significance of local populations of significant flora taxa to the regional conservation status of each taxon was undertaken. This assessment considered the number and distribution of indicative regional populations, the size of these populations, the reservation status of the tenure of the lands upon which they occur, and the position of the Study Area within the known range of each taxon. Information relating to significant flora taxa indicative regional populations was sourced from DBCA databases (NatureMap; Threatened and Priority Flora (TPFL) and Western Australian Herbarium Specimen databases (DBCA, 2007)), in combination with data collected for the Baseline Survey (Umwelt, 2022).

Table 3.1 Regional Conservation Significance Ratings of Local Populations of Significant Flora Taxa

Regional Conservation Significance Rating	Description
Low	Local populations are not of particular significance in terms of maintaining the survival of the taxon, as: • taxon is known from a wide distribution • taxon is known from ≥ 10 indicative regional populations, some of which are protected in conservation estate • local populations are likely to have low significance in maintaining the extent of the taxon; e.g. the local populations are located within the known range and do not represent disjunct populations, the local populations are located in relatively close proximity to other populations.
Moderate	Local populations are moderately significant in terms of maintaining the taxon through its range, as: • taxon is known from < 10 indicative regional populations, which may include those on conservation estate • taxon may have a wide distribution; however, the local populations are located on the edge of the known range or forms a significant disjunct population in comparison to other known populations • there are few, if any, nearby known populations.

Regional Conservation Significance Rating	Description
High	Local populations are relatively significant in terms of maintaining the taxon through its range, as: • taxon has a restricted distribution (< 40 km) • taxon is known from < 5 indicative regional populations, with no populations being located on conservation estate • local populations potentially contribute significantly to the maintenance of the taxon through being representative of the edge of the known range, forming a significant disjunct population or representing a significantly large population in comparison to other populations.

The number of individuals of each significant flora taxon potentially impacted, along with the impact to potential habitat for such taxa, was used to assess potential local impacts to significant flora taxa. The Disturbance Footprint was overlain on locations of significant flora taxa in a GIS environment to determine the potential extent of impact to these locations. The extent of proposed impact to preferred habitat VTs for each taxon was also calculated, to determine the proportional extent to which habitat for each taxon will be impacted. Qualitative assessment of the potential significance of impact to flora taxa and preferred habitat is provided with regard to the extent of impact and significance of local populations.

3.1.2 Vegetation

The VT mapping prepared by Umwelt (in prep) has been utilised for the vegetation component of this impact assessment.

Table 3.2 Local Conservation Significance Rating of Vegetation Types

Local Conservation Significance Rating	Description
1	• VT mapped over > 10 % of the Study Area, and • Landform/soil type on which the VT occurs is locally common and widespread.
2	• VT mapped over 1-10 % (inclusive) of the Study Area, and • Landform/soil type on which the VT occurs is locally common and widespread.
3	• VT mapped over 1-10 % (inclusive) of the Study Area, and • Landform/soil type on which the VT occurs is not locally common and/or is restricted.
4	• VT mapped over < 1 % of the Study Area, and • Landform/soil type on which the VT occurs is potentially locally uncommon and/or restricted.
5	• VT mapped over < 1 % of the Study Area, and • Landform/soil type on which the VT occurs is locally uncommon and/or restricted.

VTs ranked '1' and '2' are of low significance, with VTs ranked '3' or above considered to be of higher significance and examined on that basis accordingly.

The Development Footprint was overlain on VT polygons mapped in the Study Area in a GIS environment to determine the proposed impact area of each VT. Qualitative assessment of the potential significance of impact to vegetation is provided with regard to the extent of impact and local significance of vegetation.

Limited information regarding the regional distribution of vegetation is available for the Pilbara Bioregion. Although a regional flora and vegetation survey of the Pilbara Region has been undertaken by DBCA (McKenzie et al., 2009), no reports describing VTs on a regional scale are currently available. Studies by Beard (1975) and van Vreeswyk et al. (2004) have characterised the vegetation of the Pilbara Bioregion, but not at a scale appropriate for EIA. The significance of potential impacts to vegetation on a regional scale has been assessed through the determination of impact to pre-European vegetation (i.e. VSAs) mapped within the IBRA Subregion (DBCA, 2019), and to soil landscape units (DPIRD, 2018) (**Section 4.2.2.2**). The Disturbance Footprint was overlain on VSA polygons in a GIS environment to determine the proposed impact area for each VSA, and subsequent analysis of the pre-European and current extent of each VSA proposed to be impacted, with a similar process utilised for soil landscape units, to provide regional context.

In addition to the above, a brief qualitative assessment of potential significance of local and regional impact to Study Area VTs is provided.

3.2 Indirect Impacts

A potential indirect impact zone surrounding the Disturbance Footprint to an extent of 20 m (the IIAZ) was used to quantify potential indirect impacts (i.e. edge effects) of the Project on nearby significant flora and vegetation, in a GIS environment.

A qualitative discussion of other potential indirect impacts to flora and vegetation surrounding the Disturbance Footprint is also provided where a quantitative assessment cannot be undertaken.

4.0 Results

4.1 Conservation Significance Ratings

4.1.1 Significant Flora

As discussed in **Section 2.1**, nine significant flora taxa have been recorded within the Study Area; of these, three have records within the Disturbance Footprint (Rapallo 2021b; Umwelt, 2022). It is considered unlikely that any further significant flora taxa occur within the Disturbance Footprint (Appendix A).

An assessment of the regional conservation significance of the local populations of these significant flora taxa is provided in **Table 4.1**. This assessment uses the scale defined in **Table 3.1** and considers factors including the number of known indicative regional populations in WA, the presence of known records on lands managed for conservation, the known range of the taxon in WA, and the position of the Study Area within this range.

The ranges, number of indicative regional populations and number of populations in conservation estate of the two potentially undescribed taxa (*Corchorus* sp. and *Euphorbia ferdinandi* s. lat.) are unknown, and therefore the significance of their local populations in a regional context have been rated as High **(Table 4.1).**

Table 4.1 Significant Flora Taxa Considered in the Impact Assessment and the Significance of their Local Populations in a Regional Context

Taxon	Status (WA)	Occurrence in the Disturbance Footprint (Umwelt, 2022; Rapallo 2021b))	Significance of Local Populations in a Regional Context (Table 3.1)
Aristida jerichoensis* var. *subspinulifera	P3	• Not known to occur in the Disturbance Footprint, but one plant has been recorded 5 m away, within the Development Envelope. • Preferred habitat present in the Disturbance Footprint (VT8). • 69 ha of preferred habitat (VT8) has been mapped in the Study Area, of which 3 ha has been mapped in the Disturbance Footprint. • All suitable habitat in the Disturbance Footprint has been surveyed. • Total of 8 locations (97 individuals) recorded in the Study Area.	Local population assessed to be of Low regional significance • Taxon has a relatively wide distribution of approximately 1,000 km from near Gill Pinnacle (close to the WA / Northern Territory (NT) border) in the east, to north-west of Tom Price in the west; the Study Area is in the known range of this taxon. • Known from 42 WA Herbarium records across approximately 38 broad regional locations, three of which occur within DBCA-managed tenure within Karijini National Park (WA Herbarium 1998-). • There are 14 populations recorded (WA Herbarium, 1998-; DBCA, 2022c) within 40km of the Study Area, the nearest within one kilometre on the western side of the GNH and considered continuous with the population recorded by the baseline study (Umwelt, 2022).
Aristida lazaridis	P2	• Known to occur in the Disturbance Footprint. • Preferred habitat is present in the Disturbance Footprint (VTs 7 and 8), though it only occurs in the GNHI areas of VTs 7 and 8. • Within the GNHI area, there is 286 ha of preferred habitat. Of this, 16.8 ha (5.9%) is in the Disturbance Footprint. • All suitable habitat in the Disturbance Footprint has been surveyed. • Over 12,000 individuals recorded in the local area, of which 77 were recorded in the Disturbance Footprint.	Local populations assessed to be of Low regional significance: • Taxon has a distribution of approximately 130 km within WA, from north west of Newman in the south-east, to south-east of Wittenoom in the north-west (DBCA, 2007); the Study Area is in the centre of the known range of this taxon. • Known from 22 WA Herbarium records across approximately 17 broad regional locations, one of which occurs within DBCA-managed tenure within Karijini National Park (WA Herbarium 1998-). This taxon is also known from two records in the NT and 78 records in Qld (ALA 2022). • There are an additional 10 recorded populations within 40 km of the Study Area, the nearest to the Project's population is 10 km to the south.

Taxon	Status (WA)	Occurrence in the Disturbance Footprint (Umwelt, 2022; Rapallo 2021b))	Significance of Local Populations in a Regional Context (Table 3.1)
***Corchorus* sp.**	Potentially undescribed	• Not known to occur in the Disturbance Footprint, but one record located approximately 150 m from the Disturbance Footprint. • Preferred habitat (VT9) present in the Disturbance Footprint, however it is likely that this taxon will only occur in specific, localised sites within this VT (the known population occurs on sandy drainage lines). • 601 ha of preferred habitat (VT9) has been mapped in the Study Area, of which 68 ha has been mapped in the Disturbance Footprint. • All suitable habitat in the Disturbance Footprint been surveyed. • Total of 23 locations (35 individuals) recorded in the Study Area.	Local populations assessed to be of High regional significance: • Potentially represents an unrecognised taxon. • Range and extent of the potential new taxon is unknown; there are currently no other confirmed locations of this entity outside those collected in the local area for the Project.
Eremophila naaykensii	P3	• Not known to occur in the Disturbance Footprint. • Preferred habitat (VTs 4 and 6) present in the Disturbance Footprint. • 412 ha of preferred habitat (VTs 4 and 6) has been mapped in the Study Area, of which 1.5 ha has been mapped in the Disturbance Footprint. • All suitable habitat in the Disturbance Footprint has been surveyed. • A total of 37 locations (73 individuals) recorded in the Study Area.	Local populations assessed to be of Low regional significance: • Taxon has a distribution of approximately 200 km from near Newman in the east to east of Paraburdoo in the west, with the Study Area in the known range of this taxon. • Known from 21 WA Herbarium records across approximately 19 broad regional locations, one of which occurs within DBCA-managed tenure within Karijini National Park (WA Herbarium 1998-). • The nearest WA Herbarium record of this taxon is located 8 km south, on a range of hills between the Lamb Creek Study Area and Area C.

Taxon	Status (WA)	Occurrence in the Disturbance Footprint (Umwelt, 2022; Rapallo 2021b))	Significance of Local Populations in a Regional Context (Table 3.1)
***Euphorbia ferdinandi* s. lat.**	Potentially undescribed	• Not known to occur in the Disturbance Footprint. • Preferred habitat (VT8) present in the Disturbance Footprint. • 69 ha of preferred habitat has been mapped in the Study Area, of which 3 ha has been mapped in the Disturbance Footprint. • Total of 19 locations (60 individuals) recorded in the Study Area. • All suitable habitat in the Disturbance Footprint has been surveyed.	Local populations assessed to be of potentially High regional significance: • Potentially represents an unrecognised taxon. • Range and extent of the potential new taxon is unknown; although there are several segregated specimens at the WA Herbarium which may represent this taxon, a determination on this would be required. The submitted specimens of this entity are awaiting final determination by the WA Herbarium.
***Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708)**	P2	• Not known to occur in the Disturbance Footprint • Preferred habitat (VT4) present in the Disturbance Footprint. • 95 ha of preferred habitat (VT4) has been mapped in the Study Area, of which less than 1 ha has been mapped in the Disturbance Footprint. • All suitable habitat in the Disturbance Footprint has been surveyed. • 2 locations (17 individuals) were recorded in the Study Area.	Local populations assessed to be of Moderate regional significance: • Taxon has a distribution of approximately 180 km from north of Newman in the east to north-east of Paraburdoo in the west. The Study area is located on the northern extent of its known range. • known from 24 WA Herbarium records across 10 broad regional locations, two of which occur within DBCA-managed tenure within Karijini National Park (WA Herbarium 1998-). • No records are within 10km of the Study Area.
***Rhagodia* sp Hamersley (M. Trudgen 17794)**	P3	• Known to occur in the Disturbance Footprint • Preferred habitat present in the Disturbance Footprint (VT7); however this species only occurs in the GNHI area of VT7. • Within the GNHI area, there is 217 ha of preferred habitat. Of this, 13.8 ha (6.4%) is in the Disturbance Footprint. • All suitable habitat in the Disturbance Footprint has been surveyed. • Total of 43 locations (53 individuals) have been recorded in the Study Area, 3 locations (3 individuals) of which occur in the Disturbance Footprint.	Local populations assessed to be of Low regional significance: • Taxon has a distribution of approximately 330 km from west of Jigalong in the east to north-east of Tom Price in the west. The Study Area is in the northern extent of the known range of this taxon. • Known from 72 WA Herbarium records across more than 50 broad regional locations, two of which occur within DBCA-managed tenure including Jigalong Aboriginal Reserve and Karijini National Park (WA Herbarium 1998-). • A total of five records are known from within 10km of the Study Area, with nearby records confirming preferred habitat for this taxon.

Taxon	Status (WA)	Occurrence in the Disturbance Footprint (Umwelt, 2022; Rapallo 2021b))	Significance of Local Populations in a Regional Context (Table 3.1)
Rostellularia adscendens* var. *latifolia	P3	• Not known to occur in the Disturbance footprint, but one record (one individual) located approximately 80 m from the Disturbance Footprint. • Preferred habitat (VT1) present in the Disturbance Footprint; however taxon is likely to occur only in rocky drainage lines of VT1. • 1,429 ha of preferred habitat (VT1) has been mapped in the Study Area, of which 342 ha has been mapped in the Disturbance Footprint. • All suitable habitat in the Disturbance Footprint has been searched. • One location (one individual) has been recorded in the Study Area.	Local population assessed to be of Low regional significance: Taxon has • A distribution of approximately 450 km from west of Tom Price to north east of Meenthena Station. The study area is in the centre of the known range of this taxon. • Known from 42 WA Herbarium records across more than 280km from near Mt Farquhar (89km north-west of Tom Price) to the Oakover River. At least six locations occur in the Karijini National Park. • This taxon has been recorded approximately 20km south-east of the Lamb Creek retention license on the MAC development Envelope (Onshore 2017 quoted in Rapallo 2021a).
Seringia exastia	T	• Known to occur in the Disturbance Footprint. • Preferred habitat (VT1) present in the Disturbance Footprint. • 1,429 ha of preferred habitat (VT1) has been mapped in the Study Area, of which 342 ha has been mapped in the Disturbance Footprint. • Taxon was not specifically searched for in Disturbance Footprint given its common and widespread nature since synonimisation with *S. elliptica* (Binks, *et al.*, 2020), and its consistent and abundant occurrence throughout VT1. • 37 locations (783 individuals) recorded in the Study Area, of which 11 locations (211 individuals) were recorded in the Disturbance Footprint.	Local populations assessed to be of Low regional significance: • At the time of publication, *S. exastia* is no longer recognised under WA's BC Act, but remains listed as Threatened under the EPBC Act. • This taxon now has a very wide range across Western Australia (>1200km), extending from Giralia Station in the west through to the border with the NT, and from Broome in the north to Mt Manning Range NR in the south. The Study Area is within the known range of this taxon. • There are 293 records of this taxon across its range (WA Herbarium 1998-).

4.1.2 Vegetation

As discussed in **Section 2.2.2**, a total of nine VTs have been mapped in the Disturbance Footprint (Umwelt, 2022), and therefore are at risk of impact by the Project. The single VT that is not mapped in the Disturbance Footprint, VT5, predominately occurs north-east of the Disturbance Footprint in the north-eastern portion of the Study Area, with the closest occurrence being approximately 150 m from the Disturbance Footprint. VT 5 is likewise not mapped within the Development Envelope. Consequently, it is not expected that this VT will be directly impacted by Project activities.

None of the VTs mapped in the Study Area are considered to represent any formally listed TECs or PECs, nor considered significant for reasons other than formal listing (Umwelt, 2022) (**Section 2.2.2**). Although the VTs have not been mapped at a regional scale, none of the VTs are likely to be regionally significant, as no listed TECs or PECs occur in the Study Area, all landform and soil types associated with the VTs are likely to be relatively common in the region and all VTs are likely to extend outside of the Study Area due to continuing similarity of landforms and soils.

An assessment of the local conservation significance rating of each VT mapped in the Disturbance Footprint is presented in **Table 4.2.** This assessment uses the scale defined in **Table 3.2,** and considers the extent of the VT mapped over the Study Area and whether it occurs on restricted landforms and/or soils. Significant flora taxa that have preferred habitat in each VT is also provided in **Table 4.2** for context.

The local conservation significance of the majority (six) of VTs mapped was rated as '2', due to the VTs being mapped over 1-10 % of the Study Area and having a common local or widespread occurrence. Four VTs were mapped widely (>10%) over the Study Area, also on common or widespread landforms and soil types, and were therefore rated '1', the lowest significance rating. No VTs were mapped over less than 1% of the Study Area, nor were considered to occur on restricted landforms or soils **(Table 4.2)**. Therefore, all VTs are considered to have low significance at the local scale.

Table 4.2 Local Conservation Significant Rating Assessment of Vegetation Types of the Disturbance Footprint

Vegetation Type	Percent of Study Area (%)	Local Area Characteristics (Umwelt, 2022)	Local Conservation Significance Rating (Table 3.2)
1	37.8	• Occurs on stony red-brown sandy clay loam to clay loam on gently inclined mid to lower slopes and associated drainage lines. • Mapped widely over the entirety of the Study Area. • Considered likely to extend outside the Study Area to the north, west and south. • Occurs on landforms and soils that are likely to be locally common and widespread.	1
2	10.1	• Occurs on red-brown clay loam with ironstone pebbles on gently inclined lower to upper slopes. • Mapped across four general occurrences in the Study Area, typically at the upper slopes and summits of low hills, or the midslopes of high elevation ranges. • Considered likely to extend outside the Study Area to the northwest, north, east and south. • Occurs on landforms and soils that are likely to be locally common and widespread.	1
3	1.3	• Occurs on red-brown clay loam with ironstone pebbles on gently inclined lower to upper slopes. • Mapped over low ranges in the south west of the Study Area. • Considered likely to extend outside the Study Area to the south west. • Occurs on landforms and soils that are likely to be locally common and widespread.	2
4	2.5	• Occurs on red brown clay loam on steep upperslopes, gullies, breakaways and gorges with significant ironstone outcropping. • Mapped on ranges in the east of the Study Area, south east of the Mine DE. • Considered likely to extend outside the Study Area to the east and south. • Occurs on landforms and soils that are likely to be locally common and widespread.	2
5	2.7	• Occurs on steep upperslopes and associated drainage lines on red-brown clay loam with exposed ironstone and dolerite. • Mapped on ranges in the north east of the Study Area. • Considered likely to extend outside the Study Area to the north and east. • Occurs on landforms and soils that are likely to be locally common and widespread.	2

Vegetation Type	Percent of Study Area (%)	Local Area Characteristics (Umwelt, 2022)	Local Conservation Significance Rating (Table 3.2)
6	8.4	• Occurs on red brown sandy clay loam on steep mid to upper slopes with exposed ironstone. • Mapped on ranges in the east of the Study Area, south east of the Mine DE. • Considered likely to extend outside the Study Area to the east and south. • Occurs on landforms and soils that are likely to be relatively locally common and widespread.	2
7	13.8	• Occurs on red brown clay loam with some ironstone pebbles on plains. • Mapped widely over plains west of Mine Creek. • Considered likely to extend outside the Study Area to the north and west. • Occurs on landforms and soils that are likely to be locally common and widespread.	1
8	1.8	• Occurs on red-brown sandy clay to clay on plains. • Mapped over plains in the south west of the Study Area. • Considered likely to extend outside the Study Area to the west and south. • Occurs on landforms and soils that are likely to be locally common and widespread.	2
9	15.9	• Occurs on red-brown clay loam with ironstone pebbles on plains. • Mapped widely over plains west of Mine Creek. • Considered likely to extend outside the Study Area to the north and west and south. • Occurs on landforms and soils that are likely to be locally common and widespread.	1
10	5.7	• Occurs on red-brown clay loams on major and minor drainage lines. • Mapped over Mine Creek and its tributaries, significant drainage lines flowing down from hills in the south west, east and north east of the Mine DE. • Considered likely to extend outside the Study Area to the north and south. • Occurs on landforms and soils that are likely to be locally common and widespread.	2

4.2 Direct Impacts

4.2.1 Significant Flora

4.2.1.1 Local Impact

Table 4.3 presents a summary of potential direct impacts to the three significant flora taxa that are known to occur in the Disturbance Footprint (as per **Table 2.1**), based on calculation of percentages of individuals known from the Disturbance Footprint that are at risk of direct impact by the Project.

Less than 7% of the local population of *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) and less than 1% of the local population of *Aristida lazaridis* (P2) is potentially at risk of direct impact by the project. Approximately 27% of the known numbers of individuals of *Seringia exastia* are potentially directly impacted by the project (**Table 4.3**).

Table 4.3 Potential Direct Impact to Locations and Individuals of Significant Flora Taxa

Taxon	Status*	Local Area		Disturbance Footprint			
		Number of Locations	Number of Individuals	Number of Locations	Percent of Locations (%)	Number of Individuals	Percent of Individuals (%)
Aristida lazaridis	P2	6,766[a]	12,942[a]	63	0.9	77	0.6
***Rhagodia* sp. Hamersley (M. Trudgen 17794)**	P3	49[b]	53[b]	3	6.1	3	5.7
Seringia exastia	T	37[b]	783[b]	11	29.7	211	26.9

[a] Counts include locations and individuals outside the Study Area, representing a continuance of the population within the study area (Rapallo, 2021b)

[b] Count is of locations and individuals inside the Study Area only

*Conservation status in WA under the BC Act, with the exception of *Seringia exastia* (T) which remains recognised only under the EPBC Act.

Table 4.4 presents a summary of the potential local direct impact to significant flora taxa whose preferred habitat occurs within the Disturbance Footprint, based on calculation of the percentage of its preferred habitat in the Disturbance Footprint that is at risk of impact by the Project. For the purpose of calculating impacts, the preferred habitat of two taxa (*Aristida lazaridis* and *Rhagodia* sp. Hamersley (M. Trudgen 17794)) is considered restricted to the GNH area of their respective VTs. **Table 4.4** considers all significant flora taxa in **Table 4.1**, irrespective of whether known locations are present in the Disturbance Footprint.

Table 4.4 Potential Direct Impact to Preferred Habitat of Significant Flora Taxa

Taxon	Status*	Preferred Habitat (VTs)	Mapped Extent of Preferred Habitat (ha)		Percent Impact (%)
			Study Area	Disturbance Footprint	
Aristida jerichoensis* var. *subspinulifera	P3	8	68.93	2.93	4.3
Aristida lazaridis	P2	7 and 8 (GNHI Area only)	286.17	16.81	5.9

Taxon	Status*	Preferred Habitat (VTs)	Mapped Extent of Preferred Habitat (ha)		Percent Impact (%)
Corchorus sp.	Potentially undescribed	9	600.81	68.28	11.4
Eremophila naaykensii	P3	4 and 6	411.93	1.46	0.4
Euphorbia ferdinandi s. lat.	Potentially undescribed	8	68.93	2.93	4.3
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	P2	4	95.32	0.62	0.7
Rhagodia sp Hamersley (M. Trudgen 17794)	P3	7 (GNHI Area only)	217.24	13.88	6.4
Rostellularia adscendens var. *latifolia*	P3	1	1,429.16	343.39	24.0
Seringia exastia	T	1	1,429.16	343.39	24.0
*Conservation status in WA under the BC Act, with the exception of *Seringia exastia* (T) which remains recognised only under the EPBC Act.					

Table 4.5 presents a qualitative assessment of the significance of the potential direct impact by the Project to significant flora taxa at a local scale. The potential direct impact to all assessed taxa is considered unlikely to be significant at the local scale.

Table 4.5 Significance of Potential Local Direct Impact to Significant Flora Taxa

Taxon	Status*	Regional Significance of Local Populations (Table 4.1)	Potential Local Direct Impact (%)		Comment Regarding Potential Significance of Local Direct Impact
			Number of Individuals (Table 4.3)	Preferred Habitat VT (Table 4.4)	
Aristida jerichoensis var. *subspinulifera*	P3	Low	0	4.3	Unlikely to be significant direct impact. No individuals and less than 5% of preferred habitat of the Study Area is at risk of direct impact.
Aristida lazaridis	P2	Low	0.6	5.9	Unlikely to be significant direct impact. Less than 2% of individuals at risk of direct impact and preferred habitat is well represented outside of the Disturbance Footprint and in the local area.
Corchorus sp.	Potentially undescribed	High	0	11.4	Unlikely to be significant direct impact. No individuals at risk of direct impact and preferred habitat is primarily represented outside the Disturbance Footprint in the local area.
Eremophila naaykensii	P3	Low	0	0.4	Unlikely to be significant direct impact. No individuals and less than 1% of preferred habitat of the Study Area is at risk of direct impact.

Taxon	Status*	Regional Significance	Potential Local Direct Impact (%)		Comment Regarding Potential Significance of Local Direct Impact
***Euphorbia ferdinandi* s. lat.**	Potentially undescribed	High	0	4.3	Unlikely to be significant direct impact. No individuals and less than 5% of preferred habitat of the Study Area is at risk of direct impact.
***Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708)**	P2	Moderate	0	0.7	Unlikely to be significant direct impact. No individuals and less than 1% of preferred habitat of the Study Area is at risk of direct impact.
***Rhagodia* sp Hamersley (M. Trudgen 17794)**	P3	Low	5.7	6.4	Unlikely to be significant direct impact. Less than 6% of individuals at risk of direct impact and preferred habitat is well represented outside of the Disturbance Footprint and in the local area.
Rostellularia adscendens* var. *latifolia	P3	Low	0	24.0	Unlikely to be significant direct impact. No individuals and less than 25% of preferred habitat of the Study Area is at risk of direct impact.
Seringia exastia	T	Low	26.9	24.0	Unlikely to be significant direct impact. Taxon is common in the local area, and preferred habitat is well represented outside the Disturbance Footprint in the local area.
*Conservation status in WA under the BC Act, with the exception of *Seringia exastia* (T) which remains recognised only under the EPBC Act.					

4.2.1.2 Regional Impact

Table 4.6 presents a summary of significance of potential impacts at the regional scale to populations of significant flora taxa that are known to occur in the Disturbance Footprint (as per **Table 4.3**). Note that while the number of indicative regional populations of significant flora taxa presented in **Table 4.6** has been determined using the DBCA (2017) definition of a population (described in **Section 1.3**), the number of new populations recorded by the Baseline Survey and the number of regional populations that will be impacted has been limited to a maximum of one, as it is considered that there is insufficient spatial separation between significant flora records in the local area and Disturbance Footprint to indicate the presence of multiple indicative local populations.

There is unlikely to be significant regional impact to any of the assessed taxa, including those with local populations that have high regional conservation significance. This is primarily due to the relatively low levels of direct impact on local populations of these taxa, with all taxa that have known records in the Disturbance Footprint also having known records and preferred habitat outside the Disturbance Footprint in the wider local area (**Table 4.1**).

Table 4.6 Potential Regional Impact of Populations of Significant Flora Taxa

Taxon	Status*	Regional Significance of Local Populations (Table 4.1)	Known Indicative Regional Populations (Table 4.1)	New Regional Populations Recorded by Baseline Survey	Total Known Indicative Regional Populations	Indicative Regional Populations to be Impacted	Comment Regarding Potential Significance of Regional Impact
Aristida lazaridis	P2	Low	17	0	17	1	Unlikely to be significant impact Whilst the taxon is known from only 17 regional populations (low regional significance of these local populations), the Project has a very low (less than 1%) potential direct impact at the local scale.
***Rhagodia* sp. Hamersley (M. Trudgen 17794)**	P3	Low	72	0	72	1	Unlikely to be significant impact Taxon is known from a relatively large number of regional populations (low regional significance of these local populations) and has a low impact at the local scale.
Seringia exastia	T	Low	293	0	293	1	Unlikely to be significant impact Taxon is known from an extensive and large number of regional populations (low regional significance of these local populations) and has a low impact at the local scale.

*Conservation status in WA under the BC Act, with the exception of *Seringia exastia* (T) which remains recognised only under the EPBC Act.

4.2.2 Vegetation

4.2.2.1 Local Impact

Table 4.7 presents a summary of potential local impact to VTs mapped in the Disturbance Footprint, based on the mapped extent of VTs in the Disturbance Footprint in relation to their total mapped extent in the Study Area.

The extent of impact on VTs mapped in the Disturbance Footprint is relatively low with the mapped extents in the Disturbance Footprint ranging between 23.9 % (VT1) and 0.3 % (VT6) of the mapped extent in the Study Area (**Table 4.7**).

The highest local conservation significance rating for VTs of the Disturbance Footprint was '2' (VT mapped over 1-10 % (inclusive) of the Study Area, and landform/soil type is locally common and widespread) (VTs 3,4,5,6,8 and 10) (**Table 4.2**). Therefore, these VTs are considered to be of low local significance. In addition, there is unlikely to be significant impact at the local scale for any of the assessed VTs due to the relatively low percentage of impact, with less than 25% of the mapped extent of any VT at risk of direct impact (**Table 4.7**).

Table 4.7 Potential Local Impact to Vegetation Types

Vegetation Type	Local Conservation Significance Rating (Table 4.2)	Mapped Extent (ha)		Percent Impact (%)
		Study Area	Disturbance Footprint	
1	1	1,429.16	343.39	24.0
2	1	382.30	76.30	20.0
3	2	48.16	6.32	13.1
4	2	95.32	0.62	0.7
5	2	100.95	-	0.0
6	2	316.61	0.84	0.3
7	1	523.39	118.88	22.7
8	2	68.93	2.93	4.3
9	1	600.81	68.28	11.4
10	2	215.50	41.11	19.1

4.2.2.2 Regional Impact

As discussed in **Section 2.2.1,** two VSAs occur in the Study Area and Disturbance Footprint. A summary of the impact of the Project to these VSAs is presented in **Table 4.8**. This assessment considers the spatial extent of each VSA that will remain in the Hamersley IBRA subregion following clearing of vegetation for the Project, and the extent remaining as a percent of each VSA's Pre-European extent in the Hamersely IBRA subregion.

The implementation of the Project will not result in any of the VSAs in the Disturbance Footprint falling below the 30 % pre-European extent threshold (EPA, 2008) (**Table 4.8**). Therefore, the scale of regional impact to these VSAs because of the Project is unlikely to be significant.

Table 4.8 Impact to Vegetation System Associations of the Disturbance Footprint

Vegetation System Association	Mapped Extent (ha)			Extent Remaining^ (ha)	Extent Remaining$ (%)
	Pre-European*	Current*	Disturbance Footprint		
Hamersley_18	580,512	575,808	413	575,395	99.1
Hamersley_82	2,158,862	2,146,708	248	2,146,460	99.4

* Data from DBCA (2019).

^ Current extent of VSA remaining following clearing of the Disturbance Footprint.

$ Current extent of VSA remaining as a percent of the Pre-European extent following clearing of the Disturbance Footprint.

Five soil landscape units occur in the Study Area and Disturbance Footprint (**Table 2.3**). A summary of the impact of the Project to these soil landscape units is presented in **Table 4.9**. This assessment considers the spatial extent of each soil landscape unit that maybe impacted by the Project, which in all cases is negligible (less than 0.01%).

Table 4.9 Impact to Soil Landscape Units of the Disturbance Footprint

Unit	Mapped Extent (ha)		Extent Remaining (ha)	Percent Impact (%)
	Total*	Disturbance Footprint		
Boolgeeda (285Bg)	774,800	588.41	774,212	0.076
McKay (285Mk)	420,200	12.70	420,187	0.003
Newman (285Ne)	1,458,000	44.53	1,457,955	0.003
Platform (285Pl)	1,570,000	10.25	1,569,990	0.001
Wannamunna (285Wn)	57,700	4.75	57,695	0.008

* Data from DPIRD (2018) and van Vreeswyk et al. (2004).

Given that none of the VTs are considered regionally significant, nor correspond to any formally-listed TECs or PECs, nor are considered significant for reasons other than formal listing (Umwelt, 2022), and all VTs are considered to be represented outside of the Study Area, the potential regional significance of impact to VTs is unlikely to be significant.

4.3 Indirect Impacts

4.3.1 Background

4.3.1.1 Dust

There is potential for dust generated during Project construction and operation to be deposited on flora and vegetation in close proximity to Project areas. Dust can impede photosynthesis and other physiological processes of plants, including by blocking stomata, which can impact the overall health of vegetation.

Some research has been undertaken to investigate the impact of dust on native vegetation in the Pilbara and southwest of WA (Butler, 2009; Matsuki *et al.*, 2016), as well as at mine sites in nearby regions. There is some evidence to suggest that dust from mining operations can impact flora taxa and/or vegetation, but the long-term impact is not clear. Turner (2013) reported that heavy dust loading resulted in reduced stomatal conductance in two *Acacia* taxa; likewise, it was evident in field observations that heavy dust loads resulted in some plant stress, including leaf shed, or plant senescence. It was found that the leaf surface and dust interaction was more important to plant stress levels than the actual amount of dust; however, metal-rich dust with low pH may have been the causal factor.

In other studies, while some temporary impacts have been recorded in terms of reduced photosynthesis, no long-term effects such as increased plant mortality have been established. Monitoring by Woodman Environmental (2017) at the Atlas Iron Pty Ltd Pardoo iron ore mine focussed on potential impacts of dust generated by mining operations including road use, on two ephemeral significant flora taxa, *Eragrostis crateriformis* (P3) and *Rothia indica* subsp. *australis* (P1). However, unlike Turner, Woodman Environmental reported that the dust levels on these taxa did not result in significant stress or death.

If appropriate dust suppression procedures are implemented during clearing and machinery movement, it is unlikely that dust deposition will significantly impact surrounding vegetation and flora taxa. Likewise, if dust suppression at Lamb Creek utilises groundwater that is fresh, run-off of saline water into adjacent vegetation, or overspray of saline water directly onto vegetation, is not anticipated.

4.3.1.2 Changes to Surface Water Hydrology

Altered surface water hydrology may result in the potential reduction or removal of seasonal surface water flows, leading to either death or loss of condition to individual plants or vegetation. Barriers to surface water flows, such as intersection of watercourses, may result in ponding upstream, interruption of sheet flows, and drainage shadow effects downstream of the barrier. Water ponding may have secondary effects, including the creation of new or modified environments due to the presence of waterlogging or permanent water, and increased presence of weed species. Vegetation at risk from drainage shadow includes both terrestrial vegetation that is reliant on sub-surface soil-water flow, and riparian vegetation that is at least partially reliant on water sources provided by creeklines and drainage areas.

4.3.1.3 Changes to Groundwater Levels (Groundwater Drawdown)

Open pit mines often extend below the natural position of the water table, and therefore groundwater surrounding such mines may be extracted to lower the water table and provide dry mining conditions. This may result in the death of phreatophytic taxa and change in composition of GDV. Loss of groundwater-dependant tree species may in turn affect overall vegetation condition as a result of increased light levels, altered vegetation structure, and vegetation-related soil moisture levels. Phreatophytic taxa in the Pilbara include *Melaleuca argentea* (strongly obligate phreatophyte), *Sesbania formosa* (obligate phreatophyte), *Eucalyptus camaldulensis* subsp. *refulgens* (can be obligate or a facultative phreatophyte depending on the situation), and facultative phreatophytes including *Atalaya hemiglauca, Acacia ampliceps, Melaleuca glomerata* and *Melaleuca linophylla.*

Natural seasonal fluctuations in groundwater levels may also serve to affect the health of phreatophytic taxa, with the greatest risk of stress likely to be prior to the start of the 'wet' season in the Pilbara (October-November). The effects of these fluctuations may be exacerbated by groundwater drawdown, potentially resulting in severe stress of phreatophytic taxa prior to significant rainfall (Groom *et al*., 2000).

Groundwater drawdown is proposed at Lamb Creek from mining inception for pit dewatering and to meet water supply demands (PSM, 2021). The depth of the water table in the resource area ranges from 25 to 60 m, which discounts the local presence of GDEs (PSM, 2021). In addition, within Umwelt's (in prep) Study Area, no GDV has been identified; the only GDV indicator taxon recorded from the Study Area was the facultative phreatophyte *Atalaya hemiglauca,* occurring occasionally in the riparian vegetation of Mine Creek (VT10). The presence of this taxon alone does not indicate the presence of GDV, with the depth of the water table indicating that the vegetation is unlikely to be dependent on groundwater.

4.3.1.4 Groundwater Discharge

Surplus water from groundwater dewatering may be discharged to the land surface as a controlled release into designated watercourses or wetlands. Impacts from groundwater discharge can be two-fold; during discharge activities, followed by impacts when discharge stops. Primary impacts from groundwater discharge include temporary creation of new or modified environments downstream of discharge points due to the presence of permanent water/waterlogging or extension of the time that water is present, followed by subsequent decline of these environments after cessation of discharge (CSIRO, 2015; MWH, 2009; Woodman Environmental, 2019). Senescence of plant species that cannot tolerate constant waterlogging may occur, as well as the introduction and/or spread of tolerant weed species. While it is likely that any species lost due to the surface saturation will re-colonise the area after environmental discharge has ceased, the re-colonisation may take many years (van Etten & Vellekoop, 2009; Woodman Environmental, 2019).

4.3.1.5 Fragmentation

Fragmentation is the process by which habitat loss results in the division of large, continuous habitats into smaller, more isolated habitat fragments. The main drivers of fragmentation impacts include reduced patch (habitat) area, increased edge effects (introduction of weeds and other degradation), altered patch shape, increased patch isolation and altered matrix structure. Smaller patches, including smaller populations of significant flora taxa, can result in reduction of reproductive success of individual species, and reduction of overall species composition. The length of time for which a patch has been isolated is also important, with species richness decreasing with increased time since fragmentation (Didham, 2010).

With respect to individual species, several traits may assist in predicting their sensitivity to fragmentation (Henle *et al.* (2004), referenced in Didham (2010)):

- Population size: smaller populations are more prone to extinction.
- Population variability: greater temporal variability in population size reduces the probability of population persistence.
- Competitive ability and sensitivity to disturbance: competitively-dominant species in undisturbed habitats may reduce at the expense of disturbance-opportunists.
- Degree of habitat specialisation: specialist species are more susceptible than generalist species.
- Rarity: rare, patchily distributed species are more susceptible than common species.
- Biogeographical location: tropical and Mediterranean biomes are more sensitive to fragmentation than temperate biomes.

Gene flow that is too low to sufficiently buffer the negative effects of inbreeding and genetic drift in fragmented populations may result in decreased population fitness and increased risk of extinction following further habitat fragmentation (Lienert, 2004; Luquet et al., 2012). Furthermore, taxa with genetic diversity that is already low may be at greater risk from habitat fragmentation than those with greater genetic diversity.

4.3.2 Indirect Impact Assessment

4.3.2.1 Edge Effects

The flora and vegetation in the IIAZ is at risk of edge effects as a result of the Project, including dust deposition, water ponding, runoff, drainage shadow and weeds (**Section 4.3.1**). The IIAZ encompasses a total area of 278 ha. Note that a figure for the IIAZ has not been prepared given the small buffer distance from the Disturbance Footprint.

Table 4.10 presents the number of locations and individuals of significant flora taxa recorded by the Baseline Survey within the IIAZ that are at risk of edge effects as a result of the Project.

A total of four significant flora taxa have records within the IIAZ **(Table 4.10).** Note that the Baseline Survey searched for significant taxa throughout the Development Envelope, which is a 20 – 40 m buffer on the majority of the Footprint. As such, it is considered likely that the majority of significant flora taxa present in the IIAZ were recorded by the Baseline Survey.

Table 4.10 Number of Locations and Individuals of Significant Flora Taxa Recorded by the Baseline Surveys Within the IIAZ

Taxon	Status*	Number of Locations	Number of Individuals
Aristida jerichoensis var. *subspinulifera*	P3	1	1
Aristida lazaridis	P2	168	217
Corchorus sp.	Potentially undescribed	-	-
Eremophila naaykensii	P3	-	-
Euphorbia ferdinandi s. lat.	Potentially undescribed	-	-
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	P2	-	-
Rhagodia sp. Hamersley (M. Trudgen 17794)	P3	3	3
Rostellularia adscendens var. *latifolia*	P3	-	-
Seringia exastia	T	2	10

*Conservation status in WA under the BC Act, with the exception of *Seringia exastia* (T) which remains recognised only under the EPBC Act.

Table 4.11 presents the extent of VTs mapped by the Baseline Surveys in the IIAZ that is at risk of edge effects as a result of the Project. A total of nine VTs have been mapped within the IIAZ, as well as Cleared Land (not presented in **Table 4.11**). The total mapped extent of vegetation in the IIAZ is 119.64 ha.

Table 4.11 Mapped Extent of Vegetation Types in the IIAZ

Vegetation Type	Mapped Extent in IIAZ (ha)
1	52.02
2	6.39
3	3.27
4	0.17
5	-

Vegetation Type	Mapped Extent in IIAZ (ha)
6	0.87
7	28.82
8	4.35
9	14.29
10	8.21

4.3.2.2 Weeds

The condition of the vegetation of the Study Area was predominately rated as 'Excellent', as there was no or little evidence of impact to vegetation composition as a result of human activities, or there were only low levels of weed taxa. The vegetation condition of some areas was rated lower (Very Good to Good) due to the presence of moderate to large infestations of invasive weeds (in riparian areas) and or historical clearing (Umwelt, 2022).

If not adequately managed, Project activities could result in the introduction and/or spread of weeds, particularly in areas within close proximity to, or downstream of, the Disturbance Footprint, resulting in degradation of otherwise intact vegetation.

4.3.2.3 Changes to Surface Water Hydrology

A number of minor ephemeral watercourses intersect the Disturbance Footprint and will therefore be impacted by the Project. Sheet flow interruption may also occur. Most watercourses that will be impacted by the Disturbance Footprint are located on service corridors, and consequently it is expected that surface water flow in these areas can be adequately managed by appropriate design. However, for the larger watercourse of Mine Creek there is the potential for surface water drainage shadow impacts to downstream flora and vegetation if the flow is interrupted. Mine Creek and all drainage catchments within the resource area flow northward into Marillana Creek (RPS, 2017) which supports GDV (riparian vegetation and seasonal pools in the Flat Rocks area, about 24 km downstream of the Project) (PSM, 2021). Normal surface water flows and quality needs to be maintained to avoid impacts downstream.

One VT mapped in the Disturbance Footprint by the Baseline Survey represents riparian vegetation, being VT10, of which a combined 49 ha is potentially impacted (**Section 4.4.2**). The health of Mulga groves such as those that dominate VTs 7 and 8 are known to be dependent in part on surface water flows, including sheet flow (Davies, 2010). Other VTs (VT1 and VT9) include minor drainage features which support vegetation that depend on surface water flows to some degree (Umwelt, 2022).

There is potential for indirect impacts via interruption of surface water flows (including sheet flow) or changes in water quality to the following areas, where they occur downstream or downslope:

- The population of *Corchorus* sp. (potentially undescribed, and an assessed conservation significance rating of high (see **Section 4.1.1**));
- Riparian vegetation;
- Mulga grove vegetation (VT7, VT8);
- Populations of significant flora in the GNHI area;

- Any further significant taxa which have been assessed as 'possibly' occurring in the Study Area (**Appendix A**), which are dependent or partially dependent on surface water flows.

As these areas are reliant on surface water inputs, the flora and vegetation of these areas both within and downstream of the Disturbance Footprint are potentially at risk of impact through reduced availability of water. As the Lamb Creek development lies within the Marillana Creek catchment, disturbance of footprint areas, and any catchments blocked or trapped, are likely to decrease runoff into Marillana Creek and any GDEs downstream of the Project (RPS, 2017). The extent of potential impact to vegetation in terms of inducing drought stress as a result of a reduction in catchment area is unknown.

Where proposed mining and associated infrastructure will interrupt natural flows, the extent and significance of impacts will be dependent on the allowances made for surface water flows to pass under or around any barriers and the success of efforts to re-establish flows (Muller, 2005). Recommendations have been made by RPS (2017) to establish culverts and other drainage structures at creek crossings sufficient to minimise closure times during flooding events to acceptable operational levels. The design of drainage structures must also consider impacts to downstream vegetation and aim to re-establish both the volume and spread of water flows, particularly for the Mulga groves of VTs 7 and 8.

Other potential changes to surface water hydrology as a result of the Project include increased water runoff and sediment deposition from mining infrastructure and landforms, water ponding, and erosion in vegetation adjacent to the Disturbance Footprint. This can lead to secondary impacts including changes to vegetation structure and increased presence and severity of weeds. The potential impacts to significant flora and vegetation from these effects have been quantified and discussed in **Section 4.3.2.1** with reference to the IIAZ.

Surface water flow will need to be maintained over the course of construction and mine life. Similarly, the design and maintenance of the Haulage route will need to take into account surface water drainage features. The use of water for dust suppression must also consider water quality, in particular salinity, for potential impacts of runoff to adjacent vegetation, and avoid the use of hypersaline water (Davies, 2010).

4.3.2.4 Impacts through Groundwater Drawdown

No GDV has been identified as occurring within the Study Area (Umwelt, 2022) and depths to groundwater within the Project area are typically greater than 10 m (PSM, 2021). Although total depth of groundwater drawdown is predicted to be approximately 33m below the topographical surface (during the last four months of mine planning – months 23-26), groundwater drawdown to a depth of 1m is expected to occur across a range of 5.4km from the pit area under the Lower-bound scenario (most likely scenario); to an extent of 4.4km in the base case and 6.3km for the Upper-bound scenario (less likely). The groundwater drawdown is not expected to impact vegetation of the Study Area as no GDV has been identified in this area. As per PMK (2021), the proposed groundwater drawdown is not expected to influence nearby GDEs (calcretes at the confluence of the Marillana and Mine Creek), however that GDE area is outside the current Study Area and therefore outside the scope of this assessment and not assessed in this report.

4.3.2.5 Groundwater Discharge

It is unclear from PSM (2021) if groundwater discharge will be required (where groundwater abstraction is greater than the water requirements of the project). Figure 16 of PSM (2021) presents potential groundwater injection sites with regards to the upper-bound scenario (where pit dewatering produces more water than the project demands), which was described as being less-likely than the lower-bound

scenario (pit dewatering supplying less water than demand). These point injection sites are located on the Mine Creek, within the Study Area. It is recommended that this assessment be revisited if such discharge is required. Monitoring of the health of vegetation in the vicinity of the injection site is recommended to be undertaken if discharge is realised, given the terrestrial (non-phreatophytic) nature of the vegetation in this area.

4.3.2.6 Fragmentation

The impact of fragmentation to local populations of significant flora taxa is difficult to quantify at a site level. A brief qualitative assessment of the possible impacts of fragmentation by the Project has been undertaken.

Four taxa (*Aristida lazaridis* (P2), *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3), *Aristida jerichoensis* var. *subspinulifera* (P3) and *Euphorbia ferdinandi* s. lat (potentially undescribed)) only occur in the GNHI area, in which the Great Northern Highway and a railway line already intersect populations. The Disturbance Footprint in this area consists of a 30 – 75 m wide linear corridor, and a 15 m widening of Great Northern Highway into historically disturbed vegetation. Any potential impacts of fragmentation through separation (or increasing existing separation) are likely to be negligible and not significant for these four taxa.

The population of *Corchorus* sp. occurs only to the west (downslope) of the Disturbance Footprint and is unlikely to be impacted by fragmentation.

Targeted survey extent was limited to potential impact areas (the Development Envelope), and it is likely that targeted survey outside the DE would provide further data regarding the presence of additional existing linkages between populations, with suitable habitat for each taxon often occurring between currently known populations.

The impacts of fragmentation to vegetation types, if any, are unlikely to be significant.

4.4 Combined Impacts

The following sections present potential impacts to significant flora and vegetation as a combination of direct impacts in the Disturbance Footprint (**Section 4.2**) and indirect impacts in the IIAZ (**Section 4.3.2**). Note that the combined impact assessment assumes a worst-case scenario of total clearing of the Disturbance Footprint as well as complete loss of environmental values in the IIAZ.

4.4.1 Significant Flora

Predicted potential combined impacts to significant flora locations and individuals as a result of the Project are presented in **Table 4.13** and **Table 4.14**, respectively, while **Table 4.15** presents potential combined impacts to significant flora preferred habitat.

The combined impact to the preferred habitat of *Seringia exastia* is relatively low at <28% of the mapped habitat extent within the Study Area. This taxon is now recognised as widespread and common (**Table 4.1**), as is its preferred habitat (**Table 4.2**), which has been acknowledged at the state level by removal of its conservation listing under the BC Act. The loss of preferred habitat is considered an insignificant impact to the taxon in light of this and its impending change of conservation status under the EPBC Act (**Section 2.1**).

The combined impacts to preferred habitat of all other significant flora taxa are relatively low at < 30% of each habitat's mapped extent within the study area and therefore the combined impact is not likely to be significant.

Table 4.12 Potential Combined Impacts to Locations of Significant Flora Taxa

Taxon	Status*	Number of Locations in Local Area	Locations at Risk of Impact			Potential Combined Impact to Locations (%)
			Disturbance Footprint (Table 4.3)	IIAZ[c] (Table 4.10)	Total	
Aristida jerichoensis* var. *subspinulifera	P3	8[b]	-	1	1	12.5
Aristida lazaridis	P2	6,766[a]	63	168	231	3.4
***Corchorus* sp.**	Potentially undescribed	23[b]	-	-	-	-
Eremophila naaykensii	P3	37[b]	-	-	-	-
***Euphorbia ferdinandi* s. lat.**	Potentially undescribed	19[b]	-	-	-	-
***Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708)**	P2	2[b]	-	-	-	-
***Rhagodia* sp. Hamersley (M. Trudgen 17794)**	P3	49[b]	3	3	6	12.2
Rostellularia adscendens* var. *latifolia	P3	1[b]	-	-	-	-
Seringia exastia	T	37[b]	11	2	13	35.1

[a] Counts include locations outside the Study Area, representing a continuance of the population within the study area (Rapallo, 2021b)

[b] Count is of locations inside the Study Area only

[c] Number of locations of significant flora taxa that are at risk of edge effects as a result of the Project, including dust deposition, water ponding, runoff, drainage shadow and weeds.

*Conservation status in WA under the BC Act, with the exception of *Seringia exastia* (T) which remains recognised only under the EPBC Act.

Table 4.13 Potential Combined Impacts to Individuals of Significant Flora Taxa

Taxon	Status*	Number of Individuals in Local Area	Individuals at Risk of Impact (ha)			Potential Combined Impact to Individuals (%)
			Disturbance Footprint (Table 4.3)	IIAZ[c] (Table 4.10)	Total	
Aristida jerichoensis* var. *subspinulifera	P3	97[b]	-	1	1	1.0
Aristida lazaridis	P2	12,942[a]	77	217	294	2.3
***Corchorus* sp.**	Potentially undescribed	35[b]	-	-	-	-
Eremophila naaykensii	P3	73[b]	-	-	-	-
***Euphorbia ferdinandi* s. lat.**	Potentially undescribed	60[b]	-	-	-	-
***Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708)**	P2	17[b]	-	-	-	-
***Rhagodia* sp. Hamersley (M. Trudgen 17794)**	P3	53[b]	3	3	6	11.3
Rostellularia adscendens* var. *latifolia	P3	1[b]	-	-	-	-
Seringia exastia	T	783[b]	211	10	221	28.2

[a] Counts include individuals outside the Study Area, representing a continuance of the population within the study area (Rapallo, 2021b)

[b] Count is of individuals inside the Study Area only

[c] Number of individuals of significant flora taxa that are at risk of edge effects as a result of the Project, including dust deposition, water ponding, runoff, drainage shadow and weeds.

*Conservation status in WA under the BC Act, with the exception of *Seringia exastia* (T) which remains recognised only under the EPBC Act.

Table 4.14 Potential Combined Impacts to Preferred Habitat of Significant Flora Taxa

Taxon	Status*	Preferred Habitat (VTs)	Mapped Extent of Preferred Habitat in Study Area (ha)	Extent of Preferred Habitat at Risk of Impact (ha)			Potential Combined Impact to Habitat (%)
				Disturbance Footprint (Table 4.4)	IIAZ[c] (Table 4.11)	Total	
Aristida jerichoensis var. *subspinulifera*	P3	8	68.93	2.93	4.35	7.28	10.6
Aristida lazaridis	P2	7 and 8	592.32	16.81[a]	17.46[a]	34.27	12.0
Corchorus sp.	Potentially undescribed	9	600.81	68.28	14.29	82.57	13.7
Eremophila naaykensii	P3	4 and 6	411.93	1.46	1.03	2.50	0.6
Euphorbia ferdinandi s. lat.	Potentially undescribed	8	68.93	2.93	4.35	7.28	10.6
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	P2	4	95.32	0.62	0.17	0.79	0.8
Rhagodia sp Hamersley (M. Trudgen 17794)	P3	7	523.39	13.88[a]	13.11[a]	26.99	12.4
Rostellularia adscendens var. *latifolia*	P3	1	1,429.16	343.39	52.02	395.41	27.7
Seringia exastia	T	1	1,429.16	343.39	52.02	395.41	27.7

[a] Preferred habitat is areas of preferred VTs in the GNH area only (Section 4.2.1.1)

c Area of significant flora preferred habitat that is at risk of edge effects as a result of the Project, including dust deposition, water ponding, runoff, drainage shadow and weeds.

* Conservation status in WA under the BC Act, with the exception of *Seringia exastia* (T) which remains recognised only under the EPBC Act.

4.4.2 Vegetation

Predicted potential combined impacts to VTs as a result of the Project are presented in **Table 4.16**. These impacts are unlikely to be significant, as the combined impact to any VT is relatively low (all VTs will be impacted by less than 28.2 % of the mapped extent in the Study Area, however the actual combined impacts are likely to be less than shown in **Table 4.16**), and the local significance of each VT are also relatively low (a local conservation significance rating of 1, or 2 as presented in **Table 4.2**).

The highest potential combined impact to vegetation of the Study Area as a result of the Project will be to VTs 7 (28.2%), 1 (27.7%), 10 (22.9%), 2 (21.6%), and 3 (19.9%). All other VTs had potential combined impacts that were less than 14 % (**Table 4.16**).

Table 4.15 Potential Combined Impacts to Vegetation Types

Vegetation Type	Mapped Extent of VT in Study Area (ha)	Extent of VT at Risk of Impact (ha)			Potential Combined Impact to VT (%)
		Disturbance Footprint (Table 4.7)	IIAZ (Table 4.11)*	Total	
1	1,429.16	341.73	52.02	395.41	27.7
2	382.30	75.53	6.39	82.69	21.6
3	48.16	6.39	3.27	9.59	19.9
4	95.32	0.62	0.17	0.79	0.8
5	100.95	-	-	-	-
6	316.61	0.84	0.87	1.71	0.5
7	523.39	119.01	28.82	147.70	28.2
8	68.93	2.69	4.35	7.28	10.6
9	600.81	66.78	14.29	82.57	13.7
10	215.50	41.11	8.21	49.32	22.9

* Area of VT that is at risk of edge effects as a result of the Project, including dust deposition, water ponding, runoff, drainage shadow and weeds.

5.0 Conclusion

A total of nine significant flora taxa have been recorded, and 10 VTs mapped, within the Study Area by the Baseline Surveys (Rapallo, 2021a, b; Umwelt, 2022). Direct impacts and edge effects to all nine taxa and their preferred habitats were assessed as unlikely to be significant at both the local and regional scale, due to the low percentage of plants and habitat impacted, the range of populations and the common and widespread nature of their preferred habitats. Likewise, direct impacts to vegetation are assessed as unlikely to be significant at both the local and regional scale, due to the relatively low percentage of each VT potentially impacted and the common and widespread nature of the vegetation system associations.

There is a potential for indirect impacts via interruption of surface water flows (including sheet flow) or changes in water quality to the following areas, where they occur downstream:

- The population of *Corchorus* sp. (potentially undescribed, and an assessed conservation significance rating of high (see **Section 4.1.1**);
- Riparian vegetation;
- Mulga grove vegetation (VT7);
- Populations of significant flora in the GNHI area, downstream of interrupted sheet flows.
- Any further significant taxa which have been assessed as 'possibly' occurring in the Study Area (Appendix A), which are dependent or partially dependent on surface water flows.

Whilst recommendations have been made by RPS (2017) to establish culverts and other drainage structures at creek crossings sufficient to minimise operational impacts, the design of drainage structures must also consider potential impacts to downstream flora and vegetation through interruption of surface water flow, and aim to re-establish both the volume and spread of water flows to avoid these potential impacts.

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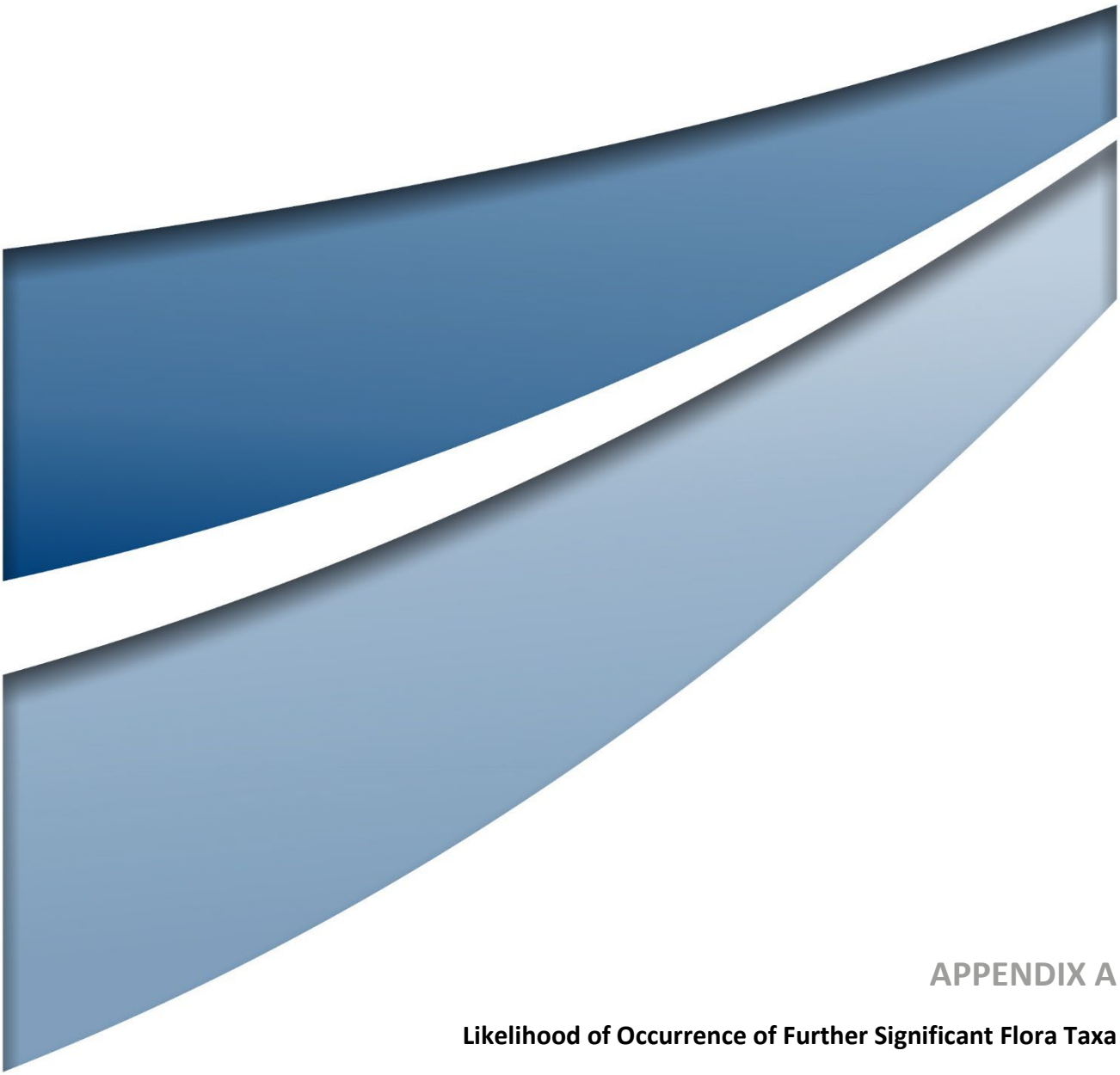

APPENDIX A

Likelihood of Occurrence of Further Significant Flora Taxa

A. Likelihood of Occurrence of Further Significant Flora Taxa

Table A.1 presents an assessment of the likelihood of occurrence of significant taxa within the Study Area and Disturbance Footprint. This list includes significant taxa identified as occurring (or potentially occurring) within the Desktop Study Area prior to the Baseline Surveys (Rapallo 2021b, Umwelt, 2022). The assessment considered whether a taxon was identifiable at the time of the surveys, the known range of the taxon, if habitat is present in the Study Area and/or Disturbance Footprint, proximity of known records to the Study Area and the extent of targeted survey undertaken within the Study Area and Disturbance Footprint, when determining the further potential for a taxon to occur in the Study Area and Disturbance Footprint.

A total of 62 taxa have been assessed within **Table A.1 including** two **Threatened taxa, 58 Priority listed taxa and two potentially undescribed taxa.** Of these, nine taxa were recorded within the Study Area by the Baseline Surveys, and two taxa were considered potentially not identifiable during the survey. *Arthropodium vanleeuwenii* (P2) is considered visible only when flowering in September as it grows up through *Triodia*. *Rhodanthe ascendens* (P1) is an annual taxon known from a limited number of records all of which were collected in August or September. It is possible that this taxon is present (and therefore identifiable) after significant rainfall; however, this cannot be confirmed based on existing information. It is considered that the 61 remaining taxa were identifiable during the 2022 survey, either because the survey period coincides with the taxon's flowering period, or the taxon can be identified reliably when in fruit or sterile.

The likelihood of occurrence assessment identified a total of 42 taxa which could Possibly occur within the Study Area due to suitable habitat occurring within the Study Area and the Study Area being within the known range of the taxon or within close proximity to its known range. All of these taxa were identifiable at the time of survey with the exception of *Arthropodium vanleeuwenii* (P2). Suitable habitat for this taxon is described as elevations above 900 m on south-facing hillslopes of Brockman Iron Formation (Dillon and Macfarlane 2020). This habitat occurs within the Study Area, at the highest elevation areas of VTs 4 and 6. The areas of VT 4 and 6 within the Disturbance Footprint and IIAZ are not considered to represent suitable habitat; these areas occur at or below 750 m elevation and are north and north-west facing.

It is worthy of note that 'suitable habitat' as used to inform the assessment has been determined using details recorded at known locations. However, for many of the taxa known from the general vicinity of the Study Area, suitable habitat is difficult to define, as available habitat information is often vague or very broad and difficult to interpret; for example an area described as a stony plains and flats with red or brown clay or clay loam could feasibly occur almost anywhere in the Pilbara. Therefore, a precautionary approach has been adopted when assessing whether suitable habitat for a species is present in the Study Area.

All 62 taxa assessed are considered unlikely to occur within the Disturbance Footprint due to their known range, the extent of targeted survey undertaken and/or the absence of suitable habitat within the Targeted Survey Area.

Table A.1 Likelihood of Occurrence of Further Significant Flora Taxa in the Study Area and Disturbance Footprint

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Disturbance Footprint
Acacia bromilowiana	P4	July to August	Rocky hills, breakaways, scree slopes, gorges, creek beds. Rocky red-brown loam with ironstone or laterite.	Yes	3.9 km W of Study Area	Possible – known record in close proximity to Study Area, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Acacia daweana	P3	July to September	Low rocky rises, along drainage lines. Red stony clay loam.	Yes	37 km W of Study Area	Possible – Study Area occurs outside of known range of taxon; however, suitable habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Acacia effusa	P3	May to August	Scree slopes of low ranges. Red-brown silty clay or clay loam with ironstone and quartz stones and pebbles.	Yes	1.6 km NW of Study Area	Possible – known record in close proximity to Study Area, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Acacia subtiliformis	P3	May to June	Rocky ridges, hills and slopes, often with calcrete. Light brown or brown loam or silty clay.	Yes	7.1 km NE of Study Area	Unlikely –potential habitat unlikely to be present in Study Area.	Unlikely – potential habitat unlikely to be present in Disturbance Footprint, all potential habitat searched.
Amaranthus centralis	P3	May to July	Plains, flats and granite outcrops. Gritty red clay loam.	Yes	23.5 km E of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Aristida jerichoensis var. *subspinulifera*	P3	likely after significant rainfall	Plains and flats. Red-brown loamy clay or cracking clay.	Yes	0.6 km W of Study Area	Recorded in the Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Disturbance Footprint
Aristida lazaridis	P2	likely after significant rainfall	Floodplains, drainage areas and plains. Red or red-brown clay loam, sometimes with ironstone.	Yes	Within Study Area	Recorded in the Study Area.	Recorded in the Disturbance Footprint.
Arthropodium vanleeuwenii	P2	September	Steep hill slopes and gorges. Red-brown or orange-brown loam, often with banded ironstone.	No	20.4 km W of Study Area	Possible – Study Area occurs outside of the known range of taxon; however, suitable habitat present in Study Area and taxon not identifiable during the survey.	Unlikely –taxon not identifiable during the survey however suitable habitat not present in Disturbance Footprint.
Cladium procerum	P2	likely year-round	Major creeks and gorges. Red gravelly sand.	Yes	33.2 km NNE of Study Area	Unlikely –Study Area occurs within known range of taxon; however, potential habitat unlikely to be present in Study Area.	Unlikely - potential habitat unlikely to be present in Disturbance Footprint.
Corchorus sp.	-	No data on *FloraBase* but flowering during the survey	No data on *FloraBase* (not formally described)*;* in the Study Area this entity was recorded within a drainage line in VT10 on sandy loam soils.	Yes	NA	Recorded in the Study Area.	Unlikely - all potential habitat has been searched within the Disturbance Footprint.
Dampiera metallorum	P3	June to October	High in the landscape on steep slopes, summits of hills. Red-brown stony clay loam over banded ironstone.	Yes	10.3 km E of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Disturbance Footprint
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)	P3	May to September	Floodplains and crabhole plains. Red-brown or brown cracking clay.	Yes	11 km N of Study Area	Unlikely –Study Area occurs within known range of taxon, west of Study Area is area of cracking clay which extends into the western edge of VT 9; however the area of cracking clay has been searched.	Unlikely - potential habitat unlikely to be present in Disturbance Footprint.
Eragrostis crateriformis	P3	likely after significant rainfall	Creek banks, depressions. Gritty or gravelly brown sandy loam, red-brown clay loam.	Yes	20.7 km N of Study Area	Possible – Study Area occurs outside of the known range of taxon; however, suitable habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Eragrostis sp. Mt Robinson (S. van Leeuwen 4109)	P1	likely after significant rainfall	Steep slopes, summits. Brown or red-brown silty loam, often with banded ironstone.	Yes	16.7 km S of Study Area	Possible – Study Area occurs outside of the known range of taxon; however, suitable habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Eremophila magnifica subsp. *magnifica*	P4	August to November	Hillslopes and gullies. Rocky red-brown or brown sandy loam, often with ironstone.	Yes	11 km S of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Eremophila magnifica subsp. *velutina*	P3	August to September	Hillslopes and ridges. Red stony loam, often with ironstone or banded ironstone.	Yes	15.1 km SW of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Eremophila naaykensii	P3	June to August	Rocky hill slopes, crests and gorges. Rocky red-brown clay loam, sometimes over banded ironstone.	Yes	5.6 km E of Study Area	Recorded in the Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Disturbance Footprint
Eremophila pusilliflora	P2	March to July	Flats and plains. Red-brown sandy loam, often with ironstone.	Yes	13.9 km W of Study Area	Possible –Study Area occurs on eastern edge of range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Eremophila spongiocarpa	P3	May to September	Weakly saline alluvial plains and dune slopes on margins of marshes and saline flats. Red-brown clay loam.	Yes	38.2 km NE of Study Area	Unlikely –Study Area occurs outside of known range of taxon (known from plains adjacent to Fortescue Marsh), potential habitat unlikely to be present in Study Area.	Unlikely - potential habitat unlikely to be present in Disturbance Footprint.
Eremophila sp. West Angelas (S. van Leeuwen 4068)	P1	August to September	Hill slopes and crests. Brown or red silty loam over banded ironstone.	Yes	17.9 km S of Study Area	Possible – Study Area occurs outside of the known range of taxon; however, suitable habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Euphorbia australis var. *glabra*	P3	likely after significant rainfall	Drainage lines and flats. Red-brown clay loam, sometimes with calcrete or silcrete.	Yes	10.7 km N of Study Area	Possible – Study Area occurs outside of the known range of taxon; however, suitable habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Euphorbia clementii	P3	likely after significant rainfall	Fire responder. Recently burnt hills, slopes and undulating plains. Red-brown clay loam.	Yes	29.1 km S of Study Area	Unlikely –Study Area is outside of known range of taxon according to FloraBase (WA Herbarium (1998-)); the record of this taxon near the Study Area is potentially erroneous given it is not verified by a vouchered specimen and is a significantly disjunct record.	Unlikely – record near Study Area potentially erroneous, all potential habitat searched, however area not recently burnt.

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Disturbance Footprint
Euphorbia ferdinandi s. lat	-	No data on *FloraBase* but flowering during the survey	No data on *FloraBase* (not formally described); recorded on VTs 7 and 8 on red-brown clay to clay loam with ironstone pebbles on plains in the Study Area.	Yes	Unknown	Recorded in the Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Euphorbia inappendiculata var. *queenslandica*	P2	likely after significant rainfall	Flats and plains. Brown cracking clay, gilgai.	Yes	26 km W of Study Area	Unlikely –Study Area occurs within known range of taxon, west of Study Area is area of cracking clay which extends into the western edge of VT 9; however the area of cracking clay has been searched.	Unlikely - potential habitat unlikely to be present in Disturbance Footprint.
Euphorbia stevenii	P3	likely after significant rainfall	Gentle slopes and plains. Brown or red-brown clay and cracking clay.	Yes	31 km SSW of Study Area	Possible –Study Area occurs on eastern edge of range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Fimbristylis sieberiana	P3	May to June	Pool edges, sandstone cliffs and major creek lines. Brown or red-brown gritty sand.	Yes	33.7 km E of Study Area	Unlikely –Study Area occurs within known range of taxon; however, potential habitat unlikely to be present in Study Area.	Unlikely - potential habitat unlikely to be present in Disturbance Footprint.
Glycine falcata	P3	May to September	Along drainage depressions in crabhole plains and clay plains. Brown or red cracking clay.	Yes	11 km N of Study Area	Unlikely –Study Area occurs outside of known range of taxon, west of Study Area is area of cracking clay which extends into the western edge of VT 9; however the area of cracking clay has been searched.	Unlikely - potential habitat unlikely to be present in Disturbance Footprint.

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Disturbance Footprint
Goodenia lyrata	P3	likely after significant rainfall	Claypans and plains. Red or brown sandy loam or clay loam.	Yes	1.5 km S of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Goodenia sp. East Pilbara (A.A. Mitchell PRP 727)	P3	likely after significant rainfall	Low undulating plains, swampy plains. Red-brown clay soil, calcrete pebbles.	Yes	6.6 km NE of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Grevillea saxicola	P3	February to June	Rocky hills, slopes and gullies. Red-brown sandy loam.	Yes	20 km S of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Gymnanthera cunninghamii	P3	February to May, October to December	Drainage lines. Brown or red-brown sand or sandy loam.	Yes	24.1 km NE of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	P2	April to August, October	Rocky gullies, drainage lines and gorges. Loamy skeletal soil.	Yes	26.6 km SW of Study Area	Recorded in the Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Indigofera gilesii	P3	May, August	Rocky slopes, hills, creeklines and outcrops. Red or orange loam, often with ironstone.	Yes	13.3 km W of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Disturbance Footprint
Iotasperma sessilifolium	P3	May to September	Edges of waterholes, plains, Cracking clay, black loam.	Yes	23.3 km N of Study Area	Unlikely –Study Area occurs outside of known range of taxon, west of Study Area is area of cracking clay which extends into the western edge of VT 9; however the area of cracking clay has been searched.	Unlikely - potential habitat unlikely to be present in Disturbance Footprint.
Ipomoea racemigera	P2	April to June	Drainage lines and flats. Brown silty loam.	Yes	11.9 km NE of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Isotropis parviflora	P2	June to August	Rocky hills, slopes and undulating plains. Red or brown sandy loam, often with ironstone.	Yes	8.2 km SE of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Kohautia australiensis	P2	likely after significant rainfall	Plains and hills. Brown or orange clay with calcrete.	Yes	11.8 km N of Study Area	Unlikely – Study Area occurs outside the known range of taxon, potential habitat unlikely to be present in the Study Area.	Unlikely – potential habitat unlikely to be present in Disturbance Footprint.
Lepidium catapycnon	P4	September	Rocky hills and slopes. Red or brown loam or sandy loam, often with ironstone.	Yes	15.6 km S of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Olearia mucronata	P3	July to August	Rocky hills, gullies and creeklines. Red-brown or orange-brown silty clay or sandy clay loam with ironstone.	Yes	26.1 km SW of Study Area	Possible –Study Area occurs on eastern edge of range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Disturbance Footprint
Oxalis sp. Pilbara (M.E. Trudgen 12725)	P2	May to July	Gorges, gullies, drainage lines and slopes. Red loam or sandy loam, often with ironstone.	Yes	15.6 km S of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Pilbara trudgenii	P3	September to October	Hill summits, steep slopes, screes, cliff faces. Skeletal red stony soil over ironstone.	Yes	15.8 km S of Study Area	Possible –Study Area occurs north of known range of taxon; however, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Ptilotus mollis	P4	July to September	Rocky hills and screes with red or brown clay loam, often with ironstone.	Yes	16.9 km S of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Rhagodia sp. Hamersley (M. Trudgen 17794)	P3	March to May, September	Plains and alluvial plains. Red or brown clay loam, often with ironstone gravel.	Yes	Within Study Area	Recorded in the Study Area.	Recorded in the Disturbance Footprint.
Rhodanthe ascendens	P1	August to September	Flats. Cracking clay and sand over clay.	Unknown – limited information	32.1 km SW of Study Area	Unlikely –Study Area occurs within known range of taxon, west of Study Area is area of cracking clay which extends into the western edge of VT 8; however the area of cracking clay has been searched.	Unlikely - potential habitat unlikely to be present in Disturbance Footprint. Study Area is outside known range.
Rhynchosia bungarensis	P4	May to November	Rocky hill slopes, drainage lines, gorges. Orange brown loam, often with ironstone.	Yes	21 km NE of Study Area	Possible –Study Area occurs on southern edge of known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Disturbance Footprint
Rostellularia adscendens var. *latifolia*	P3	April to May	Rocky hills, gullies, floodplains and drainage lines. Red/brown sandy loam.	Yes	8.6 km NNE of Study Area	Recorded in the Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Seringia exastia	T		Sandy soils on plains, creeks, rocky areas.	Yes	5 km south of the Study Area	Recorded in the Study Area.	Recorded in the Disturbance Footprint.
Sida sp. Barlee Range (S. van Leeuwen 1642)	P3	likely after significant rainfall	Rocky hills, gullies and gorges. Red or brown sandy loam, often with ironstone.	Yes	13.9 km S of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Sida sp. Hamersley Range (K. Newbey 10692)	P3	likely after significant rainfall	Ironstone gullies, slopes and breakaways. Skeletal red loam.	Yes	37.4 km SSW of Study Area	Possible –Study Area occurs outside of known range of taxon; however, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Solanum kentrocaule	P3	May to September	Steep rocky gullies, slopes, gorges. Skeletal red loam.	Yes	16.1 km S of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Stackhousia clementii	P3	April to September	Floodplains and flats. Clay loam, sometimes saline or with calcrete.	Yes	20.6 km W of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Stylidium weeliwolli	P3	March to September	Drainage lines, pool edges, seepage areas. Sandy loam or clay.	Yes	32.2 km E of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Disturbance Footprint
Swainsona thompsoniana	P3	April to August	Floodplains and flats. Red or brown cracking clay, clay loam.	Yes	18.1 km W of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Synostemon hamersleyensis	P1	April to November	Steep hills, slopes, screes. Rocky red or brown sandy loam with ironstone or banded ironstone.	Yes	23.7 km NE of Study Area	Possible –Study Area occurs outside (south) of known range of taxon; however, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Tetratheca fordiana	P2	April to July	Cliffs, ridges and breakaways. Skeletal soil with ironstone.	Yes	26.8 km W of Study Area	Possible –Study Area occurs outside (east) of known range of taxon; however, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Teucrium pilbaranum	P2	April to September	Flats, clay pans and crabhole plains. Red or brown sandy loam, clay or cracking clay, sometimes with calcrete.	Yes	15.4 km SSW of Study Area	Unlikely –Study Area occurs within known range of taxon, west of Study Area is area of cracking clay which extends into the western edge of VT 9; however the area of cracking clay has been searched.	Unlikely - potential habitat unlikely to be present in Disturbance Footprint.
Themeda sp. Hamersley Station (M.E. Trudgen 11431)	P3	May to July	Floodplains, drainage lines and flats. Red or brown clay loam, clay or cracking clay.	Yes	4.6 km S of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Thryptomene wittweri	T	April to August	Breakaways and cliffs. Skeletal red-brown soil with sandstone or ironstone.	Yes	22.9 km SW of Study Area	Possible –Study Area occurs outside (east) of known range of taxon; however, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.

Taxon	Status	Flowering Period*	Habitat*	Identifiable During Survey?	Nearest Known Location to Study Area (DBCA 2022c)	Likelihood of Occurrence in Study Area	Likelihood of Occurrence in Disturbance Footprint
Triodia sp. Karijini (S. van Leeuwen 4111)	P1	likely after significant rainfall	Hill crests, moderate to steep hill slopes. Grey, brown or red sandy loam or silty loam, often with ironstone.	Yes	3.7 km W of Study Area	Possible –Study Area occurs on eastern edge of known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Triodia sp. Mt Ella (M.E. Trudgen 12739)	P3	likely after significant rainfall	Rocky slopes, gullies, ridges gorges and associated drainage lines/floodplains. Red or brown sandy clay loam, often with ironstone.	Yes	12.3 km SW of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684)	P1	March to September	Floodplains and drainage areas. Red or brown clay loam or silty loam.	Yes	1.7 km S of Study Area	Possible –Study Area occurs within known range of taxon, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint; however, all potential habitat searched.
Xerochrysum boreale	P3	July, September	Stony plains and flats. Red or brown clay or clay loam.	Yes	21.6 km SW of Study Area	Possible –Study Area occurs outside (north) of known range of taxon; however, potential habitat present in Study Area.	Unlikely – potential habitat present in Disturbance Footprint, however, all potential habitat searched.

*Source: WA Herbarium (1998-)

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Report No. J020347

Targeted conservation significant flora survey of the Lamb Creek project area

Prepared for: Mineral Resources Limited
Date: 11 January 2022

Rapallo Environmental is a Western Australian consultancy with a strong reputation for technical excellence, client-focus and innovation. We build long-term alliances through outstanding delivery on a range of services to the resource sector, government and associated industries.

ENVIRONMENTAL
ENGINEERING
CONSTRUCTION & OPERATIONS
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MINING
RESOURCE MANAGEMENT

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Revision	Date	Prepared	Reviewed	Approved
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This document has been prepared based on assumptions as reported throughout and upon information and data supplied by others.

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Executive summary

Mineral Resources Limited (MRL) proposes to develop an iron ore mine with associated haul road and infrastructure at Lamb Creek. The Lamb Creek project area is located approximately 130 kilometres north-west of Newman in the East Pilbara Region of Western Australia and is accessed via the Great Northern Highway.

The Lamb Creek project area is defined as retention licence R47/19 and miscellaneous licences L47/736, L47/974, L47/1008, and M47/1592. Together these tenements cover an area of 2199 hectares. There is significant overlap between the tenements hence this number is not cumulative.

A targeted conservation significant flora survey was conducted over two phases, from 15-29 April 2020 and 12-17 May 2021. The project area at the time of the survey only included R47/19 and L47/736 and the survey area was based on footprint V1 which has now been superseded. The current footprint V3 extends outside of the survey area by 236 hectares (36%).

The targeted survey covered the following survey areas:

- Mining footprint and haul road corridor within R47/19 (271 hectares) – April 2020
- Haul road corridor within L47/736 (388 hectares) – April 2020
- Intersection version B located within L47/974 (57 hectares) – April 2020
- Great Northern Highway intersection within L47/974 (156 hectares) – May 2021

The entire survey area was covered on foot via systematic parallel traverses. Additional searches on foot and via helicopter were made outside the survey area boundaries to map the population extent of target taxa where these extended outside the survey area, and to search opportunistically for target taxa outside of the proposed project footprint.

The survey recorded one threatened flora taxon (*Seringia exastia* – Critically Endangered) from two locations near the Great Northern Highway. The listing of this species is due to a taxonomic revision where a widespread and a Threatened taxon were merged. Communications from the Department of Biodiversity, Conservation and Attractions (DBCA) confirm that the species is likely to be delisted.

Six species of Priority Flora listed by the Department of Biodiversity, Conservation and Attractions (DBCA) were recorded during the survey, comprising one Priority 2 species (*Aristida lazaridis*), four Priority 3 species (*Aristida jerichoensis* var. *subspinulifera*, *Eremophila* sp. Hamersley Range, *Rhagodia* sp. Hamersley (M.E. Trudgen 17794) *Rostellularia adscendens* var. *latifolia* and one Priority 4 species (*Goodenia nuda*).

One potentially undescribed taxon, *Euphorbia* aff. *ferdinandi* was recorded from the Great Northern Highway intersection area. This taxon may represent a new species.

The most significant finding of the survey was an extensive population of the priority two grass *Aristida lazaridis* from the Great Northern Highway intersection area.

1 Introduction

1.1 Project overview

The Lamb Creek Iron Ore Project comprises a proposed mining area, haul road, and associated infrastructure. The project is situated approximately 130 kilometres north-west of Newman in the Pilbara region of Western Australia.

Mineral Resources Limited (MRL) commissioned Rapallo Environmental (Rapallo) to conduct a targeted conservation significant flora survey of the Lamb Creek Iron Ore Project. The work was commissioned in two phases, with fieldwork completed in April 2020 and May 2021. The surveys covered a combined area of 872 hectares, hereafter referred to as the targeted survey area or simply the survey area.

The project area as well as the proposed footprint have undergone several changes since the surveys were completed, as outlined in section 1.3.

The current Lamb Creek project area (January 2022) comprises retention licence R47/19, miscellaneous licences L47/736, L47/974, L47/1008, and mining lease M47/1592. Together these tenements cover an area of 2199 hectares. There is significant overlap between the tenements (see Figure 1.1 and Table 1.2), hence this number is not cumulative.

1.2 Scope and objectives

The scope of the targeted conservation significant flora survey included:

- Review and refine desktop information on conservation significant flora taxa recorded previously within 30 kilometres of the Lamb Creek project area.
- Produce a list of target taxa for the field survey, based on the latest distribution information and habitat requirements of these species.
- Systematic searches for conservation significant flora across the targeted survey area.
- Mapping point locations and population boundaries of conservation significant flora found within the survey area, and extending outside the survey area where relevant.

The objective of the survey was to provide baseline information on conservation significant flora within the Lamb Creek project (survey area only) in order to inform project planning and environmental impact assessment (EIA), to support approval applications.

1.3 Project area, survey area, and survey periods

1.3.1 April 2020

The first targeted survey took place from 15-19 April 2020. The project area at the time comprised retention licence R47/19 and miscellaneous licence L47/736. A proposed disturbance footprint was provided by MRL in March 2020 (footprint V1).

The April 2020 targeted survey covered the entirety of footprint V1 plus an alternative intersection area for the haul road with the Great Northern Highway, referred to as intersection version B. The survey area covered in April 2020 was 716 hectares. Survey effort is mapped in Figure 3.2.

1.3.2 May 2021

The second targeted survey was completed from 12-17 May 2021. Based on the findings from the 2020 targeted survey, MRL identified an additional area near the Great Northern Highway to be covered by targeted surveys. The May 2021 survey area covered an additional area of 156 hectares.

Total area covered by the April 2020 and May 2021 surveys was 872 hectares (Table 1.1). This area will hereafter be referred to as the targeted survey area. Survey effort is mapped in Figure 3.2.

Table 1.1 Survey areas covered by the targeted flora survey

Survey area description	Survey period	Area size [1]
Mining footprint and part of haul road corridor within R47/19	15-29 April 2020	271 ha
Haul road corridor within L47/736	15-29 April 2020	388 ha
Intersection version B	15-29 April 2020	57 ha
Additional areas near the Great Northern Highway	12-17 May 2021	156 ha
Total area covered by the targeted survey		**872 ha**

Footnotes: 1) The targeted survey area extends by 3 hectares outside of the current December 2021 project area.

An updated project footprint (footprint V2) was provided in July 2021 after both field surveys had been completed. Earlier drafts of this report were based on footprint V2. However, this footprint has now been superseded by footprint V3 as outlined in section 1.3.3.

1.3.3 December 2021

A revised project area and proposed footprint (footprint V3) were provided to Rapallo in December 2021. The revised project area included two new miscellaneous licences, which overlapped significantly with the existing tenements. Table 1.2 lists all tenements included in the Lamb Creek Iron Ore project as per December 2021. A map showing tenements and their overlap is presented in Figure 1.1.

Table 1.2 Tenements of the Lamb Creek Iron Ore project

Tenement	Type	Size	Description
R47/19	Retention Licence	1200 ha	Contains proposed mining area, infrastructure, and the eastern terminus of the haul road.
L47/736	Miscellaneous Licence	390 ha	Contains proposed haul road alignment of footprint V1. Now falls mostly within L47/1008 (2 ha outside)
L47/974	Miscellaneous Licence	120 ha	Adjacent to Great Northern Highway, includes intersection version B. Falls entirely within L47/1008
L47/1008	Miscellaneous Licence	999 ha	Proposed haul road and associated infrastructure areas. Covers majority of L47/736 and all of L47/974.
M47/1592	Mining Lease	1200 ha	Same area as R47/19 (pending conversion)

The project area as per December 2021 is 2199 hectares in size. Since there are significant overlaps between the five tenements listed in Table 1.2, this number is not cumulative.

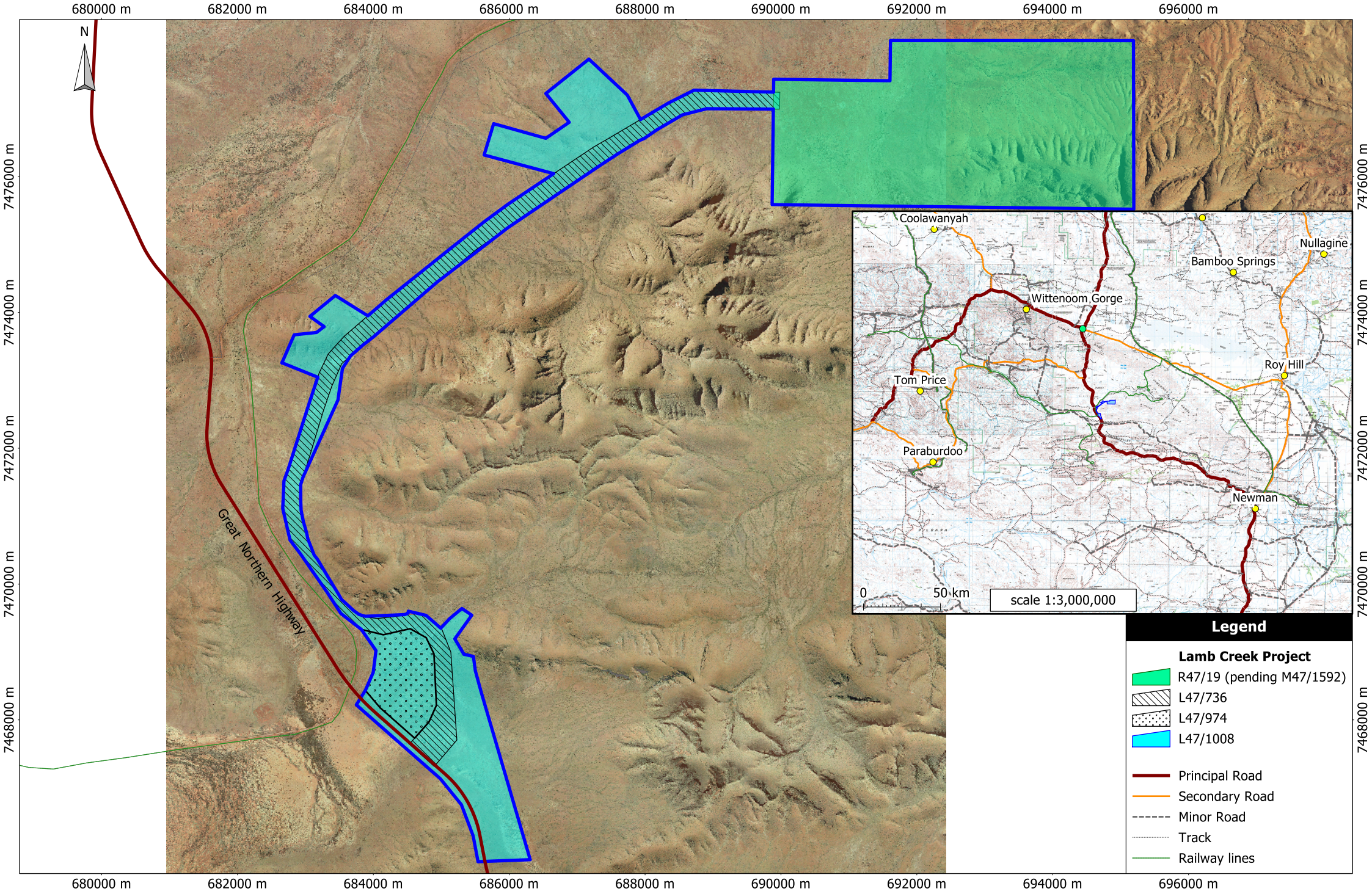
The latest project footprint, provided in December 2021 (footprint V3) is 657 hectares in size. It extends outside of the areas coved by the targeted survey by 236 hectares, hence 36% of proposed footprint V3 remains unsurveyed. The majority of the unsurveyed parts are located in R47/19.

1.4 Definitions

To aid interpretation of this report and associated mapping, Table 1.3 provides explanation of the various components of the Lamb Creek project and associated survey areas, as listed in Table 1.2, and mapped in Figure 1.1 and Figure 1.2.

Table 1.3 Project and survey area definitions

Component	Description
Project area	Project area as per December 2021, comprising tenements R47/19 (pending conversion into M47/1592), L47/736, L47/974, and L47/1008 as listed in Table 1.2. The project area has a total size of 2199 hectares. There is significant overlap between the tenements, so this number is not cumulative.
Survey area	Combined areas covered by the targeted conservation significant flora surveys completed in April 2020 (716 ha) and May 2021 (156 ha) as listed in Table 1.1, totalling an area of 872 hectares. Also referred to as the targeted survey area or the defined survey area, depending on context.
Resource area	General description of R47/19 (M47/1592) in which the proposed mine pit and associated infrastructure will be located.
Haul road corridor	General description of the area in L47/736 in which most of the proposed haul road will be located.
Great Northern Highway intersection (GNHI)	General name given to the area where the proposed haul road intersects the Great Northern Highway. Multiple versions of the intersection have been investigated since March 2020; hence this area is much wider than the rest of the haul road corridor.
Footprint V1	Proposed disturbance footprint provided by MRL in March 2020 and used to develop the initial survey area as defined in section 1.3.
Footprint V2	Revised disturbance footprint provided by MRL in July 2021.
Footprint V3	Revised disturbance footprint provided by MRL in December 2021 and used to calculate impacts to conservation significant flora recorded during the survey.
Adjacent to footprint V3	Within 100 metres of the December 2021 disturbance footprint (footprint V3).
Targeted survey	The combined surveys of April 2020 and May 2021.
Opportunistic records outside of survey area	Individual plants or populations of conservation significant flora recorded outside of the defined survey area, either through mapping of population extent beyond survey area boundaries, ground-truthing helicopter records, or by walking traverses through suitable habitats outside of footprint V1.



Rapallo environmental

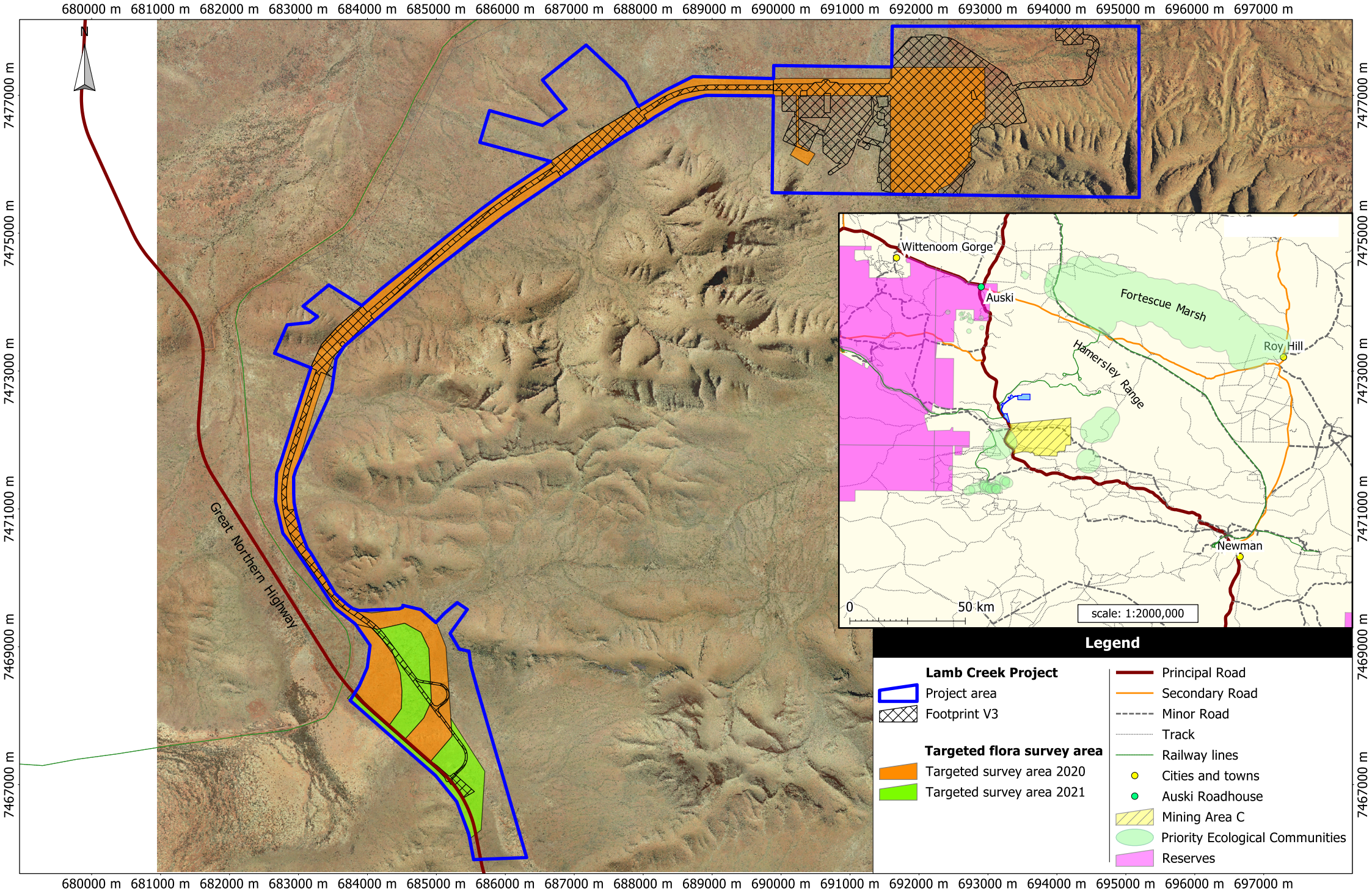
Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Targeted conservation significant flora survey (April 2020, May 2021)

Original Size: A4 Scale: 1:70,000
Datum: MGA94 Zone 50
0 2 km

Figure 1.1

Tenements of the Lamb Creek Iron Ore project area as per December 2021



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Targeted conservation significant flora survey (April 2020, May 2021)

Original Size: A4 Scale: 1:70,000
Datum: MGA94 Zone 50
0 2000 m

Figure 1.2

Location of the Lamb Creek project and delineation of the targeted survey area

2 Regional context

2.1 Climate and weather

The Lamb Creek project is situated in the Hamersley subregion (PIL03) of the Pilbara IBRA region, which is part of the Eremaean province (Beard 1990). The climate of the Hamersley IBRA subregion (PIL03) is described as semi-desert tropical. The average rainfall is 300 mm per year, usually in summer cyclonic or thunderstorm events. Winter rain is not uncommon (Kendrick 2001). Cyclones develop off the north-west coast and often cross the coastline between Karratha and Port Hedland and move inland over the Fortescue Valley system towards Newman (Beard 1990).

The closest Bureau of Meteorology (BOM) weather station to the survey area is at Newman Airport (station number 007176), located 130 kilometres south-east of the survey area (Figure 1.2). This weather station has been recording rainfall data since 1971 and temperature data since 1996.

Data recorded at Newman Airport (Figure 2.1) shows a mean annual rainfall of 324.3 millimetres (mm). Mean monthly rainfall is highest in February at 70.2 mm, and lowest in September at 3.7 mm. The hottest month is December with a mean maximum temperature of 39.3°C and a mean minimum temperature of 24.1°C. The annual wind records from 9am and 3pm show a dominant easterly throughout the day, with the strongest winds recorded in the morning of up to 30 km/hour (BOM 2021).

Evaporation rates are not recorded at the Newman Airport Weather Station. However, evaporation in the Central Pilbara Region is estimated to be between 2000 mm and 3500 mm per annum, which is approximately ten times greater than annual rainfall (Gardiner 2003). This disparity maintains a typically arid landscape, except for areas located in proximity to river systems and shallow groundwater resources.

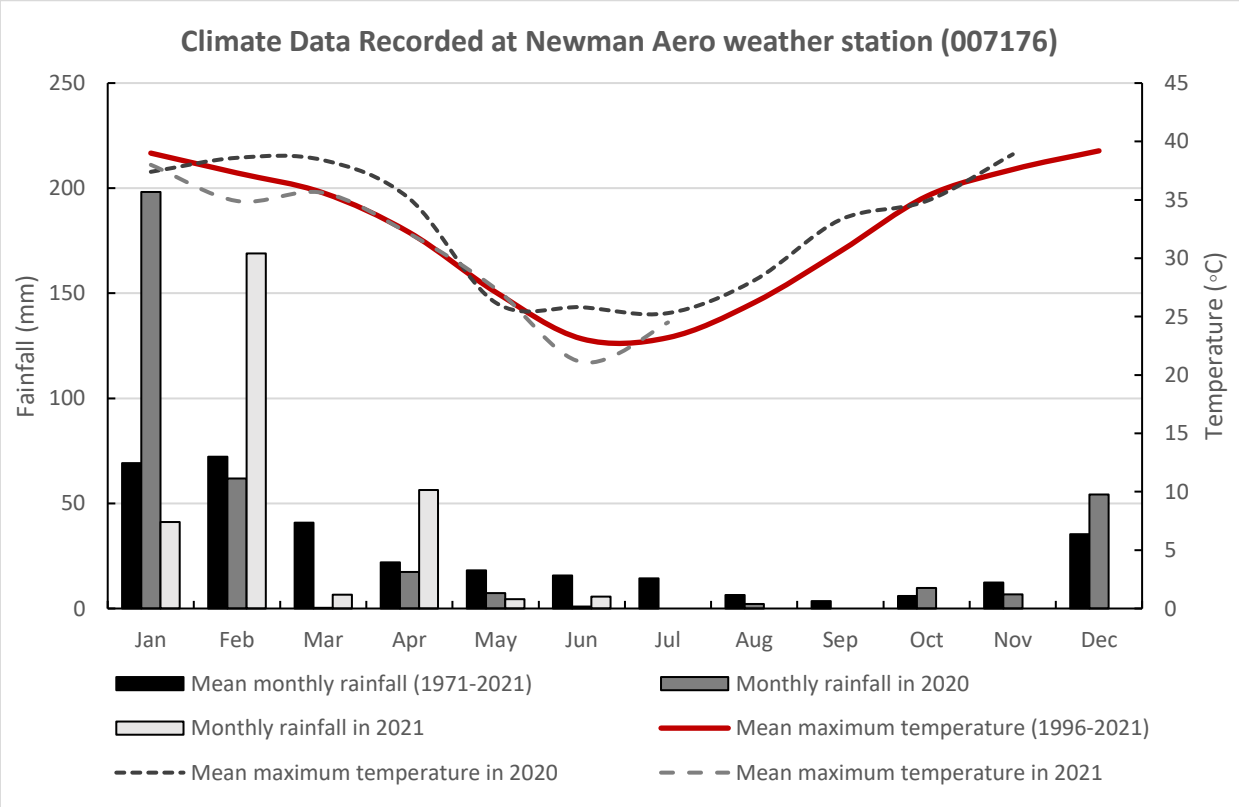


Figure 2.1 Long-term average monthly rainfall and maximum temperature, and 2020 and 2021 monthly rainfall and maximum temperatures recorded at Newman Aero weather station

The 2020 targeted survey was from 15 to 29 April 2020. Rainfall in the three months preceding the survey was higher than average for the region, with a total of 277.8 mm from January to March 2020. Temperatures during the survey were generally warm during the day, ranging from 33.9 °C to 39.7 °C during the day, and mild at night, ranging from 22.9 °C to 26.6 °C (BOM 2021).

The 2021 targeted survey was from 12-17 May 2021. Rainfall over the three months preceding the survey was above average with substantial falls recorded in February (169mm) and April (56.4 mm). Maximum mean temperatures in the month prior to the survey was 32.1 °C in line with the average. Minimum mean temperatures 17.7 °at night as per the average for Newman.

2.2 Biogeography

2.2.1 IBRA bioregions

The bioregions of Australia are described in the Interim Biogeographic Regionalisation for Australia (IBRA) (Thackway & Cresswell 1995). Bioregions are large, geographically distinct areas of land with common characteristics such as geology, landform patterns, climate, ecological features and plant and animal communities. The latest version, IBRA7, classifies Australia's landscapes into 89 large geographically distinct bioregions and 419 subregions (Department of the Environment and Energy (DotEE) 2012).

The Lamb Creek project is located in the Hamersley (PIL3) subregion of the Pilbara bioregion. The Hamersley subregion comprises the southern section of the Pilbara Craton. It is a mountainous area of Proterozoic sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite). Geographically it is synonymous with the Hamersley vegetation system as described by Beard (1990). The dominant vegetation is mulga low woodland over bunch grasses on fine textured soils in valley floors, and Eucalyptus leucophloia (snappy gum) over *Triodia brizoides* on skeletal soils of the ranges. Regional vegetation is further described in section 2.3. Drainage runs into either the Fortescue River to the north, the Ashburton river to the south, or the Robe river to the west (Kendrick 2001).

2.2.2 Land systems

The Lamb Creek project area traverses five land systems, as mapped by the Western Australian Land Information Authority (2018) and described by Van Vreeswyk *et al*. (2004). These are listed and summarised in Table 2.1.

The majority of the project area falls within the Boolgeeda land system, comprising stony slopes, plains, hills, and drainage floors with spinifex (Table 2.1). This land system underlies the majority of the haul road and resource area.

The Newman land system, comprising rugged mountains, ridges, and plateaux, was the second dominant, intersecting the haul road in two places and covering the south-west and south-eastern corners of the resource area. The McKay and Platform land system occurred in the north-eastern part of the resource area, while the Wannamunna land system only appeared in the southernmost part of the haul road corridor where it intersects the highway.

The vegetation in all but the Wannamunna land system is typified by spinifex grasslands. Wannamunna is characterised by hardpan plains and internal drainage tracts supporting mulga shrublands and woodlands (and occasionally eucalypt woodlands).

Table 2.1 Land systems of the Lamb Creek project area

Name	Land type	Description	Extent
Boolgeeda Land System	Stony plains with spinifex grasslands	Stony lower slopes, stony plains below hills, and narrow sub-parallel drainage floors. Supports hard and soft spinifex grasslands or mulga shrublands. Often occurs below hill systems such as Newman and Rocklea	1330 ha
McKay Land System	Hills and ranges with spinifex grasslands	Hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands. Relief up to 100 m	44 ha
Newman Land System	Hills and ranges with spinifex grasslands	Rugged high mountains, ridges and plateaux with near vertical escarpments of jaspilite, chert and shale, supporting hard spinifex grasslands. Relief up to 400 m.	499 ha
Platform Land System	Stony plains with spinifex grasslands	Stony upper plains, dissected slopes and drainage floors, supporting hard spinifex grasslands. Erosional surfaces formed by partial dissection of the old tertiary surface. The gently inclined upper plains have extensive marginal dissection zones with gently inclined to steep slopes. Floors incised up to 30 m with steep stable marginal slopes becoming wider downslope.	198 ha
Wannamunna Land System	Wash plains on hardpan with mulga shrublands	Hardpan plains and internal drainage tracts supporting mulga shrubland and woodlands, and occasionally eucalypt woodlands. Depositional surfaces, level hardpan wash plains subject to overland sheet flow. Broad internal drainage flats receiving run-on from adjacent hardpan surfaces; rare channelled tracts but mostly not organised through drainage. Relief up to 5 m.	126 ha

2.2.3 Geology

The project area is located in the south-west corner of the Roy Hill 1:250,000 Geological Survey Sheet (SF50-12: Thorne & Tyler 1997). The geology of the project area is generally defined by the assemblage of prehnite, pumpellyite, epidote, actinolite. Basement rocks comprise the early Proterozoic Brockman Iron Formation and Weeli Wolli Formation. The Brockman Iron Formation consists of banded iron formation (BIF) and shale, while the Weeli Wolli formation consists of BIF separated by shale and siltstone bands, with younger dolerite sills that intersect the sedimentary sequence.

Regionally, the fresh basement rocks are typically overlain by weathered basement rocks which occur as lateritic and basal gravel and/or conglomerate deposits. These weathered deposits underlie early Tertiary Channel Iron Deposits (CID), which are the dominant economic-grade iron deposits in the region. The CID is typically overlain by younger alluvial and colluvial gravels and sediments (Thorne & Tyler 1997).

The project area overlies the following geological units (Thorne & Tyler 1997).

- Brockman Iron Formation (PLHB): banded iron-formation, chert, and pelite (661 hectares);
- Quaternary Alluvium (Qa): unconsolidated silt, sand, and gravel; in drainage channels and on adjacent floodplains;
- Quaternary Alluvium and Colluvium (Qw): red-brown sandy and clayey soil; on low slopes and sheetwash areas; and
- Cainozoic Colluvium (Czc): partly consolidated quartz and rock fragments in silt and sand matrix; old valley-fill deposits.

2.2.4 Soils

The project area is located within the Fortescue botanical district of the Pilbara region (Beard 1990). This region is mountainous, with soils ranging from shallow, stony sandy loams along slopes, to cracking clays, stripped hardpans and calcareous loams along active waterways (Beard 1990).

The landforms of the project area are typical of the eastern Pilbara with rocky hills, small gorges, mostly seasonal watercourses and gravelly loam valleys. The soils are typified by hard red alkaline soils on plains, pediments and alluvial areas, while shallow, skeletal soils are common on ranges that rise to 1,250 metres (Beard 1990). The southern part of eastern Pilbara region is characterised by earthy loams underlain by red-brown hardpan (Beard 1975, 1990).

The project area has two distinct soil and landform assemblages. The eastern and western edges of R47/19 and the majority of the proposed haul road are characterised as soil unit Fa13 (1039 hectares). The central parts of R47/19 and the area adjacent to the Great Northern Highway are characterised as soil unit Fb3 (1160 hectares). These soil units are defined as follows (CSIRO Australia 2018):

- Fa13 – Ranges of banded jaspilite and chert along with shales, dolomites, and iron ore formations with some areas of ferruginous duricrust as well as occasional narrow winding valley plains and steeply dissected pediments. This unit is largely associated with the Hamersley and Ophthalmia Ranges. The soils are frequently stony and shallow and there are extensive areas without soil cover: chief soils are shallow stony earthy loams (Um5.51) along with some (Uc5.11) soils on the steeper slopes. Associated are (Dr2.33, Dr2.32) soils on the limited areas of dissected pediments, while (Um5.52) and (Uf6.71) soils occur on the valley plains; and
- Fb3 – High-level valley plains set in extensive areas of unit Fa13. There are extensive areas of pisolitic limonite deposits: principal soils are deep earthy loams (Um5.52) along with small areas of (Gn2.12) soils.

2.2.5 Hydrology

Within the Hamersley (PIL3) subregion drainage runs into either the Fortescue River to the north, the Ashburton river to the south, or the Robe river to the west (Kendrick 2001). The majority of the project area falls within the Fortescue River Upper Catchment with a smaller portion occurring within the Ashburton River Catchment. Nine intermittent creek lines bisect the survey area, draining into the larger Marillana Creek, and ultimately into Weeli Wooli Creek within the Fortescue River basin.

2.2.6 Topography

The project area occurs within the central Hamersley Ranges which dominate the sub-region (Thorne & Tyler 1997). The topography of the region is highly mountainous comprising three smaller ranges: Packsaddle Range in the centre, Jirrpalpur Range in the south and the Hancock Range to the north. The uplands of the survey area fall within the western edge of the Hancock Range.

The project area is located on the western edge of the Hancock Range, a location predominantly characterised by plain and valley floor. The south-eastern corner of the survey area contains significant rocky landforms associated with the Hancock Range.

2.3 Vegetation Communities

2.3.1 Botanical district

The Lamb Creek project area is situated in the Fortescue botanical district of the Pilbara region (Beard 1990), which forms part of the Eremaean Botanical Province. The Pilbara region receives a slightly higher than average rainfall compared to most of the Eremaean, due to the prevalence of cyclones off the coast, but this is not enough to modify the essentially desert appearance of the plant cover (Beard 1990).

The Fortescue botanical district consists predominantly of tree and shrub steppe communities with Eucalyptus trees, Acacia shrubs and spinifex grasses including *Triodia pungens* and *T. wiseana* (Beard 1975). Mulga (species of the *Acacia aneura* complex) occurs in valleys and short-grass plains may be present on alluvial soils (Beard 1990).

2.3.2 Vegetation system-associations

Digital maps (shapefiles) of pre-European vegetation communities, based on state-wide mapping by J.S. Beard at 1:250,000 scale, are published by the Department of Primary Industries and Regional Development (Beard 2018).

Vegetation of the Hamersley (PIL3) IBRA subregion is generally low Mulga woodland over bunch grasses on fine textured soils in the valleys with snappy gums (*Eucalyptus leucophloia*) over *Triodia brizoides* on skeletal soils of the ranges (Kendrick 2001). The mountain tops and gorges of the Hamersley subregion provide refugia for humidophile and/or fire intolerant flora, and support a diversity of range-restricted species (Kendrick 2001).

Beard (1975) mapped the vegetation system-associations of the project area as Hamersley 18: Low woodland of Acacia aneura, and Hamersley 82: Hummock-grass (*Triodia wiseana*) steppe with irregularly scattered *Eucalyptus brevifolia* trees; and Hamersley 18: Low woodland of *Acacia aneura*.

Table 2.2 Beard vegetation system-associations within the Lamb Creek project area (R47/19 and L47/736)

Beard Vegetation System and Association	Extent in project area	Total current extent in Australia (ha) [1)]	Pre-European extent remaining (%) [1)]
Hamersley 18	1297 ha	575 852 ha	99.2%
Hamersley 82	902 ha	2 157 841 ha	99.4%

Footnotes: 1) Numbers from 2018 Statewide Vegetation Statistics (DBCA 2019)

Vegetation that is not a Threatened or Priority Ecological Community may still be considered significant if it has a restricted distribution, or has experienced a degree of historical impact from threatening processes (EPA 2016a). Vegetation types retaining less than 30% of their pre-European extent generally experience accelerated species loss at an ecosystem level (EPA 2000) and are regarded as being 'vulnerable', while vegetation types retaining less than 10% of their original extent are regarded as being 'endangered' (EPA 2000, Shepherd *et al.* 2002, DER 2014a, 2016a).

As presented in Table 2.2, the Hamersley 18 and Hamersley 82 vegetation system-associations intersected by the project area still have close to 100% of their original extent remaining, and would be considered 'least concern' (DER 2014a).

2.3.3 Lamb Creek vegetation mapping

To date two detailed flora and vegetation surveys have been completed at Lamb Creek, in 2012 and 2021, as summarised in Table 2.3. The survey areas partially overlapped, together covering 1605 hectares (73%) of the project area. Approximately 594 hectares (27%) of the current Lamb Creek project area remains unsurveyed (beyond Rapallo's scope of works).

Table 2.3 Existing flora and vegetation surveys

Report title	Survey dates	Survey coverage over project area
Rapallo (2012) Level 2 flora and vegetation survey of the Lamb Creek project	March-April 2012	1394 hectares (63%) of the current project area including entirety of R47/19 and 45% of L47/746
Rapallo (2021a) Detailed flora and vegetation survey of the Great Northern Highway intersection area of the Lamb Creek project	May 2021	252 hectares (11%) of the current project area, comprising southern end of L47/1008

The majority of the project area has been burnt over recent years (after the 2012 survey), with some parts burnt several times (section 2.5). Floristic data and site photos collected in 2020 and 2021 indicate that these fires have changed both vegetation structure and floristic composition relative to 2012 (Rapallo 2021a). The 2021 survey was completed post-fire, but only overlapped with the 2012 survey area by 41 hectares. Re-surveying the 2012 vegetation mapping was beyond Rapallo's scope of works.

2.3.3.1 Lamb Creek flora and vegetation survey March-April 2012

The 2012 flora survey recorded six vegetation types, as listed in Table 2.4. The most widely occurring vegetation type in 2012 was VT1 described as *Eucalyptus gamophylla* woodland over hummock grassland (Table 2.4).

Table 2.4 Vegetation types of the Lamb Creek project area recorded in 2012 (Rapallo 2012).

Type	Vegetation description (2012)	Substrate/Landform	Land System
VT1 – *Eucalyptus gamophylla* woodland over hummock grassland	*Eucalyptus gamophylla* low open woodland over *Acacia elachantha* or **Acacia hilliana*, *Senna glutinosa* subsp. *pruinosa* open shrubland over *Triodia brizoides*, *Triodia wiseana* hummock grassland.	Clay loams with BIF and ironstone pebbles and gravel on open plains and gentle rises.	Boolgeeda, McKay, Newman, Platform
VT2 – *Eucalyptus leucophloia* subsp. *leucophloia* woodland over mixed shrubs over *Triodia wiseana* grassland	*Eucalyptus leucophloia* subsp. *leucophloia*, *Eucalyptus gamophylla* low open woodland over mixed species (typically *Gossypium robinsonii*, *Acacia hilliana*, *Grevillea wickhamii*, *Seringia nephrosperma*) scattered shrubs over *Triodia wiseana* hummock grassland.	Clays and clay loams with BIF and ironstone pebbles, cobbles, and sheetrock in gorges and rocky creeklines and on hillsides and breakaways.	Boolgeeda, Platform
VT3 – *Acacia* shrubland over hummock grassland	*Acacia bivenosa* or *Acacia adsurgens* open shrubland over *Triodia vanleeuwenii*, *Triodia wiseana* hummock grassland.	Sandy clay with ironstone gravel and pebbles on gentle slopes at bases of hills.	Boolgeeda, Newman
VT4 – *Acacia tumida* var. *pilbarensis* scrub in creeklines	*Acacia tumida* var. *pilbarensis* tall open scrub over *Themeda triandra* tussock grassland and *Triodia wiseana* open hummock grassland.	Clay loam and sandy clay with laterite pebbles in drainage lines.	Boolgeeda, Platform

Type	Vegetation description (2012)	Substrate/Landform	Land System
VT5 – Wannamunna Mulga grove	*Acacia aptaneura* low woodland over *Themeda triandra*, *Cymbopogon ambiguus*, *Chrysopogon fallax* open tussock grassland.	Sandy clay and clay on flat plains.	Boolgeeda, Wannamunna
VT6 – *Acacia aptaneura* over hummock grassland	*Acacia aptaneura* and/or *Corymbia deserticola* low woodland over *Acacia elachantha* and mixed *Eremophila* species over *Triodia wiseana* very open hummock grassland.	Broad open drainage system through stony plains with clay soils.	Boolgeeda, Wannamunna

2.3.3.2 Lamb Creek flora and vegetation survey May 2021

The 2021 survey was completed post-fire. Six vegetation types were recorded, and vegetation mapping was revised for the overlap area with the 2012 survey. The entirety of the 2012 vegetation type VT6 has been superseded by 2021 vegetation types C and D, while VT5 occurring in the overlap area has been superseded by 2021 vegetation types A, B, C and D.

Table 2.5 Vegetation types of the Great Northern Highway intersection recorded in 2021 (Rapallo 2021a)

Type	Vegetation description (2021)	Substrate	Land System
A - Low open *Eucalyptus gamophylla* woodland over *Triodia melvillei* and *T. pungens* on stony plain	*Eucalyptus gamophylla* (mallee) and *Corymbia deserticola* subsp. *deserticola* low open woodland; over *Acacia pruinocarpa*, *A. ancistrocarpa*, *A. atkinsiana* sparse shrubland; over isolated low shrubs; over isolated dwarf shrubs; over *Ptilotus calostachyus*, *Ptilotus obovatus*, *Trichodesma zeylanicum* var. *zeylanicum* sparse forbland; over *Triodia melvillei* and *Triodia pungens* sparse hummock grassland.	Stony plain	Boolgeeda (primarily), Wannamunna (minor extent)
B - Mulga and acacia low open woodland over open tussock grassland on gently sloping (drainage) plain with variable rock cover	*Acacia aptaneura* and *A. pruinocarpa* low open woodland; over sparse tall shrubland including *Eremophila longifolia* and *Santalum lanceolatum*; over mixed isolated shrubs to sparse shrubland; over isolated forbs to open forbland dominated by *Pterocaulon sphacelatum*, *Ptilotus obovatus*, and *Arivela viscosa*; over sparse to medium-dense tussock grassland dominated by *Aristida inaequiglumis*, *A. contorta* and *Themeda triandra*.	Gently sloping clay-loam plain with minor drainage channels and surface drainage	Boolgeeda
C - Mulga and acacia low open woodland over open spinifex and tussock grassland on flat plain with medium rock cover	*Acacia aptaneura*, *A. pruinocarpa* low open woodland with occasional *Corymbia deserticola*; over isolated tall shrubs to sparse tall shrubland dominated by *Hakea lorea* subsp. *lorea*, *Acacia elachantha*, *A. aptaneura*, *A. pruinocarpa*, *Santalum lanceolatum*; over isolated medium to dwarf shrubs; over sparse forbland dominated by *Pterocaulon sphacelatum*, *Arivela viscosa*, *Ptilotus obovatus*; over *Triodia pungens* and *T. melvillei* open hummock grassland, with *Themeda triandra*, *Aristida inaequiglumis*, and *A. contorta* open tussock grassland.	Clay-loam plain	Boolgeeda (primarily) Wannamunna (minor extent)

Type	Vegetation description (2021)	Substrate	Land System
D - Mulga, *Hakea lorea*, and *Eucalyptus xerothermica* low open woodland over closed tussock grassland on gently sloping clay-loam plain (no rocks)	Low open woodland of *Acacia aptaneura*, *Hakea lorea* subsp. *lorea*, and *Eucalyptus xerothermica*; over isolated tall to dwarf shrubs; over sparse forbland to isolated forbs dominated by *Pterocaulon sphacelatum*; over closed tussock grassland dominated by *Themeda triandra*, with *Aristida inaequiglumis* and *A. contorta*.	Gently sloping clay-loam plain without rocks	Wannamunna (primarily), Boolgeeda (minor extent)
E - Low mulga woodland over sparse understorey on stony plain	*Acacia aptaneura* low mulga woodland; over *Acacia pachyacra* and *A. ?sibirica* sparse shrubland; over isolated dwarf shrubs; over isolated forbs and ferns; over *Digitaria ammophila*, *Chrysopogon fallax*, *Aristida inaequiglumis* sparse tussock grassland.	Flat stony plain	Boolgeeda
F - *Triodia wiseana* hummock grassland with emergent shrubs and low trees on gently sloping stony plain	*Corymbia hamersleyana* and *Corymbia deserticola* subsp. *deserticola* isolated low trees; over isolated tall shrubs; over *Acacia ancistrocarpa* and mixed *Acacia* spp. sparse shrubland; over isolated dwarf shrubs; over isolated forbs; over *Triodia wiseana* hummock grassland.	Gently sloping stony plain	Boolgeeda

2.3.4 Weeds recorded in the Lamb Creek project area

Eleven weed species have been recorded from the Lamb Creek project to date during the 2012 and 2021 detailed flora and vegetation surveys, as listed in Table 2.6. Weed status is as per the Western Australian Organism List maintained by the Department of Agriculture and Food (DAFWA 2021). None of these weeds are listed as a Declared Pest under the Biosecurity and Agriculture Management Act 2007 (Australian Government 2012, DAFWA 2021).

Table 2.6 Weeds recorded during the 2012 and 2021 detailed flora surveys

Taxonomic Name 2021	Common name	Status 2021 (WAOL)	2012	2021
**Acacia hilliana*	Hill's tabletop wattle	Permitted - s11	9	
**Aerva javanica*	Kapok bush	Permitted - s11		1
**Bidens bipinnata*	Bipinnate beggartick	Permitted - s11	9	16
**Cenchrus ciliaris*	Buffel grass	Permitted - s11	1	30
**Cenchrus setiger*	Birdwood grass	Permitted - s11		12
**Chloris virgata*	Feathertop Rhodes grass	Permitted - s11	1	
**Malvastrum americanum*	Spiked malvastrum	Permitted - s11	1	15
**Melinis repens*	Red natal grass	Permitted - s11		1
**Portulaca oleracea*	Purslane	Permitted - s11	9	9
**Solanum lasiophyllum*	Flannel bush	Permitted - s11	24	6
**Stylosanthes hamata*	Southern pencilflower	Permitted - s11		2

*Footnotes: * indicates a flora taxon is alien to Western Australia, as per FloraBase (WA Herbarium 1998)*

2.4 Reserves and environmentally sensitive areas

Environmentally sensitive areas (ESAs) are protected under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* and are selected for their environmental values at state or national levels. The project area does not occur within an ESA, nor are there any ESAs within five kilometres of the project area, as shown by the Department of Environment Regulation (DER) Native Vegetation Map Viewer (DER 2014b).

Karijini National Park is located to the west of the project area, approximately 18 kilometres west of the intersection of the proposed haul road and the Great Northern Highway. Mungaroona Range Nature Reserve is approximately 100 kilometres northwest of the project area. The nearest Nationally Important Wetland is the Fortescue Marsh located 52 km north of the survey area (AWE 2021).

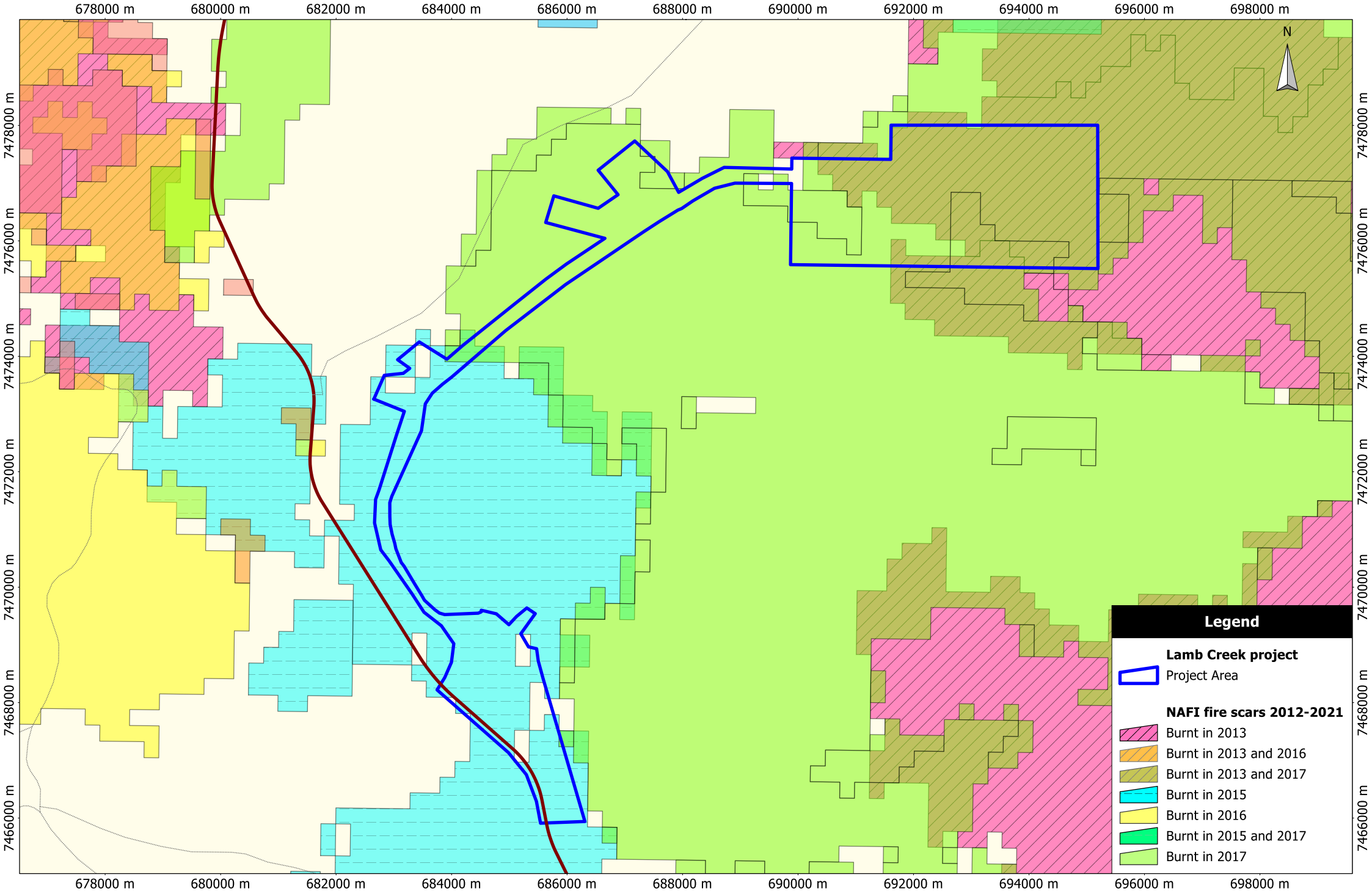
Survey data from 2012 and 2021 indicates that no currently listed Threatened or Priority Ecological Communities (TEC-PEC) occur within the surveyed parts of the Lamb Creek project (Rapallo 2012, 2021a). Further details in section 4.1.2.

2.5 Fire history

Fire mapping for Australia is available from the Northern Australia and Rangelands Fire Information (NAFI 2021) website, with fire scar data available from 2000 to present. The NAFI service displays maps of fire activity based on information from satellites, such as hotspots (locations of recently burning fires) and fire scars (maps of recently burnt country).

The majority of the project area has been burnt over recent years (after the 2012 survey), with some parts burnt several times (NAFI 2021), resulting in a mosaic of different fire ages. Floristic data and site photos collected in 2020 and 2021 indicate that these fires have changed both vegetation structure and floristic composition relative to 2012 (Rapallo 2021b).

Fire mapping over the project area between 2012 and 2021 (NAFI 2021) is shown in Figure 2.2. It must be noted that NAFI data is very broad-scale and does not show the fine-scale mosaic within the project area, nor does the mapping indicate fire intensity.



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Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Targeted conservation significant flora survey (April 2020, May 2021)

Original Size: A4 Scale: 1:80,000
Datum: MGA94 Zone 50
0 3 km

Figure 2.2

NAFI fire scars across the Lamb Creek project area between 2012 and 2021

3 Methods

3.1 Desktop study

The flora desktop study comprised a search of paid and free databases, and a review of available literature relevant to the survey area. The desktop review served to compile a list of conservation significant flora taxa with the potential to occur within the survey area. Conservation codes for Australian flora are detailed Appendix I. Database search parameters are outlined in Table 3.1.

Table 3.1 Flora database search parameters

Source of information	Search area
DBCA (2021a) Threatened and Priority Flora Database (including WA Herbarium database records)	60 km radius centred on project area
DBCA (2021b) Threatened and Priority Ecological Communities (TEC-PEC) database	50 km radius centred on project area
DBCA (2021c) NatureMap online database	40 km radius centred on the project area
Department of Agriculture Water and the Environment (AWE) (2021) Protected Matters search tool	50 km radius centred on the project area

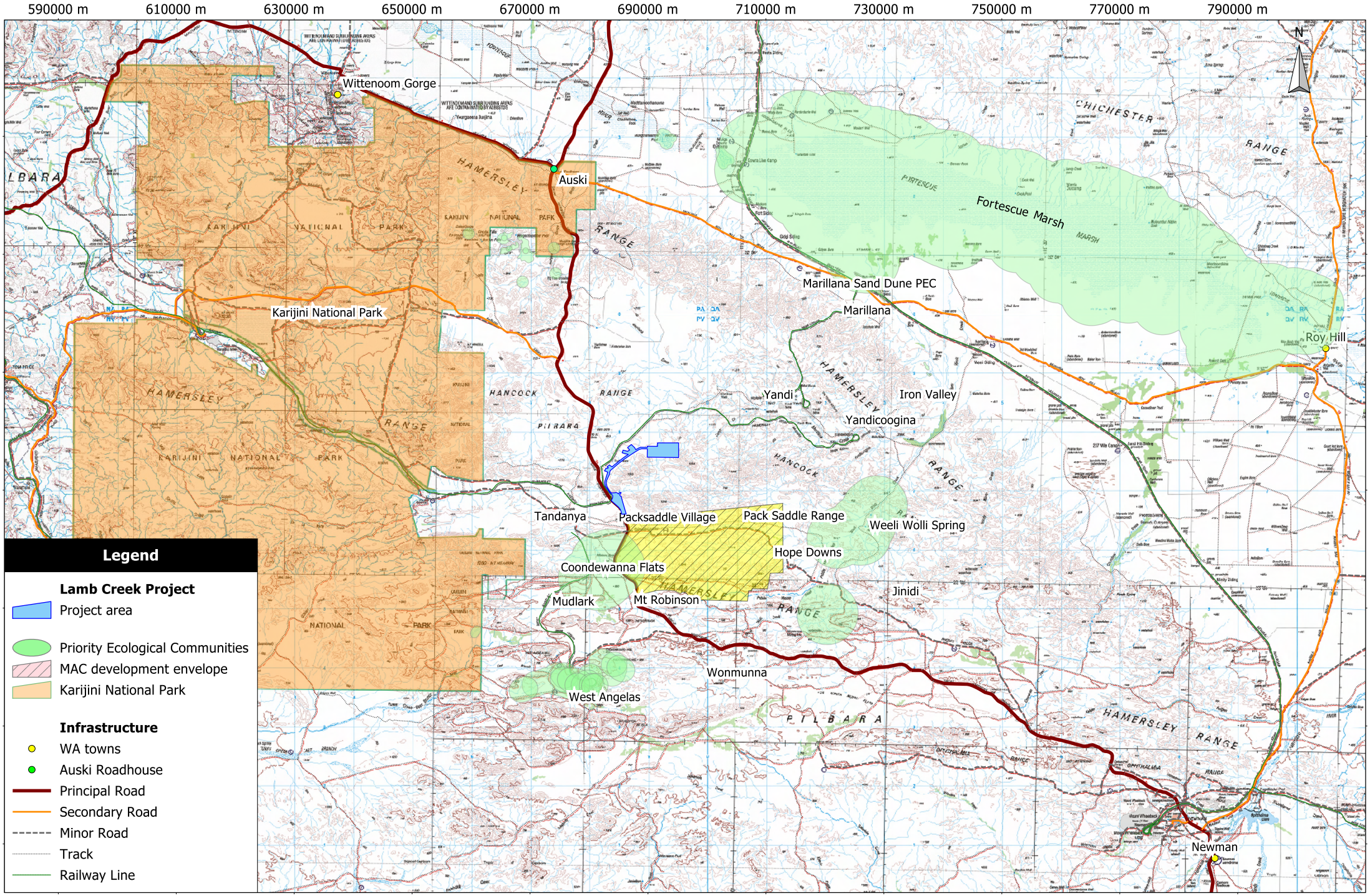
The region has had considerable flora survey effort over the last 20 years predominantly due to flora and vegetation surveys completed within, or partly within, the boundary of the Mining Area C (MAC) Development Envelope between 1997 and 2014. The MAC Development Envelope is approximately 10 kilometres (km) south of R47/19 as showed in the inset map of Figure 1.2 and in Figure 1.3 which provides regional context for the Lamb Creek project. The surveys used as part of the literature review are listed in Appendix II and generally occurred within 50 kilometres of the Lamb Creek project area.

The conservation significant taxa identified in the desktop were reviewed for likelihood of occurrence within the survey area, based on the likelihood categories outlined in Table 3.2. Field based habitat information was only available for 73% of the project area (section 2.3.3). Likelihood scores for the areas not visited by the field team are based on desktop information only. Desktop results and likelihood assessment are presented Appendix II.

Table 3.2 Likelihood assessment criteria

Rank	Criteria
Confirmed	1. The species was recorded on the project area; or 2. The species was recorded directly adjacent (within 500 m) of the project area from habitat continuing into the project area.
Likely to occur	1. There are existing records of the species in close proximity to the project area (within 20 km); and • the species is strongly linked to a specific habitat, which is present in the project area; or • the species has more general habitat preferences, and suitable habitat is present.
May potentially occur	1. There are existing records of the species from the region (within 30 km), however: • the species is strongly linked to a specific habitat, of which only a small amount is present in the project area; or • the species has more general habitat preferences, but only some suitable habitat is present.

Rank	Criteria
	2. There is suitable habitat in the project area, but there are very few or only very old (1999 or before) records from the region.
Unlikely to occur	1. The species is linked to a specific habitat, which is absent from the project area; or 2. Suitable habitat is present, however there are no existing records of the species from the locality despite reasonable previous search effort in suitable habitat; or 3. There is some suitable habitat in the project area, however the species is very infrequently recorded in the locality.
Highly unlikely to occur	1. The species is strongly linked to a specific habitat, which is absent from the project area; and/or 2. The species' range is very restricted and would not include the project area.



Rapallo environmental	Mineral Resources Limited Lamb Creek Project	Lamb Creek Iron Ore Project Targeted conservation significant flora survey (April 2020, May 2021)	Original Size: A4 Scale: 1:800,000 Datum: MGA94 Zone 50 0 25 km	**Figure 3.1** Regional localities

3.2 Field Survey

The survey area was searched over two survey periods, with each period covering a different part, as outlined in section 1.3 and Table 1.3, and mapped in Figure 3.2. The survey teams are listed in Table 3.3. The first survey period was 15-19 April 2020, and the second survey period was 12-17 May 2021.

The survey methods were in accordance with EPA (2016b) *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* and aligned with the criteria for a targeted survey.

The targeted survey area as defined in section 1.3 was searched via systematic parallel traverses, spaced approximately 50 meters apart (Figure 3.2). Traverse lines were drawn in a GIS program prior to the survey and uploaded onto hand-held Garmin GPS units for ease of navigation. The spacing of the traverses was determined with consideration given to the openness of the vegetation being surveyed, and the size and visibility of the target species. Where a target species was encountered, survey effort was intensified to locate additional individuals and/or map the extent of populations. Survey effort was also intensified within restricted or unusual landforms such as creek lines, outcroppings, or distinctive soil types.

Additional searches outside of the defined survey areas listed in Table 1.1 were completed to map the extent of conservation significant flora populations beyond the survey area boundaries, as per EPA (2016b) technical guidance, and to opportunistically search areas outside of the 2020 footprint.

During the 2020 survey, additional areas within R47/19 outside the defined survey area were searched opportunistically on foot by means of two traverses selected to sample habitats suitable to several of the target taxa which were not (well) represented in the defined survey area. These habitats included gorges and gullies, elevations greater than 900 m, south facing slopes, and larger creek lines.

Additional reconnaissance work was also completed by helicopter in 2020 to determine the extent of a large population of *Aristida lazaridis* (P2) recorded in the area adjacent to the Great Northern Highway. Identification of this grass from the air was possible because it was noted during the survey that clumps of *A. lazaridis* are distinctly visible from the air when in flower, as shown in Plate 1. During the reconnaissance flights, GPS waypoints were taken from the air, with selective waypoints subsequently ground-truthed on foot.

During the May 2021 survey, helicopters were not provided, and the survey area was small and directly adjacent to a major road. For this reason, searches for conservation significant taxa and mapping population boundaries outside of the defined survey area occurred on foot and from a vehicle.

Plate 1 ***Aristida lazaridis*** **clumps in flower as visible from the air during the 2020 field survey.**

3.2.1 Specimen collection and identification

Flora specimens were collected and pressed as per Western Australian Herbarium (2008) guidelines. Each specimen was assigned a unique field name and field number and was marked with a plant tag containing specimen and location information. All specimens were pressed and dried on the day of collection. Fragile material such as flowers, seed capsules, or very small specimens were sealed in paper bags which were marked as per the plant tags.

Taxonomic identification of flora specimens was completed by Sharnya Thomson-Yates (Table 3.3) (who was also a member of the 2021 field survey team) with the use of the WA Herbarium reference collection, latest flora identification keys, and recent scientific publications.

As per section 7.2 of EPA (2016b) and under flora licence conditions, suitable voucher specimens will be lodged with the Western Australian Herbarium.

3.3 Personnel and licensing

The personnel involved in the field survey, taxonomic identification, and the preparation of this report are listed in Table 3.3. Flora specimens were collected under Flora Taking (Biological Assessment) Licences pursuant to Regulation 62 of the *Biodiversity Conservation Regulations 2018*. As part of the license requirements, a copy of this report will be forwarded to the DBCA.

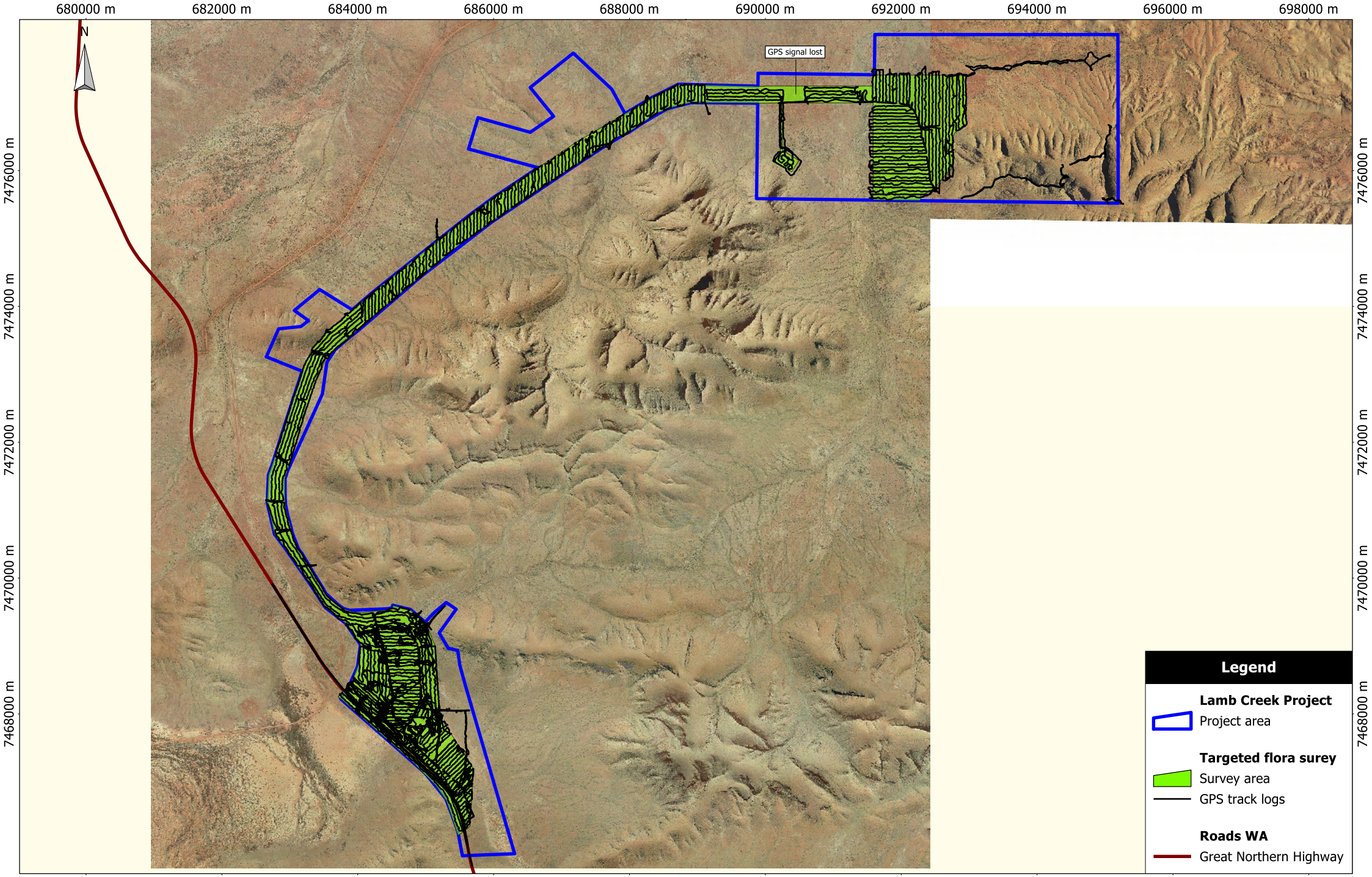
Table 3.3 Personnel involved in the project

Name	Position	Survey 1	Survey 2	Taxonomy	Reporting
Kate George	Principal Environmental Scientist				•
Marieke Weerheim	Senior Environmental Scientist	•	•		•
Cielito Marbus[1)]	Botanist	•			•
Daniel Marsh[2)]	Senior Botanist	•			
Sharnya Thomson-Yates[3)]	Botanical Taxonomist and Senior Botanist		•	•	
Linda Dalgliesh[4)]	Senior Botanist		•		
Joshua Gilovitz[5)]	Senior Botanist		•		

Footnotes: 1) Licence number FB62000066-2; 2) License number FB62000074-2 and TFL 14-1920; 3) License number FB62000183; 4) License number FB6200067-3; 5) License number FB62000331.

3.4 Nomenclature and conservation listing

Flora taxonomy and nomenclature follows FloraBase (WAH 1998-). FloraBase, the Western Australian Herbarium database (via NatureMap DBCA 2021c and the Threatened and Priority Flora database search DBCA 2021a) was utilised to verify conservation codes, distribution records, habitat requirements, and flowering times for the target taxa. Conservation codes cited in this report are as per Appendix I. Conservation codes on FloraBase are the most up to date, whereas the DBCA Threatened (Declared Rare) and Priority Flora List (DBCA 2018) was last updated on 5 December 2018.



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Targeted conservation significant flora survey (April 2020, May 2021)

Original Size: A4 Scale: 1:70,000
Datum: MGA94 Zone 50
0 2 km

Figure 3.2

Systematic traverses walked during the targeted survey (50 m spacing)

4 Results

4.1 Flora desktop study

4.1.1 Conservation significant taxa

The desktop study found 86 significant vascular flora taxa from within 60 kilometres of the project area, with proximal records mapped in Figure 4.1. An assessment was completed as per Table 3.2 in section 3.1 to estimate the likelihood of occurrence within the project area for each of the conservation significant species identified via the database searches and literature review. Likelihood ranking was updated post-field based on habitat information.[1] Search results and likelihood ranking are presented in Appendix II and summarised in Table 4.1.

Table 4.1 Summary of Lamb Creek desktop results for conservation significant taxa

Likelihood ranking	Status[1]						Total taxa
	VU[2]	CR[3]	P1	P2	P3	P4	
Confirmed	1			1	4	1	**7**
Likely to occur			1	1	3	2	**7**
May potentially occur			1	1	2		**4**
Unlikely to occur		1	7	14	32	4	**58**
Highly unlikely to occur			4	1	5		**10**
Grand Total	**1**	**1**	**13**	**18**	**46**	**7**	**86**

Footnotes:
1. P = Priority (administered by DBCA; Biodiversity Conservation Act 2016 (BC Act)), VU = Vulnerable, CR = Critically Endangered.
2. Listed under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and BC Act,
3. Listed BC Act only. Refer to Appendix I for detailed explanation of conservation codes.

Two species listed as vulnerable and critically endangered were returned via the threatened and priority flora database search (DBCA 2021a) and the protected matters search (AWE 2021).

- *Thryptomene wittweri* listed as vulnerable under the BC Act and EPBC Act was assessed as unlikely to occur due to habitat requirements and distance of records from the project area (>20 kilometres). This species is not discussed further in this report.
- *Seringia exastia* listed as critically endangered under the BC Act is discussed in section 5.1.1.

Most records were DBCA listed priority flora taxa and the greater majority (80%) were ranked as unlikely to highly unlikely to occur within the Lamb Creek project area (Appendix II). These priority taxa are not discussed further in this report.

Seven conservation significant taxa were confirmed to occur, these are discussed in section 5.1. Eleven significant taxa were assessed as likely to occur, or may potentially occur on the project area, and are discussed in section 5.2.

[1] Habitat information is only available for 73% of the project area, the majority of which has been collected pre-fire.

4.1.2 Conservation significant vegetation

4.1.2.1 Listed conservation significant vegetation

Survey data from 2012 and 2021 indicates that no currently listed TEC or PEC occur within the surveyed parts (73%) of the Lamb Creek project. The nearest known PEC is subtype 2 of the Coolibah-Lignum Flats vegetation community, with the edge of the buffer zone located less than five kilometres south of the survey area (DBCA 2021b) as shown in Figure 4.1.

The Coolibah-Lignum Flats vegetation complex is described as: Woodland or forest of *Eucalyptus victrix* (coolibah) over thicket of *Duma florulenta* (lignum) on red clays in run-on zones. Associated species include *Eriachne benthamii*, *Themeda triandra*, *Aristida latifolia*, *Eulalia aurea* and *Acacia aneura* (DBCA 2021d).

Three sub-types have been identified, of which sub-type 2 occurs near the project with the edge of the buffer zone less than five kilometres from the southern edge of the project area (Figure 3.1, Figure 4.1).

1. Coolibah and mulga (*Acacia aneura*) woodland over lignum and tussock grasses on clay plains (Coondewanna Flats and Wanna Munna Flats) – Priority 3
2. Coolibah woodlands over lignum (*Duma florulenta*) over swamp wandiree (Lake Robinson is the only known occurrence) – Priority 1
3. Coolibah woodland over lignum and silky browntop (*Eulalia aurea*); two occurrences known on Mt Bruce Flats – Priority 1

The 2012 flora and vegetation survey concluded that the Coolibah-Lignum Flats PEC is unlikely to occur in the survey area because neither Coolibah (*E. victrix*) nor lignum species were recorded (Rapallo 2012). These results were supported by the 2021 detailed flora survey (Rapallo 2021a).

Onshore (2013b) reviewed vegetation mapping within Coodewanna Flats and Lake Robinson and confirmed fine-scale mapping for the two sub-types of the Coolibah-lignum Flats. They concluded that the Priority 1 sub-type 2 lies at the lowest point of the Coondewanna Flats associated with Lake Robinson, and the Priority 3(i) sub-type 1 occurs on alluvial flats (Coondewanna Flats) around Lake Robinson, to the south and found that the Great Northern Highway divides the PEC to the west from the MAC Development Envelope. Based on the Onshore (2013b) mapping, the PEC occurs ca. 12 kilometres to the south of the Lamb Creek project area.

4.1.2.2 Locally significant vegetation

Vegetation may be of significance for reasons other than a listing as a TEC or a PEC. This may include, although is not limited to, scarcity, combination of species, role as a refuge, restricted distribution and vegetation extent being below a threshold level (EPA 2004).

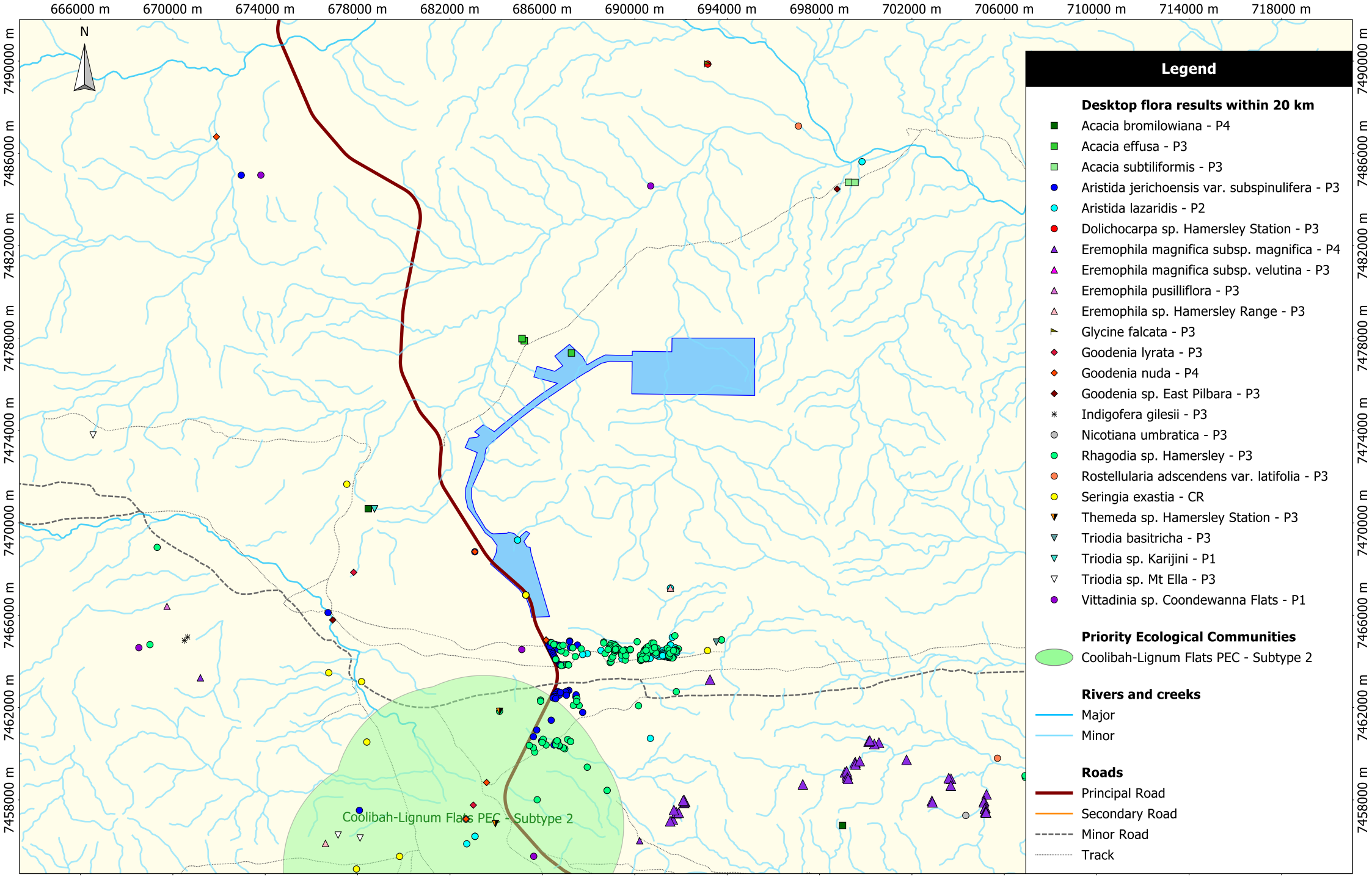
Local significance can be determined where a vegetation type is confined to a specialised habitat and/or landform that is not common in the local area or the vegetation types are supporting conservation significant species or groundwater dependent species.

Vegetation types A, B, C and D recorded in the 2021 survey of the Great Northern Highway intersection area are considered locally significant due to supporting the Priority 2 listed grass *Aristida lazaridis*, as well as other conservation significant species (Rapallo 2021a).

Vegetation types B, C, D and E are also considered locally significant because they contain *Acacia aptaneura* (mulga) as the dominant upper storey species on stony or clay plains and floodplains (Rapallo

2021a). This matches the broad description of ‘valley floor mulga’ which is listed by Kendrick as one of the “ecosystems at risk” (Kendrick 2001).

None of the flora taxa recorded during the 2012 and 2021 flora surveys were indicative of groundwater dependent vegetation. It must be noted that these surveys only covered 73% of the current project aera.



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Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Targeted conservation significant flora survey (April 2020, May 2021)

Original Size: A4 Scale: 1:200,000
Datum: MGA94 Zone 50
0 5 km

Figure 4.1

Desktop records of conservation significant flora within 20 km of the Lamb Creek project

4.2 Field survey results

4.2.1 Conservation significant flora species recorded

The targeted flora survey of Lamb Creek recorded eight significant flora taxa. These included one threatened taxon, six priority flora taxa and one taxon considered significant for other reasons as per EPA (2016a, 2016b). Each of these eight taxa is discussed in detail in section 5.1.

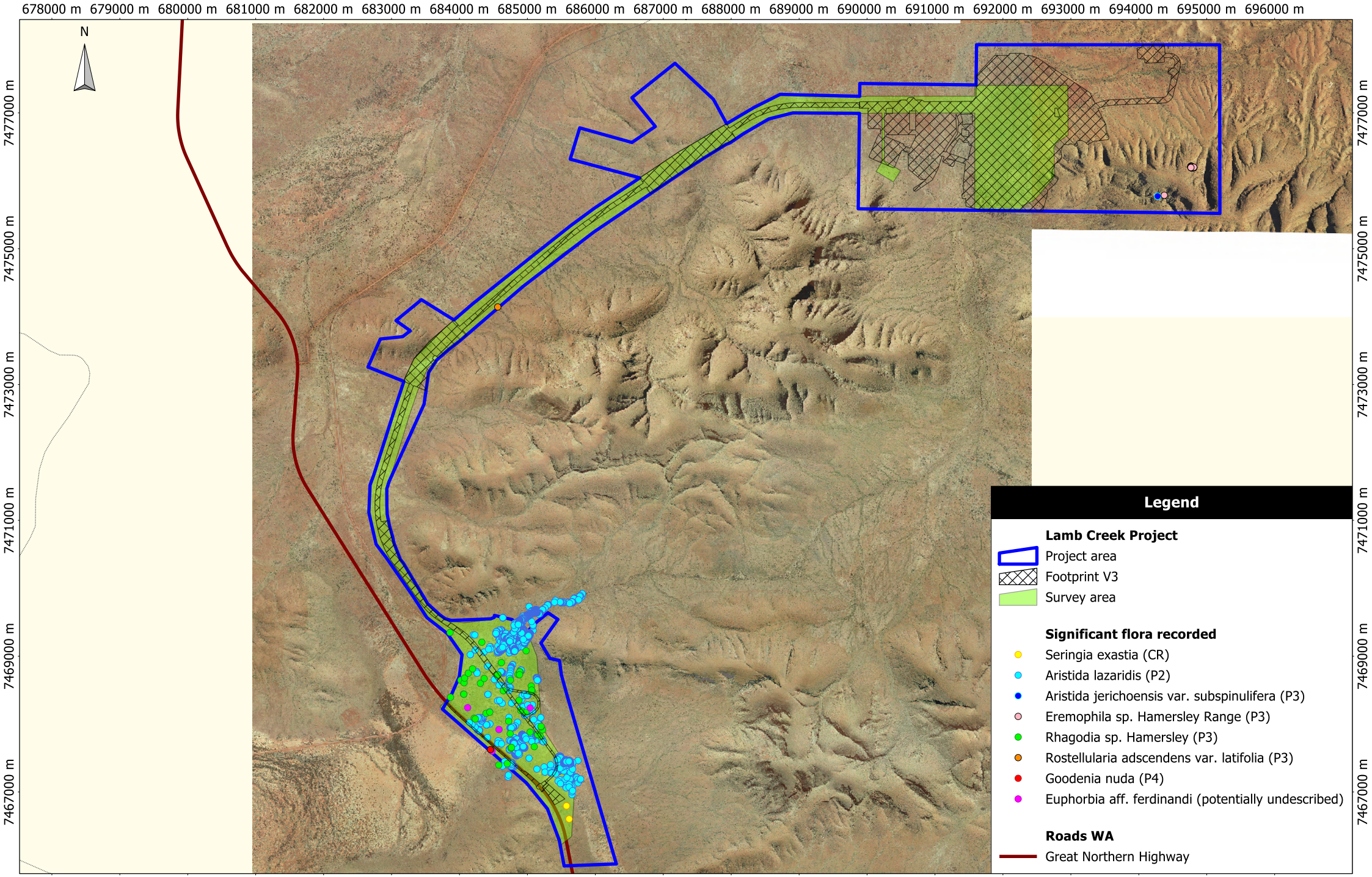
The estimated number of individual plants of each taxon recorded inside and outside the project area, targeted survey area, and footprint V3 are listed in Table 4.2.

Table 4.2 Conservation significant flora taxa recorded during the survey

Taxon	Status	Survey area[1, 2]		Project area[1, 3]		Footprint V3[1, 4]	
		In	Out	In	Out	In	Out
Seringia exastia	Critically Endangered	2		2			2
Aristida lazaridis	Priority 2	8596	4177	9816	2957	75	12698
Aristida jerichoensis var. *subspinulifera*	Priority 3		50	50			50
Eremophila sp. Hamersley Range	Priority 3		36	36			36
Goodenia nuda	Priority 4	50		50			50
Rhagodia sp. Hamersley (M. Trudgen 17794)	Priority 3	49	1	49	1	5	45
Rostellularia adscendens var. *latifolia*	Priority 3	1		1			1
Euphorbia aff. *ferdinandi*	Potentially undescribed	4		4			4

Footnotes:
1) Numbers represent the estimated number of individual plants recorded.
2) Numbers outside the defined survey area were counted opportunistically and while mapping population boundaries.
3) The targeted survey covered 869 hectares (40%) of the project area.
4) The targeted survey covered 421 hectares (64%) of footprint V3.

An overview map of all conservation significant flora recorded during the 2020 and 2021 targeted flora survey is presented in Figure 4.2. The greatest number of different conservation significant flora taxa, as well as the greatest number of individual plants, was recorded in the Great Northern Highway intersection area, as mapped in Figure 4.3. The opportunistic traverses into habitats not covered by the defined survey area recorded an additional two taxa as mapped in Figure 4.4. Conservation significant flora recorded during the survey are described further in section 5.1.



Rapallo environmental

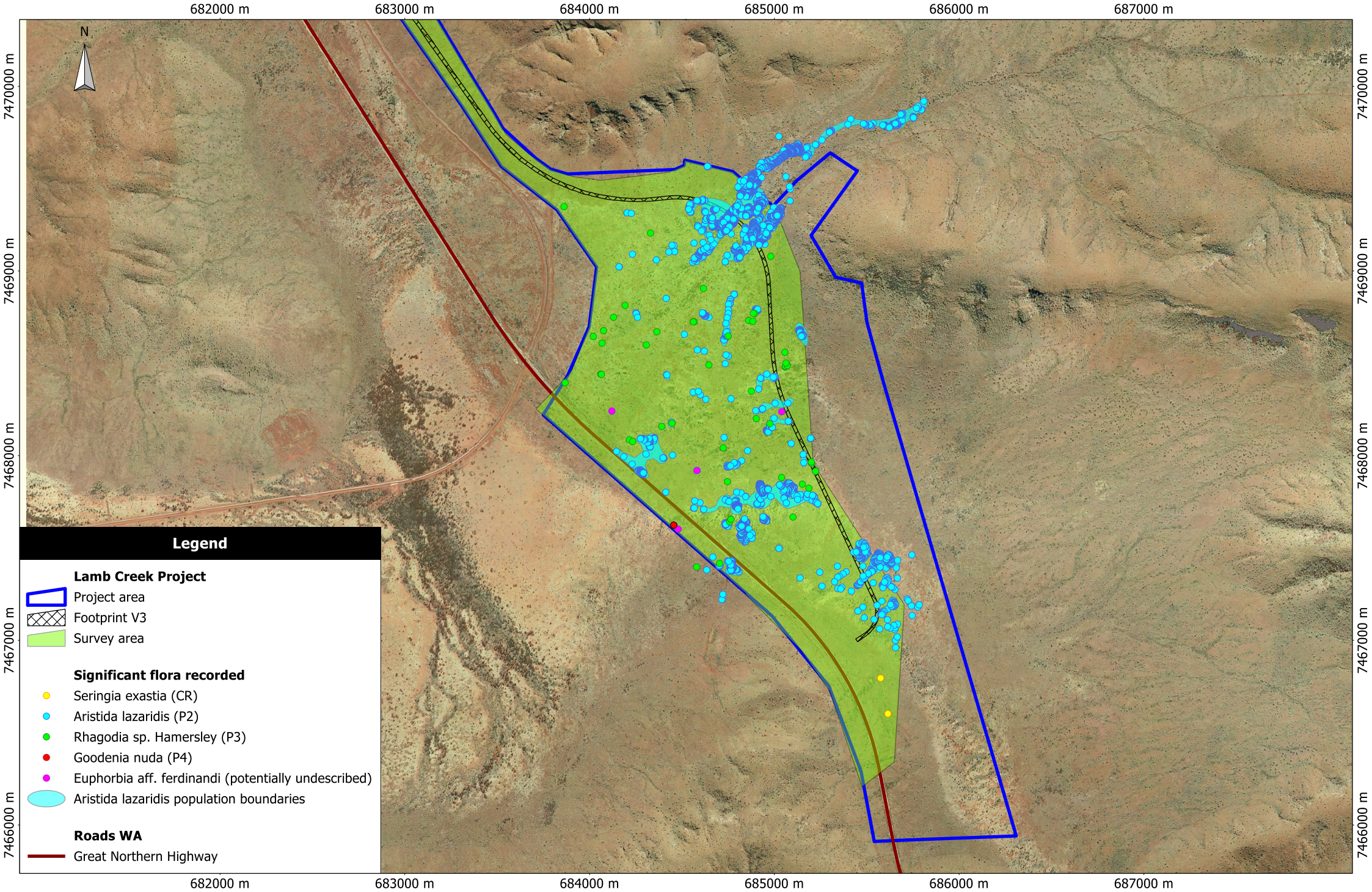
Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Targeted conservation significant flora survey (April 2020, May 2021)

Original Size: A4 Scale: 1:70,000
Datum: MGA94 Zone 50
0 2 km

Figure 4.2

Conservation significant flora recorded at Lamb Creek during the targeted survey



Rapallo environmental

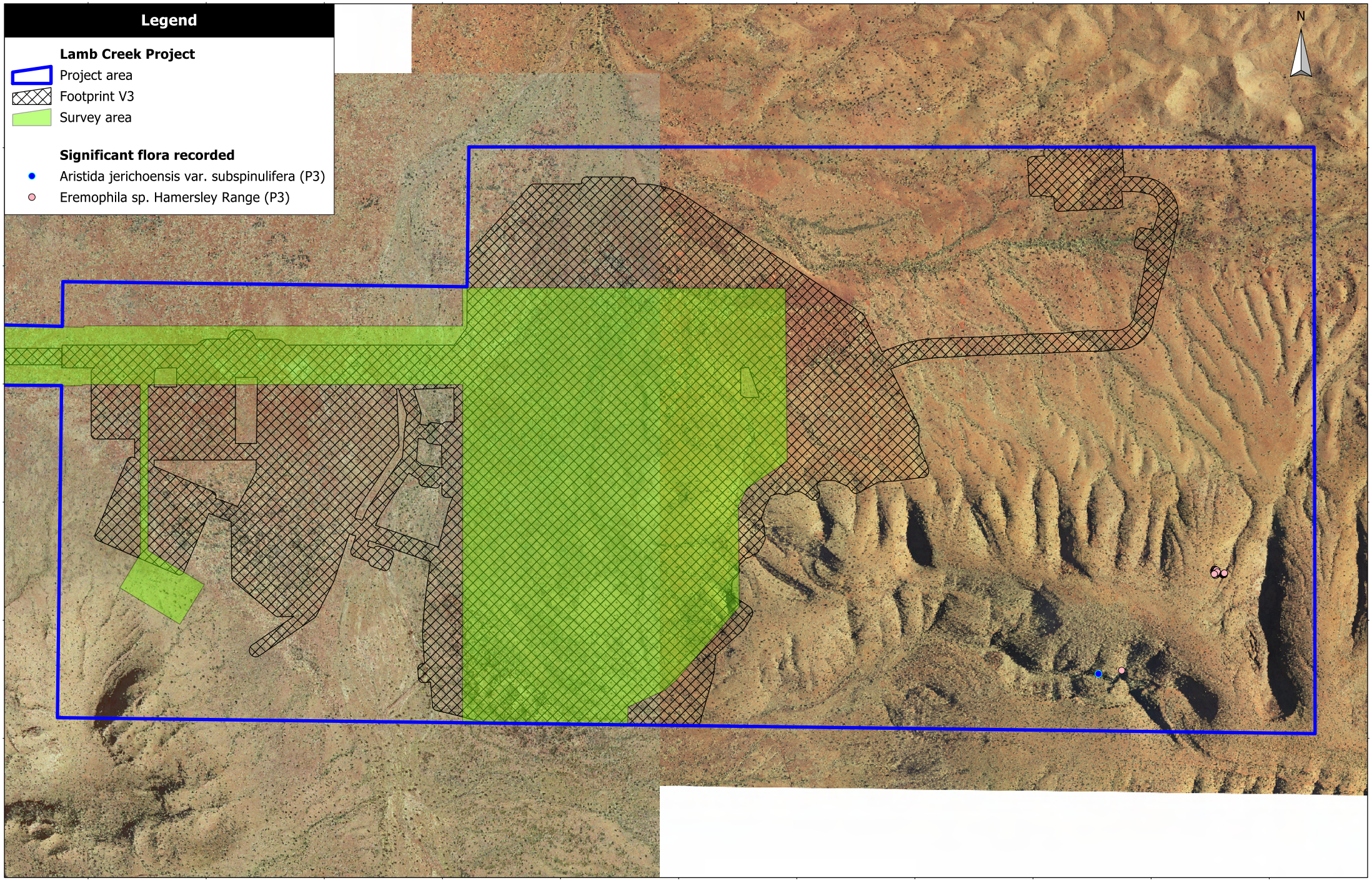
Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Targeted conservation significant flora survey (April 2020, May 2021)

Original Size: A4 Scale: 1:25,000
Datum: MGA94 Zone 50
0 800 m

Figure 4.3

Conservation significant flora recorded in the Great Northern Highway intersection area



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Targeted conservation significant flora survey (April 2020, May 2021)

Original Size: A4 Scale: 1:20,000
Datum: MGA94 Zone 50
0 500 m

Figure 4.4

Conservation significant flora recorded in the retention licence R47/19

5 Discussion

This section discusses the survey results from a project area, local and regional perspective.

5.1 Significant flora species recorded during the survey

Seven DBCA listed conservation significant flora taxa, and one potentially undescribed taxon, were recorded during the 2020 and 2021 field surveys, both from within the defined survey area and from locations outside and adjacent to the survey area while mapping population boundaries.

Recent flora and vegetation mapping (post-fire) was available for the Great Northern Highway intersection part of the survey area, as described in Rapallo (2021a), while old (pre-fire) mapping was available for the resource area and part of the haul road (Rapallo 2012). The vegetation composition and structure in the 2012 mapped areas has changed as a result of the fire (Rapallo 2021b), which must be kept in mind when interpreting significant flora locations relative to habitat. The vegetation types recorded in 2012 and 2021 are described in section 2.3.3.

The estimated number of individual plants of each conservation significant taxon per vegetation type is presented in Table 5.1 below. Where there is overlap between 2012 and 2021 vegetation mapping, only the 2021 mapping is considered. Mapping completed in 2012, which has limited relevance to flora recorded in 2020 and 2021, is only used where no current 2021 mapping is available.

Approximately 31% of the individual plants recorded were outside of any vegetation mapping. The greater majority of these were *Aristida lazaridis* (P2) records collected when mapping population boundaries outside of the defined targeted survey area. The single record of *Rostellularia adscendens* var. *latifolia* (P3) was also outside of any mapped areas. Interestingly, both records of *Seringia exastia* (CR) were from a previously cleared and revegetated area, and not from a mapped vegetation type.

No conservation significant flora were recorded from 2021 vegetation type F and from 2012 vegetation types VT3 and VT4. The entirety of the 2012 vegetation type VT6 has been superseded by 2021 vegetation types C and D.

The Great Northern Highway Intersection part of the survey area supported the overwhelming majority of conservation significant flora records, and five of the total eight taxa recorded. The overwhelming majority of these records were *Aristida lazaridis* (P2).

The greatest number of conservation significant flora records were from 2021 vegetation types C and D. Outside of 2021 mapping, the greatest number of conservation significant flora records were from 2012 vegetation type VT5. Where there was overlap between the 2012 and 2021 mapping, the 2012 vegetation type VT5 has been superseded by 2021 vegetation types A, B, C and D. The absence of a clear-cut link between 2012 and 2021 vegetation polygons is indicative of the significant changes that have occurred since the 2015 fire. As such, the 2012 vegetation mapping has limited relevance to the habitat that was present during the targeted survey.

Aristida jerichoensis var. *subspinulifera* (P3) and *Eremophila* sp. Hamersley Range (P3) were only recorded from the retention licence R47/19 from areas mapped in 2012 as VT1 and VT2. Both taxa occurred more than a kilometre outside of footprint V3. The retention licence was burnt in 2017, and no current vegetation information is available. However, the land forms associated with vegetation types VT1 and VT2 are unlikely to have changed, and would present some indication of habitat for these taxa.

Table 5.1 Conservation significant flora records relative to 2021 and 2012 vegetation types

Taxon	Status	2021 vegetation types [1]							2012 vegetation types (pre-fire) [2]					Outside of mapped areas	Total
		A	B	C	D	E	F	X	VT1	VT2	VT3	VT4	VT5		
Seringia exastia	Critically Endangered							2							**2**
Aristida lazaridis	Priority 2	125	544	1441	3392	3		4		115			3167	3982	**12773**
Aristida jerichoensis var. *subspinulifera*	Priority 3									50					**50**
Eremophila sp. Hamersley Range	Priority 3								23	13					**36**
Rhagodia sp. Hamersley (M. Trudgen 17794)	Priority 3	1	9	26	4	1				2			6	1	**50**
Rostellularia adscendens var. *latifolia*	Priority 3													1	**1**
Goodenia nuda	Priority 4				50										**50**
Euphorbia aff. *ferdinandi*	Potentially undescribed			3	1										**4**
Totals		**126**	**553**	**1470**	**3447**	**4**	**0**	**6**	**23**	**180**	**0**	**0**	**3173**	**3984**	**12966**

Footnotes:

1. 2021 vegetation types:

A - Low open Eucalyptus gamophylla woodland over Triodia melvillei and T. pungens on stony plain

B - Mulga and acacia low open woodland over open tussock grassland on gently sloping (drainage) plain with variable rock cover

C - Mulga and acacia low open woodland over open spinifex and tussock grassland on flat plain with medium rock cover

D - Mulga, Hakea lorea, and Eucalyptus xerothermica low open woodland over closed tussock grassland on gently sloping clay-loam plain (no rocks)

E - Low mulga woodland over sparse understorey on stony plain

F - Triodia wiseana hummock grassland with emergent shrubs and low trees on gently sloping stony plain

X – Not a vegetation type. Cleared, rehabilitated, Road

2: 2012 vegetation types:

VT1 – Eucalyptus gamophylla woodland over hummock grassland

VT2 – Eucalyptus leucophloia subsp. leucophloia woodland over mixed shrubs over Triodia wiseana grassland

VT3 – Acacia shrubland over hummock grassland

VT4 – Acacia tumida var. pilbarensis scrub in creeklines

VT5 – Wannamunna Mulga grove

5.1.1 *Seringia exastia* (Critically Endangered)

Seringia exastia (fringed fire-bush) is a small spreading shrub growing up to 1.5 metres tall but usually recorded around 0.5 metres (DBCA 2021c). It has been recorded in flower year-round (WAH 1998-, DBCA 2021a). The species is currently listed as Critically Endangered, but this is due to a taxonomic revision where a threatened and a common species were merged, and the name of the former was adopted as the new name, with the conservation status still attached. The current distribution map published on FloraBase (Western Australian Herbarium 1998) incorporates this revision, showing *Seringia exastia* as widespread across northern Western Australia, ranging from the Coolgardie and Murchison IBRA regions in the south to the Dampierland IBRA region in the north.

Seringia exastia was recorded at two locations near the Great Northern Highway intersection (Figure 4.3). Both locations are outside of footprint V3. The habitat was cleared and disturbed vegetation, and not mapped as a vegetation type (Rapallo 2021a). There is a threatened and priority flora database record of this taxon within the project area, on the south-western side of the Great Northern Highway (DBCA 2021a). This location was visited during the targeted survey, but the taxon was not found.

Communications received from DBCA (24/08/2021) confirm that the species is common and widespread, and that a nomination to delist the species has been prepared and considered by the WA Threatened Species Scientific Committee (TSSC). However, until changes are officially made to the Threatened species list, *S. exastia* is still legally listed as threatened flora, and authorisation to take under section 40 of the *Biodiversity Conservation Act 2016* is still required.

5.1.2 *Aristida lazaridis* (Priority 2)

Aristida lazaridis is a tufted perennial grass ranging from 0.4 to 1.5 m in height which generally flowers in April and May (WAH 1998-, DBCA 2021a). The species has been recorded in clay /loam soils on drainage lines and on slopes. The habitat often comprises mulga low open woodland with or without eucalypts, over a variety of shrubs and herbs, often over tussock grassland but sometimes with *Triodia* hummock grassland (DBCA 2021c).

A large population of *Aristida lazaridis* was recorded on the un-incised loamy valley floor drainage at the southern end of the survey area proximal to the Great Northern Highway (Figure 4.3). An estimated population of 12773 plants from 6757 point locations was recorded over the 2020 and 2021 survey periods combined. The species was recorded from all 2021 vegetation types except type F, with the greatest number of records from vegetation types B, C and D (Rapallo 2021a). Out of the total records for this species, only 75 fall within footprint V3.

Aristida lazaridis occurs as scattered plants to dense patches several hundred to a thousand plants that locally dominate or co-dominate the ground cover. The highest population estimates were recorded where *Aristida lazaridis* occurs as a co-dominant of the tussock grassland understory within vegetation types B, C, and D (Rapallo 2021a). Searches outside the survey area on foot and from helicopter recorded the species extending outside the project area within the narrow valley that runs between the two hill systems that terminate at the southern end of the haul road corridor. Populations and scattered plants identified as potential *Aristida lazaridis* have also been observed from helicopter to the southwest on the western side of the Great Northern Highway. At the time of survey in 2020 the species was in flower and could be spotted from a helicopter. However, due to the presence of six other *Aristida* species recorded from Lamb Creek during the 2012 and 2021 surveys, only ground-truthed records are presented in this

report and mapped in Figure 4.2. Plate 2 shows *Aristida lazaridis* (P2) within its habitat on the loamy drainage floor of the survey area.

Locally, a significant population of *Aristida lazaridis* has been recorded in deep loam soils along an un-incised drainage line north and west of the BHP Packsaddle Village, approximately 7 kilometres south-east of the Lamb Creek population. Onshore (2011a) reported a total of 2405 plants from 94 point locations from this population occurring within six vegetation types with the largest populations occurring within the tussock Grassland with Low Woodland of *Eucalyptus xerothermica* and *Acacia aptaneura*, *Acacia* Low Open Forest and *Triodia* Hummock Grassland vegetation communities (Onshore 2017). The closest threatened flora database records are the *Aristida lazaridis* record from the project area collected in 2012 and a 2018 record of 500+ plants from low open woodland of *Acacia aptaneura* with occasional *Acacia pruinocarpa* and *Eucalyptus xerothermica* over scattered shrubs of *Eremophila longifolia*, *Senna artemisioides* subsp. *oligophylla* and *Senna artemisioides* subsp. *helmsii* over open tussock grassland on red clay loam on floodplains and drainage areas (DBCA 2021a).

Further afield, the species has been recorded from Lake Robinson on the eastern fringe of the Coondewanna Flats (up to 20% cover, Onshore 2013c), Mudlark (up to 15% cover, (Onshore 2013b), Tandanya (up to 20% cover , (Onshore 2013c), and South Flank (13 plants, (Onshore 2012a) and West Angeles (Rio Tinto 2018).

There are 20 specimen records within the Western Australian Herbarium database, with collections from locations across approximately 130 kilometres extending from the Rangers Station at Karijini National Park to near Newman (DBCA 2021c). There are 43 records from the Rio Tinto Priority Flora database (Rio Tinto 2018) extending over 60 kilometres. In addition to these records, this species occurs over a 2,500 kilometre range across the Northern Territory and Queensland (Atlas of Living Australia 2021).

Plate 2 ***Aristida lazaridis*** **(P2) and its habitat**

5.1.3 Aristida jerichoensis var. *subspinulifera* (Priority 3)

Aristida jerichoensis var. *subspinulifera* is a compact tufted perennial grass ranging in height from 0.3 to 0.8 metres (WAH 1998-). Flowering has been recorded in the post-wet season (May) and in the dry season (July, September) (DBCA 2021a). It often occurs in mulga woodlands or acacia shrublands over *Trioda* and/or tussock grassland (DBCA 2021c).

A population of approximately 50 plants was recorded opportunistically in 2020 from a single location in the south-east corner of R47/19 within 2012 vegetation type VT2 (Figure 4.4). This area falls outside of the defined survey area, and the plants were recorded opportunistically during two selective traverses. The population was observed on a south facing rocky slope of a gorge/gully at 820 metres elevation. This location is more than a kilometre outside of footprint V3.

Locally, there is a Western Australian Herbarium record of *Aristida jerichoensis* var. *subspinulifera* from 800 metres northwest of the survey area, from a level plain of orange light clay (DBCA 2021a). *Aristida jerichoensis var. subspinulifera has been recorded* as scattered individuals or more commonly in groups of up to 300 plants within the MAC Development envelope (Onshore 2017) on red brown clay loam on hardpan intergrove plains open mulga woodland and from the Coondewanna Flats PEC (Onshore 2013a).

Compared with the collections made from the MAC Development envelope, and the habitat data in the Western Australian Herbarium database (predominantly collections from clay/loam plains/flats), the Lamb Creek habitat of high elevation, rocky gorge seems odd, however the species has been recorded near Newman on rocky upper hillslope (DBCA 2021c).

Regionally, *Aristida jerichoensis* var. *subspinulifera* has been recorded from BHP Billiton Iron Ore project areas including Area C West to Yandi (scattered plants, Onshore 2014b), Mudlark (up to 100 percent cover, (Onshore 2013b) and the Tandanya tenements up to 100 percent cover, (Onshore 2013c).

There are 39 specimen records within the Western Australian Herbarium database, with collections from locations spread across 290 kilometres extending between Nammuldi to Newman, with outliers in the Little Sandy Desert and Murchison, as well as collections from the Northern Territory and Queensland (DBCA 2021c; (Atlas of Living Australia 2021).

Plate 3 *Aristida jerichoensis* var. *subspinulifera* (P3) in rocky gorge habitat

5.1.4 *Eremophila sp. Hamersley Range (K. Walker KW 136) (Priority 3)*

Eremophila sp. Hamersley Range (K. Walker KW 136) is an erect perennial shrub to 2.5 metres that has been recorded flowering in the post-wet season (June) and dry season (August, September) (WAH 1998-, DBCA 2021a)

Within the survey area, two populations (in close proximity of each other) and one single plant were recorded from the eastern part of R47/19 (Figure 4.4). This area falls outside of footprint V3 by at least one kilometre. The two populations of 23 and 12 individual plants were recorded on the eastern and western slopes of a small gorge/gully within respectively 2012 vegetation types VT1 and VT2 (Plate 4). The single individual was also recorded growing on the flanks of a gorge within VT2. Most plants were 0.5 metres in height, but one individual was greater than 3 metres tall. None of the plants were in flower at the time of the survey, which occurred outside of the common flowering period for this taxon. *Eremophila* sp. Hamersley Range (K. Walker KW 136) is similar to *E. tietkensii*, primarily differing in leaf indumentum and also in floral characters (Biota 2014).

All records of *Eremophila* sp. Hamersley Range were outside of the targeted survey area, and were recorded during two selective traverses through habitat identified as potential for this taxon. Note that only a tiny fraction of potential habitat was searched, and the searches were not systematic. The aerial photograph shows that R47/19 contains a large number of gorge/gullies similar to where this taxon was recorded, including in the south-western corner of R47/19 where the current 2021 footprint extends into unsurveyed areas. It is highly likely that further populations of *Eremophila* sp. Hamersley Range occur within R47/19 including potentially within the unsurveyed part of footprint V3.

Locally, *Eremophila* sp Hamersley Range was not recorded on the MAC development envelope to the south (Onshore 2017), however it has been recorded in the ranges ca. eight kilometres south of the Lamb Creek retention licence (DBCA 2021a) and from Baby Hope Downs ca. 35 kilometres to the southeast of Lamb Creek from five locations in rocky gullies and gorges (Biota 2014).

There are fifteen specimen records within Western Australia, with Western Australian herbarium records from locations spread across 220 kilometres from Paraburdoo to Newman (WAH 1998-) and 345 records, within the Rio Tinto database; recorded from Eastern Range, Channar, Turee Syncline, Karijini National Park, West Angelas, Angelo Central and Hope Downs 1 (Rio Tinto 2016).

Plate 4 *Eremophila* sp. Hamersley Range and its north facing rocky hillside habitat

5.1.5 *Rhagodia sp. Hamersley (M.E. Trudgen 17794) (Priority 3)*

Rhagodia sp. Hamersley is an erect spindly shrub to 2 metres high, found on red sandy clay loam plains and floodplains growing in association with mulga (Western Australian Herbarium 1998-, DBCA 2021a)

Fifty plants were recorded from the Great Northern Highway area (Figure 4.3), often in association with *Acacia aptaneura* (mulga). Records occurred in every 2021 vegetation type except F (Rapallo 2021a). Records to the east of the 2021 survey area were from 2012 vegetation types VT2 and VT5, which may now no longer be relevant.

DBCA and WA Herbarium records for *Rhagodia* sp. Hamersley show flowering for this taxon in the late wet season, post-west season, and dry season. However, the majority of records year-round are of non-flowering plants, which suggest that this taxon is readily recognisable without flowers, and that it may respond to rainfall rather than season. The taxon was recorded in flower during the 2020 and 2021 targeted surveys, as shown in Plate 5.

Locally, 13 populations of *Rhagodia* sp. Hamersley (M. Trudgen 17794) have been recorded within the MAC Development Envelope, the closest 3 kilometres south east of the Lamb Creek project area, from four vegetation communities associated with mulga and tussock grassland (Onshore 2017).

Regionally, the species is widespread on mulga plains on BHP Billiton Iron Ore's Mudlark (192 plants, (Onshore 2013b) and Tandanya (496 plants, (Onshore 2013c), tenements to the west and south-west of the MAC Development Envelope, and from the Jinidi tenement ca. 50 kilometres to the south east of Lamb Creek (scattered plants) (Onshore 2011b).

There are 63 specimen records in the Western Australian Herbarium database, with collection locations spread approximately 290 kilometres extending between Tom Price and Newman (DBCA 2021c).

Plate 5 ***Rhagodia* sp Hamersley (M.E. Trudgen 17794) in flower and growing beneath mulga on the survey area in 2020 (L) and 2021 (R).**

5.1.6 Rostellularia adscendens var. latifolia (Priority 3)

Rostellularia adscendens var. *latifolia* is an erect herb or shrub, 0.1-0.3 meters high , often recorded from loams associated with drainage/floodplain, but also from hillslopes (DBCA 2021c). Flowering has primarily been recorded in the post-wet season (April-May) but also occasionally in the dry season (August) (WAH 1998-, DBCA 2021a)

A single plant was recorded from the bank of a dry rocky creek midway along the proposed haul road alignment within L47/736 (Figure 4.2). No vegetation mapping exists for this location. The specimen was recorded in flower at the time of the survey, as shown in Plate 6. The record occurred approximately 80 meters outside of footprint V3.

Locally there are 13 populations of *Rostellularia adscendens* var. *latifolia* recorded from the MAC Development Envelope, occurring as scattered individuals or populations of up to a maximum of 82 plants across a variety of vegetation types (Onshore 2017), approximately 20 kilometres south east of the Lamb Creek retention licence.

Regionally, the species has been recorded from a number of BHP Billiton Iron Ore's project areas including Area C West to Yandi (67 plants, Onshore 2014), Mudlark (Onshore 2013b) , Tandanya (60 plants, (Onshore 2013c), Jinidi to Mainline (<2 percent cover within Weeli Wolli Creek, Onshore 2012b) and Yandi (<1 percent cover, (Onshore 2011c).

There are 39 specimen records within the Western Australian Herbarium database, with collections from locations spread across approximately 280 kilometres extending between Nammuldi and the Jimblebar to Yandi Railway, with outliers extending to Nullagine (DBCA 2021c).

There are 205 records of *Rostellularia adscendens* var. *latifolia*, within the Rio Tinto database from numerous locations (Rio Tinto 2016).

Plate 6 *Rostellularia adscendens* var. *latifolia* on rocky creek bank within the survey area

5.1.7 Goodenia nuda (Priority 4)

Goodenia nuda is a small herb, approximately 20-30 centimetres tall with yellow flowers. The species is often recorded from seasonally inundated clay soils and drainage lines, often in mulga and has been recorded flowering in the late wet and post-wet season (March-June) but also in the dry season (up until August) (WAH 1998-, DBCA 2021c).

A small population of approximately 50-100 plants was recorded during the 2021 detailed flora survey, from quadrat Q27 (Figure 4.3). This quadrat was situated on the southern side of the Great Northern Highway, and falls outside of footprint V3. *Goodenia nuda* is small, and indistinct without flowers, which indicates that additional plants or populations may have been present at the time of the survey.

Quadrat 27 falls within vegetation type D (Rapallo 2021) and is situated less than 2 kilometres south-east of a WA Herbarium record from a level plain of orange light clay recorded in 2011 (DBCA 2021a). Aerial photos show the soil colour of this clay plain quite clearly, and it extends into the GNHI survey area where Q27 was positioned. The soil at Q27 is described as clay (Plate 7).

There are 101 specimen records within the Western Australian Herbarium database, with collections from locations spread across the Pilbara with outliers in the Great Sandy Desert and Gascoyne and from 808 records, within the Rio Tinto database (Rio Tinto 2018). *Goodenia nuda* is relatively widespread across the Pilbara, recorded from a variety of habitats many associated with drainage WAH 1998-).

Plate 7 ***Goodenia nuda***

5.1.8 Euphorbia aff. ferdinandi (potentially undescribed)

This taxon was recorded from four locations near the Great Northern Highway (Figure 4.3). It was only recognised as a potentially undescribed species, and different from any known species, when the specimen was compared in detail with other *Euphorbia* specimens at the Western Australian Herbarium. Further advice was sought from Steve Dillon at the WA Herbarium, who advised that the specimen differed from *Euphorbia ferdinandi* by having broader seeds and a stigma opposite from what has been described for this species (S. Dillon *pers. comm*., September 2021). All locations of this taxon were within the current project area, but outside of footprint V3.

5.2 Significant species not recorded

Seven species ranked in the desktop as 'likely to occur' and four species ranked as 'may potentially occur (Appendix II) were not recorded during the survey. These taxa are discussed below.

5.2.1 Acacia bromilowiana (Priority 4)

Acacia bromilowiana is a shrub or tree growing to 12 metres that has been recorded on a variety of landforms in the Pilbara including: rocky hills, breakaways, scree slopes, gorges and creek beds, occurring in red skeletal stony loam, orange-brown pebbly gravel loam laterite, banded ironstone and basalt (WAH 1998-; DBCA 2021c). The species generally flowers in the dry season (July-August) but has also been recorded in flower in the post-west season (May) (WAH 1998-, DBCA 2021c).

There is a Western Australian Herbarium record dated 1992 of *Acacia bromilowiana* within 5 kilometres of the project area, recorded from the western side of the Great Northern Highway from high elevation. The species was collected from steep rocky ironstone scree, high in landscape, positioned on the edge of cliff (DBCA 2021a).

Regionally it has been recorded within the MAC Development Envelope, from the upper reaches of a gorge (Onshore 2017) and from the northern slopes of Mount Robinson (>100 plants (Onshore 2012c)). The species also occurs at surrounding BHP Billiton Iron Ore tenements and project areas including Tandanya (167 plants, (Onshore 2013c)), Mudlark 30 plants, (Onshore 2013b) and Area C West to Yandi (30 plants (Onshore 2014a)).

There are 29 specimen records within the Western Australian Herbarium database, with collections recorded from over a 320 kilometre range between Newman and 130 kilometres northwest of Tom Price, with outlying records from west of Rudall River National Park (DBCA 2021c). There are records in the Rio Tinto database from Brockman, Vivash, West Turner Syncline, Tom Price, Karijini National Park, Angelo River, West Angleas, Minga Yard, Rhodes Ridge, Shovellana, Hope Downs and Noreena Downs (Rio Tinto 2016).

Acacia bromilowiana was not recorded during the survey, and was ranked as likely to occur, on the higher elevation areas of the project area, most of which fell outside of the targeted survey area. The species has distinctive dark grey fibrous bark and glaucous and slightly pruinose phyllodes and would have been readily identifiably in the field as a taxon to collect during the survey if present in the areas surveyed. It is possible that *Acacia bromilowiana* occurs in the project area outside the area covered by the current targeted survey, including potentially in the unsurveyed part of the footprint V3.

5.2.2 *Acacia effusa* (Priority 3)

Acacia effusa is a dense, wide-spreading, multi-stemmed, domed or flat-topped, somewhat viscid shrub 0.3–1.2 metres tall. It has grey or greyish red 'minniritchi' bark (Maslin et al. 2010). It flowers May-August (WAH 1998-, DBCA 2021c).

The DBCA threatened and priority flora database shows a record of this *Acacia effusa* taxon within the current project area (Figure 4.1). The record was from 2011, with the site described as a gently inclined footslope with brown sandy loam soil (DBCA 2021a). The location where this taxon was recorded fell outside of the project area at the time of the surveys, and was not visited. No flora and vegetation surveys have been completed over this part of the project area.

Regionally the species has been recorded at Mudlark (Onshore 2013b) and from Area C West to Yandi tenements (Onshore 2014a).

There are 31 specimen records within the Western Australian Herbarium database, with collections recorded from a patchy 110 kilometre range between Marandoo and West Angeles (DBCA 2021c), it is known from a large number of records within the central southern sector of the Pilbara bioregion, including Karijini National Park. Habitat is described as lower scree slopes of low rocky ranges or alluvial plains at the base of banded ironstone ranges. It is often common where it occurs (BHP 2016).

The species was not recorded during the survey and was ranked as likely to occur on the low hills, stony plain and loamy drainage flats proximal to the Great Northern Highway. However, the targeted survey only covered 40% of the current project area.

Acacia effusa is a low spreading shrub with 'minniritchi bark and would have been readily identifiable in the field if it has been present within the survey area.

5.2.3 *Eremophila magnifica subsp. magnifica* (Priority 4)

A mid stratum shrub occurring up to 1.5 metres in height, it has been recorded on skeletal soils over ironstone and occurs on rocky scree slopes (WAH 1998-). Often occurs high in the landscape on steep to moderate slopes, summits, gullies, skeletal red gritty soil over massive banded ironstone. (DBCA 2021c). It generally flowers August to November but has also been recorded flowering in June (WAH 1998-, DBCA 2021c)

Eremophila magnifica subsp. *magnifica* is known to occur 14 kilometres west south-west of the project area from a very steep gully of silty brown loam (DBCA 2021a). There were nine populations of Eremophila magnifica subsp. magnifica represented within the MAC Development (Onshore 2017). Locally it is widespread across ranges in BHP Billiton Iron Ore's Mudlark (Onshore 2013b), Tandanya (Onshore 2013c), and Jinidi tenements (Onshore 2011b), situated to the west, south-west and east of the Proposed MAC Development Envelope. Plant density ranges from scattered individuals to populations of greater than 1,000 plants. The species typically occurs on steep to moderately sloping rocky hill slopes, hill crests, gullies and rocky drainages. *Eremophila magnifica* subsp. *magnifica* is widely collected from similar habitat at BHP Billiton Iron Ore's Eastern (Onshore 2012c) and (Onshore 2014b) operations near Newman.

There are 42 specimen records within the Western Australian Herbarium database, with collections recorded from over a 310 kilometre range between Newman and Mt Farquhar (DBCA 2021c) and 940 records, within the Rio Tinto database (Rio Tinto 2016).

Eremophila magnifica subsp. *magnifica* is a distinctive species, its leaves smell of nutmeg when crushed. It readily distinguishable from the closely related (Priority 3 listed) *E. magnifica* subsp. *velutina* by having glabrous leaves (with ciliate leaf margins) whilst *E. magnifica* subsp. *velutina* has a velvety leaf surface. The species flowers purple, primarily in August to November and would not have been flowering during the survey, however it is identifiable from vegetative material, habit, habitat and leaf surface and would have been readily identifiable in the field as a taxon to collect during if it had been encountered.

The species was not recorded during the targeted survey, and was ranked as likely to occur, on the higher elevation areas of the project area, most of which fell outside of the targeted survey area. It is possible that *Eremophila magnifica* subsp. *magnifica* occurs within the project area, and potentially within the unsurveyed part of footprint V3.

5.2.4 Eremophila pusilliflora (Priority 2)

A low-growing, open shrub 30–50 centimetres high, 50–100 centimetres wide, found on seasonally inundated alluvial plains, growing in red-brown sandy loam soils in open low shrubland with *Acacia aneura, Ptilotus nobilis*, *Goodenia* and *Triodia* species (Buirchell & Brown 2016).

Eremophila pusilliflora was recorded in 1977, 15 kilometres west of the project area on a flat plain with thin soil underlain by partly consolidated colluvium near Packsaddle Bore (DBCA 2021a).

The species is infrequently collected and was not recorded from the MAC development area, despite habitat being present (Onshore 2017).

There are 14 specimen records within the Western Australian Herbarium database, with collections recorded from over a 120 kilometre range between Auki and West Angeles (DBCA 2021c) and records ranging across 60 kilometres from the Rio Tinto Priority Flora database (Rio Tinto 2017).

The species was not recorded during the survey and was ranked as may potentially occur on the project area, noting that the targeted survey only covered 40% of the project area.

Formerly known as *Eremophila forrestii* subsp. Pingandy (M.E. Trudgen 2662), *Eremophila pusilliflora* is related to *E. forrestii*, from which it may be distinguished by its lower-growing habit, consistently smaller leaves, shorter corolla and distinctively pustulate sepals with a glabrous inner surface. The sepals turn reddish pink with age whereas those in E. *forrestii* remain the same colour (Buirchell & Brown 2016).

The species predominantly flowers between April and September but may also flower at other times of the year in response to rainfall (Buirchell & Brown 2016). The timing and conditions were suitable during the survey for flowering and due to its size, it would have been visible to collect if encountered.

5.2.5 Indigofera gilesii (Priority 3)

Indigofera gilesii is an erect perennial shrub to 1.5 metres tall with purple-pink flowers (WAH 1998-). This taxon was recorded in 1997 from a location fifteen kilometres west of the project area, from a broad open gully on the south side of a low hill. It is often recorded high in the landscape on skeletal soils in gorge or gully habitats and has been recorded flowering recorded post-wet season (June) and dry season (August) (DBCA 2021a).

There are 25 specimen records within the Western Australian Herbarium database, with collections sporadically recorded from over a 120 kilometre range from Packsaddle Bore to Newman (DBCA 2021c).

The species was not recorded during the survey, and was ranked as "may potentially occur", on the higher elevation areas of the project area, most of which fell outside of the targeted survey area. The species has been recorded flowering in the post-wet season (May, June) and dry season (August) (WAH 1998-, DBCA 2021c). The timing and conditions were suitable during the survey for flowering and due to its size, it would have been visible to collect if it was encountered.

5.2.6 Isotropis parviflora (Priority 2)

Isotropis parviflora is a low perennial herb or shrub to 0.1 metres in height flowering white to pink during March. Occurs on stony plain, lower slopes, hillcrest/upper slopes (DBCA 2021c). It is known to be a short-lived disturbance species that responds to fire and is often recorded along the berms of access tracks.

There is a record from Packsaddle Village 10 kilometres south of the project area from upper-slope, ironstone outcropping (DBCA 2021a) and it has been recorded from Billiton Iron Ore's Jinidi tenements (Onshore 2011b).

There are 28 specimen records within the Western Australian Herbarium database, with collections recorded from over a 210-kilometre range between Wittenoom Gorge and Newman. Outlier records occur in the Great Sandy Desert and the Tanami (DBCA 2021c)

The species was not recorded during the survey and was ranked as likely to occur on the project area on stony plain, lower slopes, upper slopes and hillcrests.

This species flowers predominantly in the late wet season (March), but flowering has been recorded through to the early dry season (August) (WAH 1998-, DBCA 2021c). The timing and conditions were suitable during the survey. However, due to its small size this taxon could have been overlooked. It is also short-lived post disturbance and may be under-surveyed. The possibility of this taxon occurring in the project area cannot be discounted.

5.2.7 Nicotiana umbratica (Priority 3)

Nicotiana umbratica is an erect, short-lived annual or perennial, herb, 0.3-0.7 metres high that flowers white, April to June and inhabits shallow soils, rocky outcrops (WAH 1998-). This taxon was not flagged in the DBCA search; however, one individual plant was recorded from the MAC development envelope growing under an overhang in a narrow gorge (Onshore 2011a). There are currently 23 records within the Pilbara extending approximately 180 kilometres from Shay gap to Bamboo Springs with an outlier near Karratha (DBCA 2021c).

The species was not recorded during the survey, and was ranked as "may potentially occur" on the project area.

The project area falls outside of the known distribution, however *Nicotiana umbratica* is short-lived and thus may be under-surveyed. This species has been recorded as scattered occurrence in very low numbers across similar habitat in the broader locality. Therefore, if present, it would only occur in low number. The timing and conditions were suitable during the survey however due to its small size this taxon could have been overlooked during the survey.

5.2.8 *Themeda sp. Hamersley Station (M.E. Trudgen 11431) (Priority 3)*

Themeda sp. Hamersley Station (M.E. Trudgen 11431) is a robust tall grass. There are 45 specimen records within the Western Australian Herbarium database, with collections recorded from over a 450 kilometre range from Damper to Newman, with an outlier in the Little Sandy. This species occurs in red clay pans and grass plains (DBCA 2021c). It generally flowers in August, but has been recorded flowering in July and September also (WAH 1998-, DBCA 2021c).

There is a record from the flats on the western side of the Great Northern Highway, six kilometres south of the project area from the Coondewanna Flats (DBCA 2021a) and it has been recorded from Billiton Iron Ore's Mudlark tenements (Onshore 2013b) and Tandanya tenements , (Onshore 2013c).

Themeda sp. Hamersley Station is difficult to distinguish in the field from larger individuals of the common and widespread *Themeda triandra*, which was recorded from 26 locations throughout the project area during the 2012 and 2021 surveys combined (Rapallo 2012, Rapallo 2021a) and formed a dominant component of vegetation types B, C and D of the Great Northern Highway intersection (Rapallo 2021a).

Themeda sp. Hamersley Station (M.E. Trudgen 11431) flowers in August, and the timing of the 2012, 2020 and 2021 surveys (which occurred in April and May) was outside of this flowering period. The species was not recorded during the survey, but was ranked as highly likely to occur within the loamy drainage flats proximal to the Great Northern Highway. Surveys in August are required to determine this.

5.2.9 *Triodia sp. Mt Ella (M.E. Trudgen 12739) (Priority 3)*

Triodia sp. Mt. Ella (M.E Trudgen 12739) is a perennial hummock grass to 30–60 centimetres high, 40–80 centimetres wide, very resinous and sometimes conspicuously stoloniferous. Fertile collections have been made in February and March (Barrett & Trudgen 2018) and also in September (DBCA 2021c). *Triodia* sp. Mt. Ella (M.E Trudgen 12739) a is known to occur 17 kilometres west of the project area proximal to the eastern boundary of Karijini National Park (DBCA 2021a).

The taxon has been recorded from the southern central sector of BHP Billiton Iron Ore's MAC Development Envelope (Onshore 2017). BHP Billiton Iron Ore's Mudlark (Onshore 2013b) and Tandanya, (Onshore 2013c), tenements, and from Rio Tinto's West Angelas project (Trudgen & Casson 1998). Individual occurrences in the Hamersley Range are small in area, mainly occurring at the bases of open to slight gullies on the mid- to upper slopes of large hills; however, some records are from gorges and ridges. Some occurrences are associated with iron-rich substrate in the West Angelas mining area, but the main factor affecting distribution is likely to be the deeper (moisture retaining) soils at the bases of gullies. Most records are from outcropping ironstone or ironstone gravel; the Rudall River occurrence is from creek beds on unknown geology (Barrett & Trudgen 2018). This means that the species is likely to occur, on the higher elevation areas of the project area rather than the stony plain and loamy drainage flats proximal to the Great Northern Highway.

There are 35 specimen records within the Western Australian Herbarium database, with collections recorded from locations extending over 200 kilometres from Karijini National Park to 30 kilometres east of Newman, with an outlying record from Rudall River National (DBCA 2021c). *Triodia* sp. Mt. Ella (M.E Trudgen 12739) is considered to be geographically restricted and uncommon, but unlikely to be rare (Trudgen & Casson 1998).

The species was not recorded during the survey, however, was ranked as likely to occur, on the higher elevation areas of the project area, which fell outside of the targeted survey area. In the field, *Triodia* sp.

Mt. Ella (M.E Trudgen 12739) can be separated from co-occurring species by its spreading form, extremely resinous surfaces and very strong smell of resin (Barrett & Trudgen 2018).

5.2.10 Triodia sp. Karijini (S. van Leeuwen 4111) (Priority 1)

Triodia sp. Karijini (S. van Leeuwen 4111) is a wispy perennial hummock grass to 50–100 centimetres high, non-resinous (DBCA 2021c). *Triodia karijini* belongs to the soft group, sharing the epistomatous (soft type) leaf blades (Barrett et al. 2017).

This taxon was recorded in 2011 four kilometres west of the project area, from a very steep hillslope of grey silty loam (DBCA 2021a) and has been recorded from BHP Billiton Iron Ore's Mudlark tenements (Onshore 2013b). All Western Australian Herbarium records are from high in the landscape; it occurs on or near outcropping ironstone, on summits or steep hillslopes of mountains (Barrett et al. 2017). The species has been recorded flowering recorded during the dry season (September), but most WA Herbarium records do not indicate flowering times (DBCA 2021c) .

There are 16 specimen records within the Western Australian Herbarium database, with collections sporadically recorded from over a 215 kilometre range from Brockman to Mt Robinson, (DBCA 2021c). Populations can be dense but are patchy and restricted to mountain tops and sides (Barrett et al. 2017).

The species was not recorded during the survey, and was ranked as "may potentially occur", on the higher elevation areas of the project area, which fell outside of the targeted survey.

Triodia sp. Karijini may be confused in the field with the common and widespread *Triodia melvillei* which flowers July-October. The latter species occurs within the range of *T. karijini* but can be distinguished by having prominently awned lemmas with midlobe 10–14 millimetres metre long (acute to sub-awned with midlobe 2.0–3.0 millimetre metres long in T*. karijini*), and resinous foliage (non-resinous in *T. karijini*). *Triodia melvillei* also usually occurs on red loam flats, and only rarely on rock on high mountains (Barrett et al. 2017). *Triodia melvillei* was recorded during the 2012 survey from quadrats across the project area (Rapallo 2012), however all flora surveys at Lamb Creek to date have occurred outside of the flowering periods of both species. Therefore *T.* sp. Karijini may potentially occur in the project area.

5.2.11 Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684) (Priority 1)

Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684) is a small annual herb to 30 centimetres recorded flowering post-wet (May) and during the dry season (July, September) This taxon has been recorded three kilometres south of the project area, west of the Great Northern Highway and locally this species has been recorded on the Coondewanna Flats (DBCA 2021a).

There are 17 specimen records within the Western Australian Herbarium database, with collections sporadically recorded from over a 280 kilometre range from Brockman to Newman. This species occurs in woodland to open forest of variety of mulga species and other acacias, or shrubland of acacias and other species, sometimes with eucalyptus, over diverse shrubland, often over open Triodia. Habitat is grassland mulga plain, floodplain, drainage, sandy-clay loam, (DBCA 2021c).

The species was not recorded during the survey, however, was ranked as likely to occur within the loamy plains of the project area, proximal to the Great Northern Highway. This species has been recorded as scattered occurrence in very low numbers across similar habitat in the broader locality. Therefore, if present, it would only occur in low number. The timing and conditions were suitable during the survey however due to its small size this taxon could have been overlooked.

5.3 Survey adequacy and limitations

5.3.1 Level of assessment and survey timing

Survey level and timing were as per client request. A targeted survey was initiated after a desktop review and 2012 survey results indicated a high potential for conservation significant flora occurring in the project area. The survey timing aligned with the recommended primary survey period for the Eremaean Botanical Province (EPA 2016b), and overlapped with the flowering period of the majority of flora taxa identified in the desktop as potential to occur in the survey area. The 2021 survey occurred over a smaller additional area (Table 1.1), and was specifically timed to record further individuals and populations of *Aristida lazaridis* in the area near the Great Northern Highway intersection (Appendix II).

5.3.2 Assessment against EPA technical guidance

The targeted flora survey was conducted in accordance with Environmental Protection Authority (EPA) *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* and aligned with criteria for a targeted survey (EPA 2016b). The EPA technical guidance does not specify recommended methods or survey intensity for targeted surveys. However, it describes traverses of appropriate spacing as a potential method. EPA criteria specific for a targeted survey, and an assessment of the survey against these criteria, is provided in Table 5.2 below.

Table 5.2 Assessment of the survey against EPA technical guidance

EPA (2016b) criteria for targeted flora surveys	Survey met EPA criterion	Details
Targeted surveys should be undertaken when the targeted flora and/or vegetation are most detectable and identifiable in the field, usually when in flower.	Yes	The survey was completed in April 2020 and May 2021 which in the Pilbara is the post-wet season. Out of the 18 taxa identified in the likelihood assessment as confirmed, likely to occur, and may occur in the Lamb Creek project area (section 4.1 and Appendix II) the greater majority (12) had flowering periods that overlapped with the survey periods of April and May. The survey did not overlap with the flowering period for *Eremophila* sp. Hamersley Range, but this taxon could be identified without flowers. Two other taxa were recorded flowering just outside the survey periods, and therefore could possibly flower in April and May because very few records were available. Only two taxa had flowering recorded in the dry season only. In summary, the survey timing was considered appropriate to capture the flowering time of the greater majority of potential flora taxa.
All potentially suitable habitats should be systematically searched	Yes for footprint V1 Partial for footprint V3 No for project area	The survey covered the entirety of the survey area, defined in section 1.3, and thus covered all potentially suitable habitats within. However, the survey area was based on footprint V1 which has now been superseded. The current footprint V3 extends outside of the survey area, with 236 hectares (36%) not surveyed. Based on the 2012 vegetation maps, potentially suitable habitat exists in the areas not covered by the targeted survey. The targeted survey only covered 869 hectares (40%) of the project area, and did not include all the available habitats within. The current project area includes a database record of *Acacia effusa* (Priority 3) which was not visited because it fell outside of the project area at the time of the survey.

EPA (2016b) criteria for targeted flora surveys	Survey met EPA criterion	Details
Sufficient resources should be allocated for field time	Yes	The entirety of the survey area was covered by systematic traverses spaced approximately 50 m apart. EPA guidance only provides recommendations on traverse spacing for the South West Botanical Province (10 m), stating that wider transect widths may be considered acceptable for other Botanical Provinces.
Where the habitat extends outside the survey area, the full extent of a population or community should be surveyed	Yes	*Aristida lazaridis* and *Rhagodia* sp. Hamersley were found to extend beyond the boundaries of the survey area, and mapped accordingly. Extent of the *A. lazaridis* population was mapped up until 1 km north-east of the survey area boundaries. It may extend further. Rhagodia sp. Hamersley was also mapped outside the 2020 survey area, however, the majority of these records subsequently fell within the expanded survey area boundaries searched in 2021. *Rhagodia* sp. Hamersley occurred as individual shrubs spaced widely apart across the 2021 survey area, rather than as patches / populations, hence mapping population boundaries was not applicable.

5.3.3 Survey limitations table

Table 5.3 Limitations of the targeted flora survey

Aspect	Limitation	Discussion
Availability of contextual information at a regional and local scale	No	Sufficient flora and vegetation information was available for the Hamersley subregion (of the Pilbara Bioregion) to place the project area in a regional context. At a local scale, sufficient (publicly available) flora and vegetation surveys have been completed in the vicinity of the project area. This is reflected in the DBCA TPFL and Western Australian Herbarium database results, which yielded over 700 conservation significant flora records within 60 km of the survey area. In addition, there has been a significant body of work completed at Mining Area C which is in close proximity to the Lamb Creek project.
Competency/experience of the team carrying out the survey, including experience in bioregion surveyed	No	Both the 2020 and 2021 surveys were completed by a team of experienced botanists. Individually, the botanists involved in the field survey and reporting work have between 7-20 years' experience completing flora and vegetation surveys throughout Western Australia and in the Pilbara. Sharnya Thomson-Yates is also an experienced botanical taxonomist.
Proportion of flora recorded and/or collected, any identification issues	No	The targeted survey was designed to record specific taxa. The survey timing for both survey periods was within the recommended period for the Eremaean botanical province, and the majority of the target taxa were found to be in flower, enabling a full and positive identification. *Eremophila* sp. hamersley, although not in flower during the survey, could be confidently identified from vegetative material. Based on desktop results the greater majority of the taxa rated as may occur to highly likely to occur in the survey area would have been in flower and readily identifiable during the survey.

Aspect	Limitation	Discussion
Was the appropriate area fully surveyed (effort and extent)	Yes	Survey intensity was considered adequate and appropriate for recording the presence and extent of conservation significant flora in the survey area defined prior to the 2020 and 2021 field surveys. However, this survey area was based on footprint V1 which has since changed. Footprint V3 was provided after the fieldwork has been completed, with 236 hectares (36%) of footprint V3 not covered by the targeted survey. The survey area only covered 869 hectares (40%) of the current project area, with the remaining 60% containing potential habitats for several (additional) conservation significant taxa. The desktop review and likelihood scores of potential conservation significant taxa, as presented in Appendix II, were determined based on field information available for those areas covered by surveys. The current project area contains a 27% portion that has never been surveyed, including a location that contains a DBCA record *of Acacia effusa* (Priority 3). Likelihood scores for the areas not visited by the field team are based on desktop information only.
Access restrictions within the survey area	No	The majority of the project area was accessible by helicopter and some areas were accessible by vehicle. The entirety of the survey area was covered on foot. There were no survey limitations due to access restrictions.
Survey timing, rainfall, season of survey	No	The two field surveys were completed in April 2020 and May 2021, which falls within the primary recommended timing for surveys in the Eremaean botanical province (EPA 2016b), and overlaps with the flowering period of the majority of flora taxa identified in the desktop as potential to occur (see also Table 5.2). The survey area experienced good rainfall over the months preceding both surveys, and nearly all the target taxa recorded were in flower. Overall, survey timing was deemed to be appropriate for the survey area and the region, and for the taxa targeted.
Disturbances that may have affected the results of the survey (e.g. fire, flooding, clearing)	No	The majority of the survey area has been affected by fire, however the purpose of the survey work was to record what is currently present in the project area. Some taxa are fire responders, or favour disturbed conditions.

5.4 Impacts and management

Development within the proposed footprint V3 has the potential to impact conservation significant flora and vegetation through:

- Direct removal of conservation significant flora and vegetation during clearing and earthworks;
- Alteration to the volume of surface water flows causing decline to sheet flow dependent vegetation drainage flats that contain priority flora;
- Increased weed species diversity and density.

5.4.1 Direct clearing

Footprint V3 impacts several priority flora species (Table 4.2). It is recommended that infrastructure be placed to avoid significant conservation flora where possible. Where populations cannot be avoided, as may be the case with *Aristida lazaridis* it is recommended that the infrastructure be placed to avoid the highest densities, provided surface flow is maintained (section 5.4.2).

Existing management strategies used by MRL at their surrounding mining operations such as internal ground disturbance approvals system are important tools for minimising direct clearing impacts and should be applied to the Lamb Creek Iron Ore Project.

5.4.2 Alteration to surface flow

Design of the haul road and mining development should consider surface water flow to minimise obstruction to seasonal overland water flows to the loamy drainage flats proximal to the Great Northern Highway that contain the priority species *Aristida lazaridis* and *Rhagodia* sp. Hamersley and the potential for *Themeda sp. Hamersley Station* (M.E. Trudgen 11431) and *Vittadinia* sp. Coondewanna Flats (S. van Leeuwen 4684).

5.4.3 Weeds

Increasing vehicular access combined with vegetation clearing for the project has the potential to introduce and/or spread weed species that can compete with native vegetation and reduce species diversity. Existing management strategies used by MRL at their surrounding mining operations are important tools for minimising potential impacts.

It is recommended that general and species-specific weed management, hygiene, and monitoring is conducted in accordance with MRL's existing weed management procedures. Management measures may include the following:

- Mobile machinery and equipment brought to site in a clean state;
- Regular inspections for the presence of weeds within areas of disturbance, particularly in high moisture environments such as the loamy drainage flats proximal to the Great Northern Highway and
- Seasonal weed control programmes to be implemented if necessary.

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7 Appendices

List of Appendices

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Appendix I Conservation codes for Australian flora

Threatened species under the Commonwealth EPBC Act

Threatened fauna and flora may be listed under Section 178 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in any one of the following categories:

EX Extinct

EW Extinct in the wild

CR Critically endangered

EN Endangered

VU Vulnerable

CD Conservation dependent

Conservation codes for Western Australian flora under the Western Australian *Biodiversity Conservation Act 2016*

Threatened, Extinct and Specially Protected fauna or flora are species which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such.

The *Wildlife Conservation (Specially Protected Fauna) Notice 2018* and the *Wildlife Conservation (Rare Flora) Notice 2018* have been transitioned under regulations 170, 171 and 172 of the *Biodiversity Conservation Regulations 2018* to be the lists of Threatened, Extinct and Specially Protected species under Part 2 of the *Biodiversity Conservation Act 2016*.

Categories of Threatened, Extinct and Specially Protected fauna and flora are:

Threatened species

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR Critically endangered species

Threatened species considered to be "facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines.

Published under **schedule 1** of the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN Endangered species

Threatened species considered to be "facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under **schedule 2** of the the *Wildlife Conservation (Rare Flora) Notice 2018 for endangered flora*.

VU Vulnerable species

Threatened species considered to be "facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines.

Published under **schedule 3** of the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

Priority species

Priority species are possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations. In this report, priority species are given the codes P1, P2, P3 and P4.

P1 Priority 1: Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2 Priority 2: Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3 Priority 3: Poorly-known species

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 Priority 4: Rare, Near Threatened and other species in need of monitoring

(a) **Rare**. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.

(b) **Near Threatened**. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Appendix II Flora desktop results: Conservation significant flora and likelihood assessment

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at Lamb Creek?	Distance to project area	Likelihood ranking
Acacia bromilowiana	P4	Tree or shrub to 12 m high	WAH and TPFL : High in landscape, Slope, cliff, gully, crest, summit , very steep	Red skeletal stony loam, orange-brown pebbly,gravel loam, laterite, banded ironstone, basalt. Rocky hills, breakaways, scree slopes, gorges, creek beds.	May, July, August	Yes but off footprint	Within 20 km	**Likely to occur**
Acacia daweana	P3	Shrub from 0.3- 2m.	WAH: Gentle slopes, Along diffuse drainage area where it leaves low rocky hills. Low shrubland with Triodia basedowii, Acacia bivenosa, A. validinervia and A. maitlandii.	Stony red loamy soils. Low rocky rises, along drainage lines	July-October	Yes	Not within 20km	Unlikely to occur
Acacia effusa	P3	Low, dense, spreading, somewhat viscid shrub, 0.3-1 m high.	WAH: Scree, gentle slope, footslope, creeklines, low iron stone hill, stony plain base of hills , skeletal soils, red brown, Red brown clay loam.	Stony red loam. Scree slopes of low ranges.	May-August	Yes	Recorded in project area in 2011	**Likely to occur**
Acacia subtiliformis	P3	Spindly, slender, erect shrub, to 3.5 m	WAH: Calcrete slope, rise, plain	On rocky calcrete plateau.	April-June	No	Within 20 km	Unlikely to occur
Adiantum capillus-veneris	P2	Perennial small herb from 0.1-0.2m. Frond 1-2 pinnate	WAH: In wet rocky crevices, associated with gorges or springs.	Moist sheleted sites in gorges and on cliff walls.	March, September	No	Not within 20km	Unlikely to occur
Amaranthus centralis	P3	Annual Herb	WAH: Tussock grassland of Themeda triandra, Eulalia aurea and Aristida inaequiglumis with open woodland of Eucalyptus victrix and Corymbia aspera over low open woodland of Corymbia aspera and Hakea lorea subsp. lorea over high open shrubland of Gossypium robi. Low in the landscape, alluvial flats, River banks, Mulga woodland[3]	no info	No info	Yes	Not within 20km	Unlikely to occur
Ampelopteris prolifera	P3	Perennial herb/fern to 4m	no info	Near water or in wet ground.	No info	No	Not within 20km	Unlikely to occur
Aristida jerichoensis var. subspinulifera	P3	Compactly tufted perennial, grass-like or herb, 0.3-0.8 m high	WAH: Plain or Flat, clay/loam. Often mulga woodlands or acacia shrublands over spinifex and/or tussock grassland.	Hardpan plains	May, July, September	Yes	Confirmed	**Confirmed**
Aristida lazaridis	P2	Tufted perennial, grass-like or herb, 0.4-1.5 m high.	WAH: Plain, clay /loam, drainage, slope; often mulga low open woodland with or without Eucalypts, over variety of shrubs and herbs, often over tussock grassland but sometimes with Triodia hummock grassland.	Sand or loam	April, May	Yes	Confirmed	**Confirmed**
Arthropodium vanleeuwenii	P2	Perennial herb 0.3 to nearly 1m.	WAH. Moderately steep facing slopes including banded and Brockman ironstone formations on red-brown, orange-brown loams and sandy loams. Low open woodland of Eucalyptus leucophloia subsp and Corymbia hamersleyana over hummock grassland of Triodia brizoides. Other tussock grassland species include Themeda triandra. Known from two small populations growing above 900 m on south-facing hillslopes of Brockman Iron Formation in the Pilbara bioregion of Western Australia. Associated vegetation includes Eucalyptus leucophloia subsp. leucophloia, Corymbia hamersleyana, Indigofera fractiflexa, Triodia spp. and Themeda triandra. Often found growing under the Triodia and occasionally under the Themeda, very rarely growing in the open. Flowering from mid- to late September. Fruiting from late September to mid-October[4]	No info	October	Yes but off footprint	Not within 20km	Unlikely to occur
Atriplex flabelliformis	P3	Monoecious, erect, rounded perennial, herb, to 0.35 m high.	WAH: Saline areas. Often salt tolerant shrublands, over low open heath.	Clay loam, loam. Saline flats or marshes.	No info	No	Not within 20km	Highly unlikely to occur

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at Lamb Creek?	Distance to project area	Likelihood ranking
Barbula ehrenbergii	P1	Moss	Moss. Shaded moist environment on rock face 1.A species of hydric environments [2]	No info	No info	No	Not within 20km	Highly unlikely to occur
Calotis squamigera	P1	Procumbent annual, herb, to 0.21 m high.	WAH: Flat. Red brown loam clay, Stony plain with sandy loam soil. Low woodland of Acacia aptaneura, over open tussock grassland of Aristida contorta and Chrysopogon fallax with high open shrubland of Acacia synchronicia and Psydrax latifolia.	Pebbly loam	July	Yes	Not within 20km	Unlikely to occur
Cladium procerum	P2	Densely tufted perennial, grass-like or herb (sedge), 2 m high.	WAH: Major creeklines , Eucalyptus camaldulensis and Melaleuca argentea open woodland	Perennial pools	July, October, November	No	Not within 20km	Highly unlikely to occur
Dampiera anonyma	P3	Multi-stemmed perennial herb, 0.5 - 1m. Blue purple flower	WAH: Hillside; rocky red ironstone.	Skeletal red-brown gravelly soil over banded ironstone, basalt, shale and Jaspilite. Hills, summits and upper slopes (>1000m)	June, July, September	No	Not within 20km	Unlikely to occur
Dampiera metallorum	P3	Rounded, multi-stemmed perennial, herb, to 0.5 m high.	WAH: Summit of hill, high in landscape, steep slope, skeletal red gritty soil over massive banded ironstone.	Skeletal red-brown gravelly soil over banded ironstone. Steep slopes, summits of hills.	April-October	Yes but off footprint	Not within 20km	Unlikely to occur
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)	P3	no info	WAH: Cracking clay	Spreading annual herb to 10 cm tall, with blue flowers in March; occurs on cracking clay on flat to gently undulating plains with large surface rock	March, May, July	No	Within 20 km	Unlikely to occur
Dysphania congestiflora	P3	no info	WAH: Saline floodplain. Recorded from the western side of Fortescue Marsh from flats on the margin and towards the centre of seasonally inundated flood plains and lake beds, on saline, deep, light-medium to heavy clay soils. A single collection has also been recorded from the Lyndon River in close proximity to Lake Macleod [5]	No info	June, July	No	Not within 20km	Highly unlikely to occur
Eleocharis papillosa	P3	Annual, herb.	WAH: Claypan low dune/berm on eastern edge of wetland.	Red clay over granite, open clay flats. Claypans.	November	No	Not within 20km	Unlikely to occur
Eragrostis crateriformis	P3	Annual, grass-like or herb, 0.17-0.42 m high	WAH: Drainage area / floodplain.	Clayey loam or clay. Creek banks, depressions.	January-July	Yes	Not within 20km	Unlikely to occur
Eragrostis sp. Erect spikelets (P.K. Latz 2122)	P3	Erect perennial grass-like or herb to 0.3 m high	WAH: Near samphire flat. Associated species: Goodenia omeriana, G. forrestii, Cullen cinereum, Scaevola spinescens, Acacia tetragonophylla, A. victoriae. Associated species: Halosarcia spp., Eragrostis falcata (mostly as first year plants), Nicotiana sp., Swainsona sp., Angianthus sp. Low calcrete platforms/rises [12]	No info	No	No	Not within 20km	Highly unlikely to occur
Eragrostis sp. Mt Robinson (S. van Leeuwen 4109)	P1	Tussock-forming perennial, grass-like or herb, to 0.3 m high	WAH and TPFL: Open mallee shrubland; Summit of hill, steep western slopes. Skeletal gritty soil. Massive banded Brockman Iron Formation.	Red-brown skeletal soils, ironstone. Steep slopes, summits.	September	No	Not within 20km	Unlikely to occur
Eremophila magnifica subsp. magnifica	P4	Shrub, 0.5-1.5 m high.	WAH: High in landscape, steep slopes, summits, gullies, skeletal red gritty soil over massive banded ironstone of the Brockman Iron Formation.	Skeletal soils over ironstone. Rocky screes.	June-November	Yes but off footprint	Within 20 km	**Likely to occur**
Eremophila magnifica subsp. velutina	P3	Shrub, 0.5-1.5 m high.	WAH: Summit of steep hill, high in landscape, steep slopes, rock screes and cliff faces, skeletal red stony soil over massive ironstone of the Brockman Iron Formation.	Skeletal soils over ironstone. Summits.	July-October	Yes but off footprint	Not within 20km	Unlikely to occur

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at Lamb Creek?	Distance to project area	Likelihood ranking
Eremophila pusilliflora	P2	Shrub to 0.5m	WAH: Low lying associated with drainage lines on red/brown clay loams and ironstone. Low open woodlands scattered with Corymbia hamersleyana and with Acacia aneura, A. inaequlatera, A. pyrifolia over hummock grasslands of T. wiseana, T. pungens and T. brizoides. TPFL: Low lying in valleys, gibber plains above drainage line with Goodenia over red clay loams. Open woodlands of Acacia aneura with Ptilotus exaltatus and Ptilotus helipteroides. Found on seasonally inundated alluvial plains between Turee Creek, Pingandy Creek and drainage systems leading into the Ashburton River, growing in red-brown sandy loam soils in open low shrubland with Acacia aneura, Ptilotus nobilis, Goodenia and Triodia species[6]	No info	April-September and after rainfall	Yes	Within 20 km	May potentially occur
Eremophila sp. Hamersley Range (K. Walker KW 136)	P3	no info	WAH: Rocky gullies and gorges. Steep rocky hill slopes and summits, high in the landscape	No info	June, August, September	Yes but off footprint	Confirmed	**Confirmed**
Eremophila sp. West Angelas (S. van Leeuwen 4068)	P1	no info	WAH: TPFL Summits and slopes of hills, high in the landscape.	No info	August, September	Yes but off footprint, infrequently recorded ain locality	Not within 20km	Unlikely to occur
Eremophila spongiocarpa	P3	Compact, succulent-leaved shrub, to 1 m high.	WAH and TPFL: Saline , Alluvial margin of marsh. Edge of marsh, saline flats, broad plain, floodplain, claypan, Slope of linear dune.	Weakly saline alluvial plain on margins of marsh.	May, August, September	No	Not within 20km	Unlikely to occur
Eremophila youngii subsp. lepidota	P4	Dense, spreading shrub, (0.2-)1-3 m high.	WAH: Mulga woodland or acacia shrublands. Can grow near salt marshes in combination with Atriplex and other chenopods.	Stony red sandy loam. Flats plains, floodplains, sometimes semi-saline, clay flats.	January-March or August, September	Yes	Not within 20km	Unlikely to occur
Euphorbia australis var. glabra	P3	Prostrate herb, 10cm	WAH: Vegetation dominated by Acacia aptaneura. Acacia aff. aneura (long, flat, recurved; F. .MR 35.3), (Eucalyptus xerothermica) low woodland over *Malvastrum americanum, Sida aff. fibulifera low open shrubland over Sporobolus australasicus scattered bunch grasses. Associated Species: Acacia tetragonophylla. Broad, flat plain; calcrete platform to west and major creekline to east. Flat, red brown loam.	Prostrate annual herb. Typically occurs on cracking clay and clay plains	No	Possible	Not within 20km	Unlikely to occur
Euphorbia clementii	P3	Erect herb to 0.6m	TPFL; Sparse low woodland over Senna spp. moderately dense low shrubland over Triodia spp. and other grasses. Rock (Laterite) and red sand. Occasional Eucalyptus leucophloia. TPFL Taxon has been recorded on plains and outwash slopes, and in minor drainage lines or areas of sheet flow. This taxon is typically a fire-responder (and relatively short-lived) and can be observed in large numbers in recently burnt areas. [7]	Gravelly hillsides, stony grounds	May-July	Yes, would be obvious but as is a big post fire coloniser	Not within 20km	Unlikely to occur
Euphorbia inappendiculata var. inappendiculata	P2	small prostrate, much branched annual herb	Acacia aptaneura dominated vegetation. Flat, red brown loam. Recorded in cracking claypans of red sandy clay at Miralga Creek [7]	No info	No info	Yes, infrequently recorded	Not within 20km	Unlikely to occur
Euphorbia inappendiculata var. queenslandica	P2	prostrate annual herb	WAH: Tussock grassland of Astrebla elymoides, Chrysopogon fallax and Urochloa occidentalis var. occidentalis with open herbs of Polymeria longifolia, with high open shrubland of Acacia synchronicia. Cracking clay soil, Gilgai plain.	No info	No info	No	Not within 20km	Unlikely to occur
Euphorbia stevenii	P3	Succulent perennial herb from 0.1-0.5	Gently sloping area to gently undulating. Soils include: Red-brown cracking clay with scattered pebbles and cobbles on the surface. Occurs with many grasses including Astrebla sp, Themeda sp and Aristida sp.	Clay, sandy soils	June	Yes, infrequently recorded in locality	Not within 20km	Unlikely to occur

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at Lamb Creek?	Distance to project area	Likelihood ranking
Fimbristylis sieberiana	P3	Shortly rhizomatous, tufted perennial, grass-like or herb (sedge), 0.25-0.6 m high.	WAH: Major drainage, edge of watercourse. With Eleocharis sp. Eucalyptus camaldulensis and Melaleuca argentea open woodland over Acacia pyrifolia var. pyrifolia; Acacia tumida var. pilbarensis and Clerodendrum tomentosum mid sparse shrubland over Cladium procerum and Cyperus vaginatus sedges and Cenchrus ciliaris. Woodland to forest of Eucalyptus camaldulensis and/or Melaleuca leucadendra and Acacia coriacea subsp. pendens over high shrubland.	Mud, skeletal soil pockets. Pool edges, sandstone cliffs.	May-August	No	Not within 20km	Unlikely to occur
Geijera salicifolia	P3	Tree from 1.5m-6m	WAH: Growing in flood area at base of gorge wall. Stony.	Skeletal soils, stony soils; Massive rock scree and gorges	September	N	Not within 20km	Unlikely to occur
Glycine falcata	P3	Mat-forming perennial, herb, to 0.2 m high	WAH: Sump, low in landscape. With Cullen and Vittadinia sp., Goodenia pascua and Bulbine pendula. Often low grassland or herbland with Acacia shrublands and hummock grassland, sometimes Eucalypts. Clay soils, cracking clays	Black clayey sand. Along drainage depressions in crabhole plains on river floodplains.		No	Within 20 km	Unlikely to occur
Gompholobium karijini	P2	Low shrub growing to 70 cm tall, with coarsely fibrous, grey bark.	Eucalyptus leucophloia subsp. leucophloia over Triodia sp. Triodia hummock grassland with scattered shrubs and trees on ironstone gravel 9 Breakaway habitats and associated rocky slopes, the top edge of mesas, broadly rocky and rugged upland habitats, and incised gullies/ rocky gullies of the upland areas' and 'mesa top habitat consisting of hill top, mesa top, and broad rolling hill habitats. [10]	Typically occurs on rocky crests and slopes of hill	January, August-September	Yes but rarely collected in locality	Not within 20km	Unlikely to occur
Goodenia lyrata	P3	Prostrate herb with lyrate leaves. Ephemeral	Broad drainage tract in hardpan plain. Mulga woodland. Mulga woodland or acacia shrublands, sometimes with E. victrix, over open shrubland, herbs.	Red sandy loam. Near claypan	May, August, October	No	Within 20 km	Unlikely to occur
Goodenia nuda	P4	Erect to ascending herb, to 0.5 m high.	WAH and TPFL : Variety of habitats	No info	March-August	Yes	Confirmed	**Confirmed**
Goodenia sp. East Pilbara (A.A. Mitchell PRP 727)	P3	Open, erect annual or biennial, herb, to 0.2 m high.	WAH and TPFL : Variety of habitats with calcrete , Grassland on crabhole clay flats.	Red-brown clay soil, calcrete pebbles. Low undulating plain, swampy plains.	March-May and after rainfall	No	Within 20 km	Unlikely to occur
Grevillea saxicola	P3	Tall shrub or tree	WAH: High in landscape, steep and undulating terrain, skeletal red-brown gritty soil over massive banded ironstone of the Brockman Iron Formation. Mulga woodlands over shrublands with Eremophilas and other species, over Scaevola. No mention of Triodia. Skeletal red-brown sandy loam on steep slopes, rocky hills and ridges, usually growing with Mulga 10	No info	February, March	No	Not within 20km	Unlikely to occur
Gymnanthera cunninghamii	P3	Erect shrub, 1-2 m high.	WAH: South facing ironstone scree slope adjacent to Weeli Wolli Creek.	Sandy soils on islands in river and creek channels	Year-round	No, very scattered distribution.	Not within 20km	Unlikely to occur
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	P2	Shrub to 3m.	Gorges and Gullies associated with ironstone (inc: Brockman ironstone) outcroppings and boulders. Soils include Red-brown loams amongst boulders. Rocky ground high in the landscape. Gullies and gorges. [10]	No info	No info	Yes but off footprint	Not within 20km	Unlikely to occur
Indigofera gilesii	P3	Shrub, to 1.5 m high.	WAH: Near summit of hill, high in landscape, skeletal red-brown stony soil over massive ironstone of the Brockman Iron Formation, Gorge / gully. Red brown skeletal. Continuous ironstone pebbles, Breakaway. Red dry soil.	Pebbly loam. Amongst boulders & outcrops, hills.	May, June, August	No	Within 20 km	May potentially occur

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at Lamb Creek?	Distance to project area	Likelihood ranking
Indigofera ixocarpa	P2	Shrub to 1m	WAH: Dry creekline. Ironstone rocks and loamy soil	Skeletal red soils over massive ironstone	May, June, August	Possible, very little info, infrequently recorded at locality	Not within 20km	Unlikely to occur
Iotasperma sessilifolium	P3	Erect herb	WAH: Sump, low in landscape, flat terrain, cracking red clay-loam.	Cracking clay, black loam. Edges of waterholes, plains.	September	N	Not within 20km	Highly unlikely to occur
Ipomoea racemigera	P2	Creeping annual, herb or climber.	WAH: Medium drainage line, fringing vegetation. Open forest of Eucalyptus camaldulensis and Melaleuca argentea	No info	June	N	Not within 20km	Unlikely to occur
Isotropis parviflora	P2	Shrub, 0.1 m high.	WAH: Stony plain, lower slopes, Hillcrest/upper slope.	Valley slope of ironstone plateaus, hill slopes and stony plains.	March-August	Yes	Within 20 km	**Likely to occur**
Kohautia australiensis	P2	Erect sparsely or much-branched annual, herb, 0.1-0.5 m high..	WAH: Calcrete plains, hills and rises	No info	March-May	No	Not within 20km	Unlikely to occur
Lepidium catapycnon	P4	Open, woody perennial, herb or shrub, 0.2-0.3 m high, stems zigzag.	Variety of vegetation types, typically with E. leucophloia over Acacias over Triodia. Strong habitat preference for steep upper breakaway slopes of mesa hills where it grows in skeletal light brown loam or sandy loam soils with a large proportion of loose rocks at the surface (50-100 percent) comprising a mixture of banded iron formation (BIF), banded chert and siltstone [11]	Skeletal soils. Hillsides.	May, June, August-November	No	Not within 20km	Unlikely to occur
Lindernia sp. Pilbara (M.N. Lyons & L. Lewis FV 1069)	P1	Annual or perennial herb, to 0.6 cm high	WAH: Claypan, low dune, edge of wetland.	No info	No info	No	Not within 20km	Unlikely to occur
Myriocephalus scalpellus	P1	Semi-erect herb, 0.03-0.08 m high.	WAH: At edge of claypan, In fringing vegetation.	Claypan	June	N	Not within 20km	Unlikely to occur
Nicotiana umbratica	P3	Erect, short-lived annual or perennial, herb, 0.3-0.7 m high. Fl. white, Apr to Jun. Shallow soils. Rocky outcrops.	no info	Shallow soils. Rocky outcrops.	April-June	Yes but off footprint	Not within 20km	Unlikely to occur
Olearia mucronata	P3	Densely branched, unpleasantly aromatic shrub (0.6-1m)	WAH: Steep upper slope, Soil: Red-brown scree boulders (ironstone), stones, base of south facing ironstone cliff, bordering a large scree slope.	Schistose hills along drainage channels	July-January	Yes but off footprint	Not within 20km	Unlikely to occur
Oxalis sp. Pilbara (M.E. Trudgen 12725)	P2	Small annual herb to 10 cm tall. Leaves green above, purple below	WAH: Gorge, gully, cliff	No info	May, July	Yes but off footprint	Not within 20km	Unlikely to occur
Pentalepis trichodesmoides subsp. Hispida	P2	Compact shrub to 1m	WAH: Summit of ridge, high in landscape, steep terrain, skeletal brown gritty soil over metabasaltic pillow lava, breccia; metatuff and minor cherts of the Bunjinah Formation, altitude ca. = 1020 m.	No info	August, September	No	Not within 20km	Unlikely to occur
Pilbara trudgenii	P3	Gnarled, aromatic shrub, to 1 m high.	WAH: Skeletal soil Summit, slopes, screes and cliffs. Brockman Iron Formation. With Eucalyptus leucophloia, E. gamophylla.	Skeletal, red stony soil over ironstone. Hill summits, steep slopes, screes, cliff faces.	July, September	Yes but off footprint	Not within 20km	Unlikely to occur

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at Lamb Creek?	Distance to project area	Likelihood ranking
Ptilotus mollis	P4	Compact, perennial shrub, to 0.5 m high, soft grey foliage.	WAH: Steep, rocky scree slope, laterite.	Stony hills and screes.	May, July, September	Yes	Not within 20km	Unlikely to occur
Rhagodia sp. Hamersley (M. Trudgen 17794)	P3	A spindly shrub growing to 2 m tall;	WAH: Mulga over mixed grassland. Emergent eucalypts and Triodia grassland. Very open mulga woodland over patchy mixed grasses. Floodplains, hardpan plains.	Red sandy clay loam plains and floodplains growing in association with Mulga (Acacia aneura)	March, May, September	Yes	Confirmed	**Confirmed**
Rhodanthe ascendens	P1	Ascending annual herb to 0.1m	WAH: Flat terrain, low in landscape, stony gibber with red cracking clay soils. Acacia aneura over Open Tussock Grass of Aristida spp.	Clay, roadside verge	August, September	Yes, infrequently collected	Not within 20km	Unlikely to occur
Rhynchosia bungarensis	P4	Compact, prostrate shrub, to 0.5 m high.	WAH: Creekline in a gorge	Pebbly, shingly coarse sand amongst boulders. Banks of flow line in the mouth of a gully in a valley wall.	November	No	Not within 20km	Unlikely to occur
Rostellularia adscendens var. latifolia	P3	Herb or shrub, 0.1-0.3 m high.	Acacia shrubland, sometimes with Eucalypts and Corymbias, over shrublands and herblands, over tussock grassland, or Triodia pungens hummock grassland.	Ironstone soils. Near creeks, rocky hills.	April, June, August		Confirmed	**Confirmed**
Samolus sp. Fortescue Marsh (A. Markey & R. Coppen FM 9702)	P1	Erect perennial herb, 0.3-1.0 m high	Margins of semi-permanent/permanent freshwater pools and the margins of samphire shrublands where creeks discharge freshwater following periods of high rainfall. [13]	No info	September	No	Not within 20km	Highly unlikely to occur
Scaevola sp. Hamersley Range basalts (S. van Leeuwen 3675)	P2	Shrub, to 1 m high	Steep slopes and screes. Growing in Regenerating Open Shrub Mallee of Eucalyptus kingsmillii and E. gamophylla over Dwarf Scrub C/D of Triumfetta sp, Corchorus sp, Hibiscus sp. and Acacia bivenosa over Open Hummock Grass of Triodia sp.	Skeletal, brown gritty soil over basalt. Summits of hills, steep hils.	July-August	No	Not within 20km	Unlikely to occur
Seringia exastia	CR	Shrub	Variety of mulga woodlands, sometimes with Eucalypts, over Acacia shrublands over Trioda pungens hummock grassland. Gully - washout. Red sand/laterite over sandstone.	No info	Year-round	Yes	Confirmed	**Confirmed**
Sida sp. Barlee Range (S. van Leeuwen 1642)	P3	Spreading shrub, to 0.5 m high.	WAH: Cliff line and scree slopes, gorge and steep gully	Skeletal red soils pockets. Steep slope.	August	Yes but off footprint	Not within 20km	Unlikely to occur
Sida sp. Hammersley Range basalts (K. Newbey 10692)	P3	Herb or shrub to 0.15m	Plants growing amongst rocks along the south side of a small ironstone breakaway. Low open woodland over hummock grassland of Triodia sp.	No info	May, August, October	Possible, very little info, infrequently recorded at locality	Not within 20km	Unlikely to occur
Solanum kentrocaule	P3	Perennial shrub to 2.5m	WAH: Near summit of hill, high in landscape, skeletal red-brown stony soil over massive ironstone of the Brockman Iron Formation, steep slopes, steep gullies	No info	May, July, August	No	Not within 20km	Unlikely to occur
Stackhousia clementii	P3	Dense broom-like perennial, herb, to 0.45 m high.	Acacia shrubland, sometimes with E. victrix, over Acacia sclerosperma. WAH: Clay loam plains, drainage plains	Skeletal soils. Sandstone hills.	April, September		Not within 20km	Unlikely to occur
Streptoglossa sp. Cracking clays (S. van Leeuwen et a. PBS 7353)	P3	Multi stemmed annual herb	Cracking clay, Acacia aneura var. longicarpa high open shrubland over Rhagodia eremaea scattered shrubs over Aristida latifolia and Astrebla elymoides scattered tussock grasses. Acacia aneura var. longicarpa 3-5 m < 1-5%; Rhagodia eremaea 0.4-1.2 m < 1%; Aristida latifolia.	No info	June	No	Not within 20km	Unlikely to occur
Stylidium weeliwolli	P3	Annual, herb, 0.1-0.25 m high, throat appendages 4, rod-shaped.	WAH: In damp soil in rock clefts of river bed, permanent pools.	Damp soil in rock clefts of river bed, permanent pools, edge of water courses	July-October	No	Not within 20km	Unlikely to occur

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at Lamb Creek?	Distance to project area	Likelihood ranking
Swainsona thompsoniana	P3	Prostrate annual herb to 10 cm high	WAH: Gently sloping area to gently undulating. Soil: Red-brown cracking clay with scattered pebbles and cobbles on the surface. Includes a flowline. Varies to areas of orange-brown cracking clay. Colluvial and alluvial gravels in fan or floodplain	No info	April, June, August	No	Not within 20km	Unlikely to occur
Synostemon hamersleyensis	P1	no info	WAH: Steep scree slope below banded iron formation cliff line with brown sandy loam soil. Steep hillslope, narrow gorge	No info	No info	Yes but off footprint	Not within 20km	Unlikely to occur
Tecticornia globulifera	P1	no info	WAH: Saline flats and marsh with light medium clay soil.	No info	No info	No	Not within 20km	Highly unlikely to occur
Tecticornia medusa	P3	no info	WAH: Growing on the lake bed a few 100 metres from the shoreline. Red clayey sand., Claypan	No info	November	No	Not within 20km	Highly unlikely to occur
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	P1	no info	Samphire flats.	No info	No info	No	Not within 20km	Highly unlikely to occur
Tetratheca fordiana	P2	Dwarf shrub; 0.3-0.4m	WAH: Vertical cliff faces amongst ironstone. Breakaways on Skeletal soils. Scattered low trees of Eucalyptus leucophloia, E. kingsmillii over scattered shrubs of Acacia hamersleyensis over open hummock grassland of Triodia epactia, Triodia wiseana and Triodia sp. Mt Ella (M.E. Trudgen 12739) with scattered tussock grasses of Eriachne mucronata.	Shale pocket amongst ironstone	April, May	No	Not within 20km	Unlikely to occur
Teucrium pilbaranum	P2	Upright shrub, 0.2 m high	WAH: High shrubland of Acacia sclerosperma, Acacia synchronicia, Eremophila longifolia and Acacia citrinoviridis over open herbs of Malvastrum americanum, Corchorus tridens and Cleome viscosa with low open woodland of Acacia citrinoviridis and Acacia aptaneura. Plain with brown clay loam soil.	Crab hole plain in a river floodplain, margin of calcrete table.	May, September	No	Not within 20km	Unlikely to occur
Themeda sp. Hamersley Station (M.E. Trudgen 11431)	P3	Tussocky perennial, grass-like or herb, 0.9-1.8 m high.	Variety of habitats including Mulga woodlands and mixed shrublands. Cracking clays, Red clay. Clay pan, grass plain.	Red clay. Clay pan, grass plain.	July-September	Yes	Within 20 km	**Likely to occur**
Thryptomene wittweri	VU	Spreading or rounded shrub from 0.5 - 1.5(2.1m)	WAH: Growing on tops of cliffs, ledges along cliff, in rock crevices and on boulder screes in shades southerly situations. Skeletal red stony soil. Ironstone. High in landscape, rocks on edge of cliff face and growing on face itself, S aspect, skeletal red-brown soil over massive banded ironstone of the Brockman Iron Formation, lots of rock and large sheets of ironstone on surface.	Skeletal red stony soils. Breakaways, stony creek beds.	April-August	No	Not within 20km	Unlikely to occur
Triodia basitricha	P3	no info	WAH Rehabilitation adjacent to Coondewanna airstrip, Mining Area C: Isolated Eucalyptus victrix and Corymbia hamersleyana, OR isolated Corymbia opaca trees over open to sparse Acacia aptaneura, A. bivenosa, A. pruinocarpa, and other shrubs, sometimes over Triodia, sometimes over low shrubs.	No info	No info	No	Within 20 km	Unlikely to occur
Triodia sp. Karijini (S. van Leeuwen 4111)	P1	no info	WAH: Triodia hummock grassland, variety of species including T. pungens, T. wiseana, often with emergent eucalypts and Corymbias, with Acacia shrublands. Very steep hillslope of grey silty loam.	No info	September	No	Within 20 km	May potentially occur
Triodia sp. Mt Ella (M.E. Trudgen 12739)	P3	Perennial, grass-like or herb, 0.4 m high.	WAH: Rocky creeklines, often grows together with Triodia pungens. With E. leucophloia and C. hamersleyana.	Light orange-brown, pebbly loam. Amongst rocks & outcrops, gully slopes.	February, March, September	Yes	Within 20 km	**Likely to occur**

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at Lamb Creek?	Distance to project area	Likelihood ranking
Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684)	P1	Annual daisy	WAH: Woodland to open forest of variety of mulga species and other acacias, OR shrubland of acacias and other species, sometimes with Eucalypts, over diverse shrubland, often over open Triodia grassland (T. pungens, T. melvillei). Plain, floodplain, drainage, sandy-clay loam,	No info	May, July, September	Yes	Within 20 km	**Likely to occur**
Xerochrysum boreale	P3	no info	WAH: Mulga, stony plain	No info	No info	Yes but rarely collected in locality	Not within 20km	Unlikely to occur

Footnotes:

Additional references to FloraBase and DBCA Threatened and Priority Flora Database (including WA Herbarium records)

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3 *ENV (2013) Christmas Creek Life of Mine Flora and Vegetation Assessment. Report prepared for FMG.*

4 *Dillon and McFarlane (2020). Leeuwen's Lily (Arthropodium vanleeuwenii: Asparagaceae), a remarkable new discovery from the Pilbara, Western Australia. Nuytsia 31: 265–269 https://florabase.dpaw.wa.gov.au/science/nuytsia/963.pdf*

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11 *Onshore Environmental (2013d) Targeted Survey for Lepidium catapycnon at Karijini National Park. Consultants report prepared for BHP Billiton Iron Ore."*

12 *Biologic (2020). Roy Hill East of Remote MAR Borefield Reconnaissance Flora and Vegetation Survey*

13 *Markey (2017). Floristic survey and mapping of the riparian and halophyte dominated communities on the Fortescue Marsh (Martuyitha), Western Australia. Technical Report · February 2017.*

Report No. J021158

Detailed flora and vegetation Survey of the Great Northern Highway intersection – Lamb Creek Project

Prepared for: Mineral Resources Limited
Date: 29 October 2021

Rapallo Environmental is a Western Australian consultancy with a strong reputation for technical excellence, client-focus and innovation. We build long-term alliances through outstanding delivery on a range of services to the resource sector, government and associated industries.

ENVIRONMENTAL
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RESOURCE MANAGEMENT

Report No. J021158
Detailed flora and vegetation survey of the Great Northern Highway Intersection – Lamb Creek project
Prepared for Mineral Resources Limited
29 October 2021

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Executive Summary

Mineral Resources Limited (MRL) commissioned Rapallo Environmental (Rapallo) to conduct a single-phase detailed vegetation and flora survey of the Great Northern Highway Intersection area associated with the Lamb Creek Project.

The Great Northern Highway intersection survey area (the survey area) comprised 254 hectares, beginning at the Great Northern Highway and extending north-westwards.

The objectives of the survey were to complete a desktop study and single-phase detailed flora and vegetation survey to map vegetation types, describe floristic diversity, verify desktop information, and assess whether the habitats of the survey area contain conservation significant flora and vegetation. Conservation significant flora taxa are presented in a separate targeted report (Rapallo 2021).

Methods

The single-phase flora and vegetation survey was completed by a team of three botanists over a period of six days. The work was completed in conjunction with a targeted conservation significant flora survey, which is reported on separately (Rapallo 2021).

A total of nineteen flora quadrats (50 by 50 meters) and one relevé were sampled. Additional flora taxa were recorded opportunistically while traversing between quadrats, and during the targeted survey. Preliminary vegetation boundaries were mapped in the field using aerial photographs and GPS waypoints with associated vegetation notes.

Desktop results

The desktop study returned 800 vouchered vascular plant taxa (species and subspecies) within 40 kilometres of the survey area, representing 252 genera and 79 families.

The desktop study found 86 conservation significant vascular flora taxa from within 60 kilometres of the Lamb Creek project area. A likelihood assessment was based on proximity of records and availability of habitat in the survey area. The assessment identified eleven taxa that were either confirmed, likely to occur, or may potentially occur in the survey area. Five of these were recorded during the survey.

The desktop study identified forty-eight introduced taxa (weeds). Nine of these taxa were recorded during the field survey.

The desktop returned one Priority Ecological Community (PEC) within 5 km of the survey area. This was subtype 2 of the Coolibah-Lignum Flats vegetation community, which is listed Priority 1. Results from previous surveys of the Lamb Creek project (Rapallo 2012) and the current field survey confirmed that the PEC does not occur in the survey area.

Field survey results

The survey recorded 187 flora taxa from 35 different families. These included 178 native taxa and nine introduced taxa (weeds: section 4.2.3). The most well-represented families were Poaceae (40 taxa), Fabaceae (37 taxa), and Malvaceae (16 taxa).

Of the 187 flora taxa recorded, 26 taxa (14%) were annuals, 18 (10%) were annual or short-lived perennial, 131 (70%) were perennials. Twelve taxa (6%) did not have life cycle information available.

Five conservation significant flora taxa were recorded from the survey area, as listed below. These are described and mapped in Rapallo (2021):

- *Aristida lazaridis*: Priority 2
- *Rhagodia* sp. Hamersley (M. Trudgen 17794): Priority 3
- *Goodenia nuda*: Priority 4
- *Seringia exastia*: Critically Endangered
- *Euphorbia* aff. ferdinandi: Potentially undescribed

The most commonly recorded taxon was *Aristida lazaridis*, which occurred throughout the survey area, within vegetation types A, B, C and D. *Seringia exastia*, although currently listed Critically Endangered, is listed as a result of a taxonomic revision and is likely to be de-listed in the future (DBCA communication received 24/08/2021)

Vegetation of the survey area

The vegetation across the survey area generally comprised low open woodland to isolated trees dominated by mulga (*Acacia aptaneura*) or other acacia species, over an understorey of either spinifex, tussock grasses, or a combination thereof, on a flat to gently sloping clay-loam plain. The dominant spinifex species was *Triodia pungens*, however patches dominated by *Triodia wiseana* occurred throughout the survey area, with some patches large enough to be mapped.

The vegetation of the survey area has been affected by fire, as visible on the ground during the survey, and supported by NAFI data which maps the entire survey area as having been burnt in 2015 (NAFI 2021). Disturbance notes taken during the survey indicated that fire killed between 5% and 90% of (tall) shrubs and trees in the area.

Vegetation condition across the survey area varied from Very Good to Degraded, with most of the quadrats ranked as Good (EPA 2016a: Table 2). The main reason for this ranking was fire.

Vegetation types

Vegetation types were identified and described through a combination of manual classification and statistical analysis using PATN software. Results of PATN matched well with manual classification.

Six vegetation types were mapped and described across the survey area:

- Vegetation type A – Low open *Eucalyptus gamophylla* woodland over *Triodia melvillei* and *T. pungens* on stony plain (39 ha)
- Vegetation type B – Mulga and acacia low open woodland over open tussock grassland on gently sloping (drainage) plain with variable rock cover (49 ha)
- Vegetation type C – Mulga and acacia low open woodland over open spinifex and tussock grassland on flat plain with medium rock cover (84 ha)
- Vegetation type D – Mulga, Hakea lorea, and *Eucalyptus xerothermica* low open woodland over closed tussock grassland on gently sloping clay-loam plain (no rocks) (51 ha)
- Vegetation type E – Low mulga woodland over sparse understorey on stony plain (9 ha)
- Vegetation type F – *Triodia wiseana* hummock grassland with emergent shrubs and low trees on gently sloping stony plain (4 ha)

Twenty hectares of the survey area was cleared, disturbed, contained roads, or contained regrowth or revegetation with native species. These areas did not represent a vegetation type.

Site selection and vegetation mapping was limited by the absence of a recent aerial photograph showing the current state of the vegetation within the survey area. The most recent aerials available were dated 2009 and 2013, which pre-dated the 2015 fire.

Not all vegetation types were represented adequately with quadrats, with vegetation types A and E only represented by a single quadrat, while vegetation type F was only sampled with a relevé. Additional quadrats are likely to improve vegetation community definition and mapping.

Of the six vegetation types identified in the survey area, four (A, B, C and D) were identified as being of moderate local significance due to the presence of *Aristida lazaridis* which is listed Priority 2.

1 Introduction

1.1 Project overview

The Lamb Creek Iron Ore Project comprises a proposed mining area and an associated haul road, located approximately 130 kilometres (km) north-west of Newman in the Pilbara region of Western Australia. The project occurs within retention licence R47/19 and miscellaneous licence 47/736.

Mineral Resources Limited (MRL) commissioned Rapallo Environmental (Rapallo) to conduct a single phase detailed vegetation and flora survey of the Great Northern Highway Intersection area associated with the Lamb Creek Project. The location and extent of the survey area is described in section 1.2.

The detailed vegetation and flora survey, in conjunction with a targeted survey, was completed by a team of three botanists over a period of six days, from 12th to 17th May 2021.

The targeted survey for conservation significant species is presented in (Rapallo 2021).

1.2 Survey Area

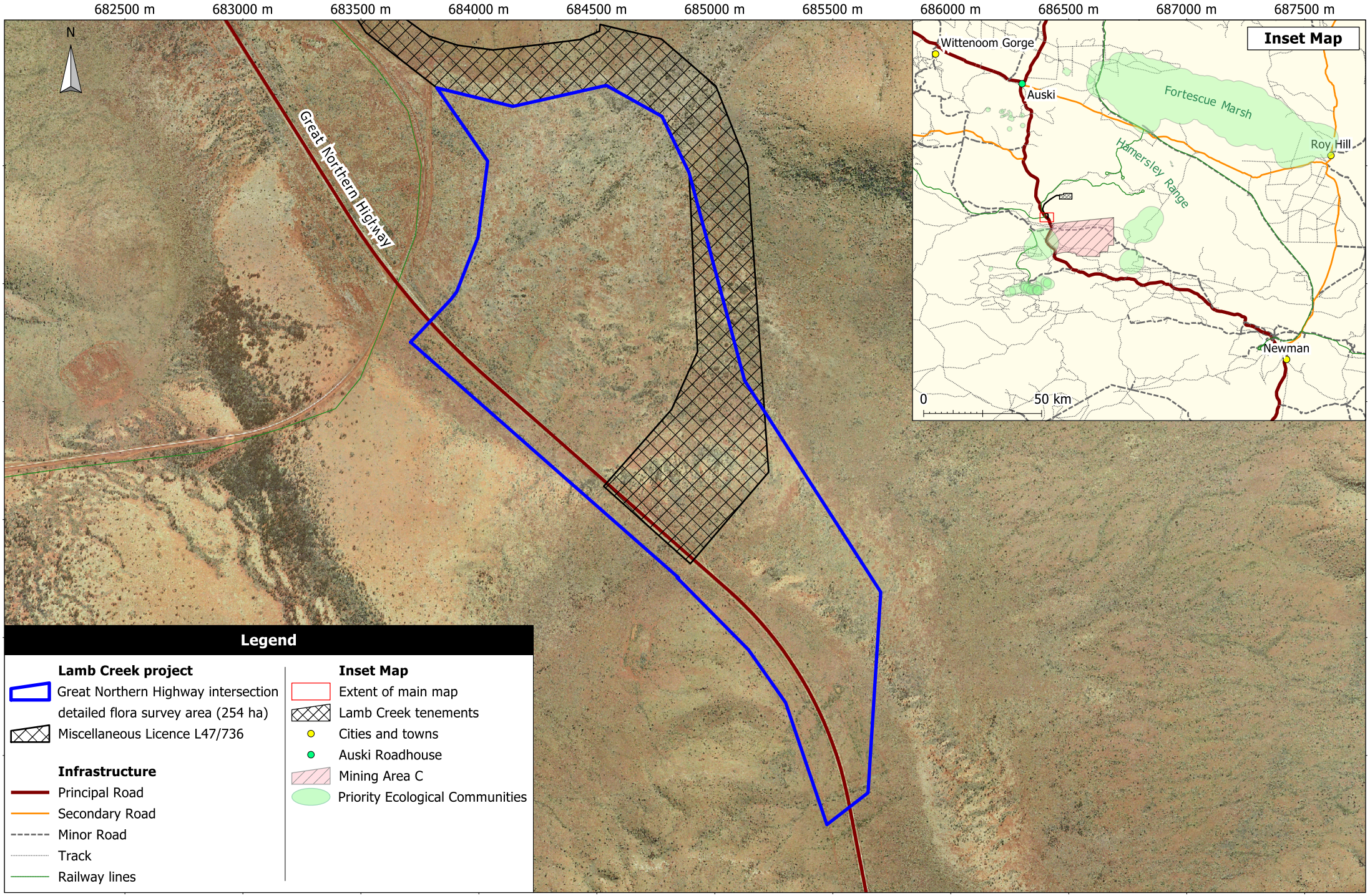
The Great Northern Highway intersection survey area comprised 254 hectares, beginning at the Great Northern Highway and extending north-westwards (Figure 1.1). Hereafter, this area will be referred to as the GNHI survey area, or simply the survey area.

The survey area enveloped various intersection options investigated for a proposed haul road connecting the Lamb Creek resource area with the highway. It was not bounded by a registered tenement at the time of survey, but enclosed the southern end of miscellaneous licence L47/736.

1.3 Scope and objectives

The objectives of the detailed flora and vegetation survey were to:

- Complete a desktop study to identify conservation significant flora and ecological communities that may occur in the survey area.
- Conduct a single-phase detailed flora and vegetation survey of the GNHI survey area, to map broad-scale vegetation types, describe floristic diversity, verify desktop information, and assess whether the habitats of the survey area contain conservation significant flora and vegetation.



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Great Northern Highway intersection
detailed flora survey (May 2021)

Original Size: A4 Scale: 1:20,000
Datum: MGA94 Zone 50
0 800 m

Figure 1.1

Location of the Lamb Creek project and delineation of the survey area

2 Regional context

2.1 Climate and weather

The Lamb Creek project is situated in the Hamersley subregion (PIL03) of the Pilbara IBRA region, which is part of the Eremaean province (Beard 1990). The climate of the Hamersley IBRA subregion (PIL03) is described as semi-desert tropical. The average rainfall is 300 mm per year, usually in summer cyclonic or thunderstorm events. Winter rain is not uncommon (Kendrick 2001). Cyclones develop off the north-west coast and often cross the coastline between Karratha and Port Hedland and move inland over the Fortescue Valley system towards Newman (Beard 1990).

The closest Bureau of Meteorology (BOM) weather station to the survey area is at Newman Airport (station number 007176), located 130 kilometres south-east of the survey area. This weather station has been recording rainfall data since 1971 and temperature data since 1996.

Data recorded at Newman Airport (BoM 2021) (Figure 2.1) shows a mean annual rainfall of 324.3 millimetres. Mean monthly rainfall is highest in February at 70.2 millimetres, and lowest in September at 3.7 millimetres. The hottest month is December with a mean maximum temperature of 39.3°C and a mean minimum temperature of 24.1°C. The annual wind records from 9am and 3pm show a dominant easterly throughout the day, with the strongest winds recorded in the morning of up to 30 kilometres/hour.

Evaporation rates are not recorded at the Newman Airport Weather Station. However, evaporation in the Central Pilbara Region is estimated to be between 2000 millimetres and 3500 millimetres per annum, which is approximately ten times greater than annual rainfall (Gardiner 2003). This disparity maintains a typically arid landscape, except for areas located in proximity to river systems and shallow groundwater resources.

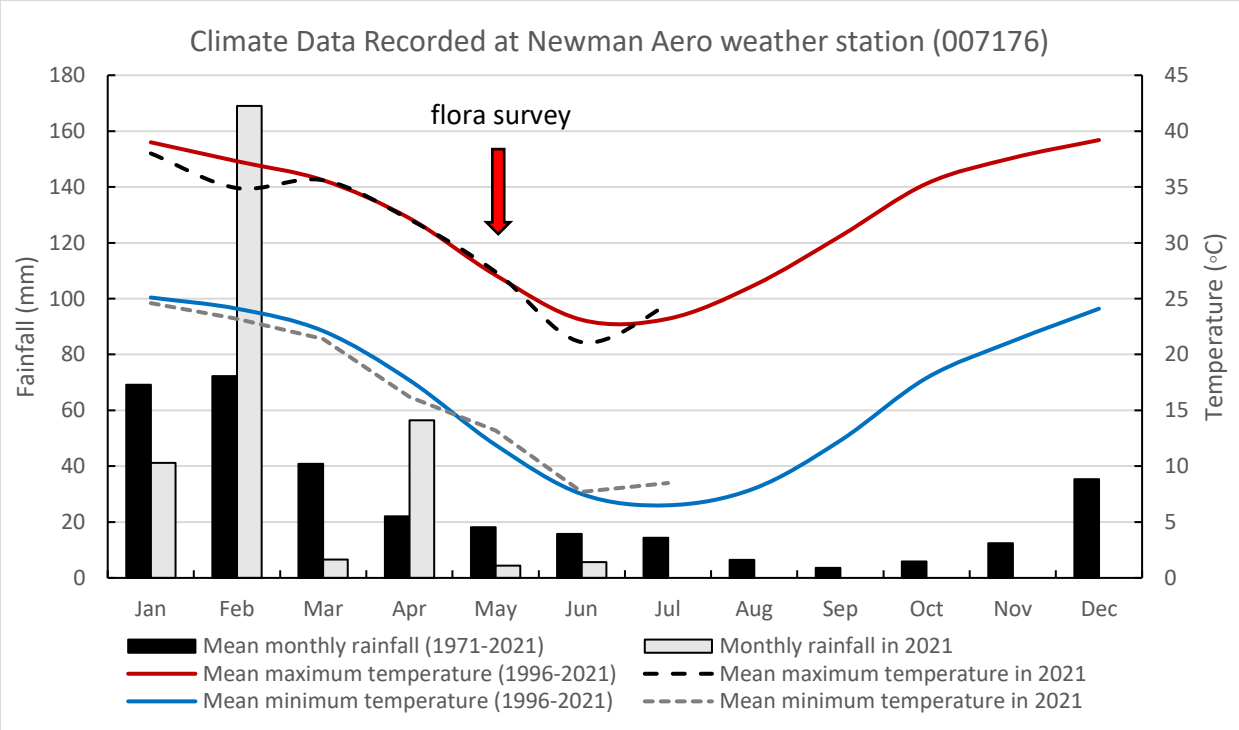


Figure 2.1 Long-term average monthly rainfall and maximum temperature, and 2021 monthly rainfall and maximum temperatures recorded at Newman Aero weather station

Rainfall over the three months preceding the survey was above average with substantial rainfall recorded in February 2021 (169 millimetres) and April (56.4 millimetres). Mean maximum and minimum temperatures during the survey (May 2021) were in line with the average, at respectively 27.4 °C during the day, and 13.2 °C at night.

2.2 Biogeography

2.2.1 IBRA bioregions

The bioregions of Australia are described in the Interim Biogeographic Regionalisation for Australia (IBRA) (Thackway & Cresswell 1995). Bioregions are large, geographically distinct areas of land with common characteristics such as geology, landform patterns, climate, ecological features and plant and animal communities. The latest version, IBRA7, classifies Australia's landscapes into 89 large geographically distinct bioregions and 419 subregions (Department of the Environment and Energy (DotEE) 2012).

The Lamb Creek project is located in the Hamersley (PIL3) subregion of the Pilbara bioregion. The Hamersley subregion comprises the southern section of the Pilbara Craton. It is a mountainous area of Proterozoic sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite). Geographically it is synonymous with the Hamersley vegetation system as described by Beard (1990). The dominant vegetation is mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* (snappy gum) over *Triodia brizoides* on skeletal soils of the ranges. Regional vegetation is further described in section 2.3. Drainage runs into either the Fortescue River to the north, the Ashburton river to the south, or the Robe river to the west (Kendrick 2001).

2.2.2 Land System

The land systems of the Pilbara region are classified according to similarities in landform, soil, vegetation, geology and geomorphology, following van Vreeswyk *et al.* (2004). Three land systems occur on the survey area, as listed and summarised in Table 2.1.

The majority of the survey area falls within the Boolgeeda land system, comprising stony slopes, plains, hills, and drainage floors with spinifex followed by the Wannamunna land system; characterised by hardpan plains and internal drainage tracts supporting mulga shrublands and woodlands (and occasionally eucalypt woodlands). A small portion of the Newman land system, comprising rugged mountains, ridges, and plateaux, intersects the southern edge of the survey area .

Table 2.1 Land systems of the survey area

Name	Land type	Description	Extent in survey area
Boolgeeda Land System	Stony plains with spinifex grasslands	Stony lower slopes, stony plains below hills, and narrow sub-parallel drainage floors. Supports hard and soft spinifex grasslands or mulga shrublands. Often occurs below hill systems such as Newman and Rocklea	182 ha
Wannamunna Land System	Wash plains on hardpan with mulga shrublands	Hardpan plains and internal drainage tracts supporting mulga shrubland and woodlands, and occasionally eucalypt woodlands. Depositional surfaces, level hardpan wash plains subject to overland sheet flow. Broad internal drainage flats receiving run-on from	69 ha

Name	Land type	Description	Extent in survey area
		adjacent hardpan surfaces; rare channelled tracts but mostly not organised through drainage. Relief up to 5 m.	
Newman Land System	Hills and ranges with spinifex grasslands	Rugged high mountains, ridges and plateaux with near vertical escarpments of jaspilite, chert and shale, supporting hard spinifex grasslands. Relief up to 400 m.	3 ha

2.2.3 Geology

The survey area is located in the south-west corner of the Roy Hill 1:250,000 Geological Survey Sheet (SF50-12: Thorne & Tyler 1997). The geology of the survey area is generally defined by the assemblage of prehnite, pumpellyite, epidote, actinolite. Basement rocks comprise the early Proterozoic Brockman Iron Formation and Weeli Wolli Formation. The Brockman Iron Formation consists of banded iron formation (BIF) and shale, while the Weeli Wolli formation consists of BIF separated by shale and siltstone bands, with younger dolerite sills that intersect the sedimentary sequence.

Regionally, the fresh basement rocks are typically overlain by weathered basement rocks which occur as lateritic and basal gravel and/or conglomerate deposits. These weathered deposits underlie early Tertiary Channel Iron Deposits (CID), which are the dominant economic-grade iron deposits in the region. The CID is typically overlain by younger alluvial and colluvial gravels and sediments (Thorne & Tyler 1997).

The survey area overlies the following geological units (Stewart *et al.* 2008), as described below.

- Quaternary Colluvium (Qrc): Colluvium, sheetwash, talus; gravel piedmonts and aprons over and around bedrock; clay-silt-sand with sheet and nodular kankar; alluvial and aeolian sand-silt-gravel in depressions and broad valleys in Canning Basin; local calcrete, reworked laterite.
- Brockman Iron Formation (Lchk): Banded iron-formation, chert, mudstone and siltstone of Palaeozoic age

2.2.4 Soils

The survey area is located within the Fortescue botanical district of the Pilbara region (Beard 1990). This region is mountainous, with soils ranging from shallow, stony sandy loams along slopes, to cracking clays, stripped hardpans and calcareous loams along active waterways (Beard 1990).

The landforms of the survey area are typical of the eastern Pilbara with rocky hills, small gorges, mostly seasonal watercourses and gravelly loam valleys. The soils are typified by hard red alkaline soils on plains, pediments and alluvial areas, while shallow, skeletal soils are common on ranges that rise to 1,250 metres (Beard 1990). The southern part of eastern Pilbara region is characterised by earthy loams underlain by red-brown hardpan (Beard 1975, 1990).

The survey area has two distinct soil and landform assemblages. The greater majority of the survey area is characterised as soil unit Fb3, while the southern tip of the survey area falls within soil unit Fa13. These are defined as follows (CSIRO Australia 2018):

- Fb3 – High-level valley plains set in extensive areas of unit Fa13. There are extensive areas of pisolitic limonite deposits: principal soils are deep earthy loams (Um5.52) along with small areas of (Gn2.12) soils.

- Fa13 – Ranges of banded jaspilite and chert along with shales, dolomites, and iron ore formations with some areas of ferruginous duricrust as well as occasional narrow winding valley plains and steeply dissected pediments. This unit is largely associated with the Hamersley and Ophthalmia Ranges. The soils are frequently stony and shallow and there are extensive areas without soil cover: chief soils are shallow stony earthy loams (Um5.51) along with some (Uc5.11) soils on the steeper slopes. Associated are (Dr2.33, Dr2.32) soils on the limited areas of dissected pediments, while (Um5.52) and (Uf6.71) soils occur on the valley plains.

2.2.5 Hydrology

Within the Hamersley (PIL3) subregion drainage runs into either the Fortescue River to the north, the Ashburton river to the south, or the Robe river to the west (Kendrick 2001). The Great Northern Highway intersection survey area falls within the Ashburton River Catchment. One mapped intermittent creek line enters the survey area from the north-east, with the much of the survey area characterised by non-incised drainage plain, receiving run-on from adjacent hills.

2.2.6 Topography

The survey area occurs within the central Hamersley Ranges which dominate the sub-region (Thorne & Tyler 1997). The topography of the region is highly mountainous comprising three smaller ranges: Packsaddle Range in the centre, Jirrpalpur Range in the south and the Hancock Range to the north. The survey area skirts the western edge of the Hancock Range, with the survey area predominantly characterised by plain and valley floor.

2.3 Regional vegetation

2.3.1 Botanical district

The survey area is located in the Fortescue botanical district of the Pilbara region (Beard 1990), which forms part of the Eremaean Botanical Province. The Pilbara region receives a slightly higher than average rainfall than most of the Eremaean Province, due to the prevalence of cyclones off the coast, but this is not enough to modify the essentially desert appearance of the plant cover (Beard 1990).

The Fortescue district consists predominantly of tree and shrub steppe communities with *Eucalyptus* trees, *Acacia* shrubs and spinifex grasses including *Triodia pungens* and *T. wiseana* (Beard, (1975). Mulga (species of the *Acacia aneura* complex) occurs in valleys and short-grass plains may be present on alluvial soils (Beard 1990).

2.3.2 Vegetation system association

Digital maps (shapefiles) of pre-European vegetation communities, based on state-wide mapping by J.S. Beard at 1:250,000 scale, are published by the Department of Primary Industries and Regional Development (Beard 2018).

Vegetation of the Hamersley (PIL3) IBRA subregion is generally low Mulga woodland over bunch grasses on fine textured soils in the valleys with snappy gums (*Eucalyptus leucophloia*) over *Triodia brizoides* on skeletal soils of the ranges (Kendrick 2001). The mountain tops and gorges of the Hamersley subregion provide refugia for humidophile and/or fire intolerant flora, and support a diversity of range-restricted species (Kendrick 2001).

(Beard, (1975) mapped the vegetation system-associations of the survey area as Hamersley 18: Low woodland of Acacia aneura, and Hamersley 82: Hummock-grass (*Triodia wiseana*) steppe with irregularly scattered *Eucalyptus brevifolia* trees; and Hamersley 18: Low woodland of *Acacia aneura* (Table 2.2).

Table 2.2 Pre-European vegetation within the survey area

Beard Vegetation System and Association	Extent in survey area	Total current extent in Australia (1)	Pre-European extent remaining (1)
Hamersley 18	209 ha	575 852 ha	99.96
Hamersley 82	46 ha	2 157 841 ha	99.99

Footnotes: 1) Numbers from 2018 Statewide Vegetation Statistics (DBCA 2019)

Vegetation that is not a Threatened or Priority Ecological Community may still be considered significant if it has a restricted distribution, or has experienced a degree of historical impact from threatening processes (EPA 2016b). Vegetation types retaining less than 30% of their pre-European extent generally experience accelerated species loss at an ecosystem level (EPA 2000) and are regarded as being 'vulnerable', while vegetation types retaining less than 10% of their original extent are regarded as being 'endangered' (EPA 2000, Shepherd *et al.* 2002, DER 2014a, 2016b).

As presented in Table 2.2, the Hamersley 18 and Hamersley 82 vegetation system-associations intersected by the survey area still have close to 100% of their original extent remaining, and would be considered 'least concern' (DER 2014a).

2.4 Reserves and environmentally sensitive areas

Environmentally sensitive areas (ESAs) are protected under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* and are selected for their environmental values at state or national levels. The survey area does not occur within an ESA, nor are there any ESAs within five kilometres of the survey area, as shown by the Department of Environment Regulation (DER) Native Vegetation Map Viewer (DER 2014b).

Karijini National Park is located to the west of the survey area, approximately 18 kilometres west of the intersection of the proposed haul road and the Great Northern Highway. Mungaroona Range Nature Reserve is approximately 100 kilometres northwest of the survey area. The nearest Nationally Important Wetland is the Fortescue Marsh located 52 km north of the survey area (AWE 2021).

Threatened Ecological Communities and Priority Ecological Communities are addressed in section 3.1.

3 Methods

3.1 Desktop study

The desktop study comprised a search of paid and free databases, and a review of available literature relevant to the survey area. The desktop served to compile a list of conservation significant flora taxa and vegetation communities with the potential to occur within the survey area. Database search parameters are outlined in Table 3.1 below. Conservation codes for Australian flora are detailed Appendix I.

Table 3.1 Flora database search parameters

Source of information	Search area
DBCA (2021a) Threatened and Priority Flora Database (including WA Herbarium database records)	60 km radius centred on the Lamb Creek project area
DBCA (2021b) Threatened and Priority Ecological Communities (TEC-PEC) database	50 km radius centred on the Lamb Creek project area
DBCA (2021c) NatureMap online database	40 km radius centred on the Lamb Creek project area
Department of Agriculture Water and the Environment (AWE) (2021) Protected Matters search tool	50 km radius centred on the Lamb Creek project area

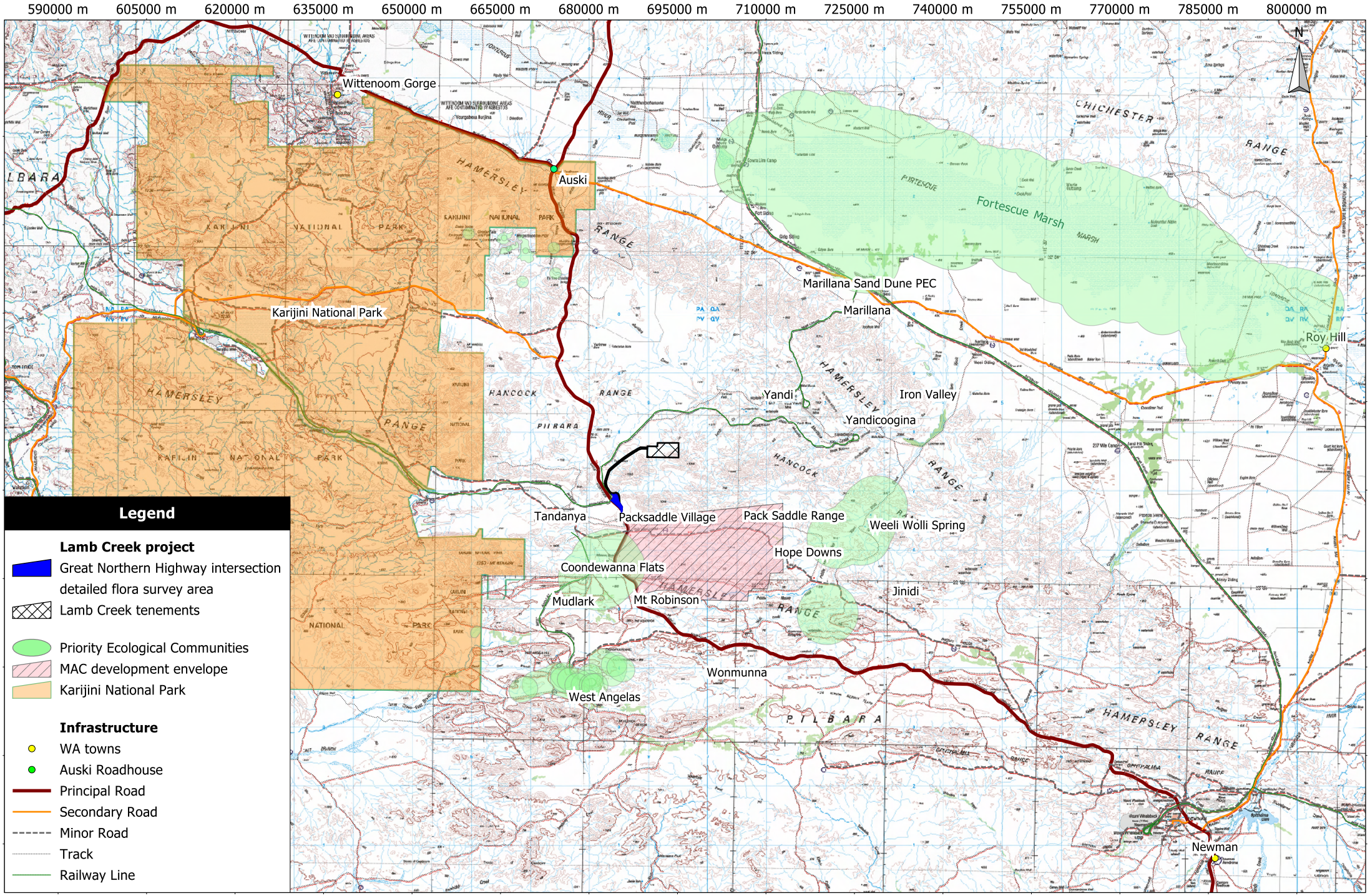
The region has had considerable flora survey effort over the last 20 years predominantly due to flora and vegetation surveys completed within, or partly within, the boundary of the Mining Area C (MAC) Development Envelope between 1997 and 2014. The MAC Development Envelope is approximately 1.3 kilometres south of the survey area (Figure 1.1: Inset Map). The surveys used as part of the literature review are listed in Appendix II and generally occurred within 50 kilometres of the survey area. Figure 3.1 provides regional context.

The conservation significant taxa identified in the desktop were reviewed for likelihood of occurrence within the GNHI survey area, based on the likelihood categories outlined in Table 3.2. Desktop results and likelihood assessment are presented in Appendix II.

Table 3.2 Likelihood assessment criteria

Rank	Criteria
Confirmed	1. The species was recorded on the survey area; or 2. The species was recorded directly adjacent (within 500 m) of the survey area from habitat continuing into the survey area.
Likely to occur	1. There are existing records of the species in close proximity to the survey area (within 20 km); and • the species is strongly linked to a specific habitat, which is present in the survey area; or • the species has more general habitat preferences, and suitable habitat is present.
May potentially occur	1. There are existing records of the species from the region (within 30 km), however: • the species is strongly linked to a specific habitat, of which only a small amount is present in the survey area; or • the species has more general habitat preferences, but only some suitable habitat is present. 2. There is suitable habitat in the survey area, but there are very few or only very old (1999 or before) records from the region.

Rank	Criteria
Unlikely to occur	1. The species is linked to a specific habitat, which is absent from the survey area; or 2. Suitable habitat is present, however there are no existing records of the species from the locality despite reasonable previous search effort in suitable habitat; or 3. There is some suitable habitat in the survey area, however the species is very infrequently recorded in the locality.
Highly unlikely to occur	1. The species is strongly linked to a specific habitat, which is absent from the survey area; and/or 2. The species' range is very restricted and would not include the survey area.



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Great Northern Highway intersection
detailed flora survey (May 2021)

Original Size: A4 Scale: 1:800,000
Datum: MGA94 Zone 50

0 25 km

Figure 3.1

Regional localities

3.2 Field survey

A single-phase detailed flora and vegetation survey was completed by a team of three botanists over a period of six days, from 12 to 17 May 2021. The survey was completed in conjunction with a targeted conservation significant flora survey, as reported in Rapallo (2021). The survey area was accessed by four-wheel drive vehicle using existing tracks and surveyed on foot.

The survey was carried out in a manner consistent with the following documents developed by the Western Australian Environmental Protection Authority (EPA):

- Environmental Protection Authority (EPA) *Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016a)

3.2.1 Quadrats

Nineteen 50 by 50 metre quadrats were sampled, as mapped in Figure 3.2. Quadrats were selected within all vegetation types discernible through aerial photography interpretation, topography, and pre-European vegetation and landform mapping, in combination with on-ground observations. It was noted while in the field that the aerial photograph available was dated, and no longer representative of the vegetation seen on the ground.

The following information was recorded at each quadrat:

- Site name, date, photographs, central GPS coordinate
- Landform, aspect, slope
- Soil type, soil colour
- Rock type, rock cover, rock size
- Vegetation condition rating (as per Table 2 in EPA 2016a)
- Disturbances noted in the area including estimated fire history
- Vascular plant species – including height and approximate foliage cover

3.2.2 Relevés

A single relevé (R01) was sampled within the only patch of *Triodia wiseana* that was large enough to sample (Figure 3.2). Patches dominated by this spinifex species were found throughout the survey area, but were generally too small to sample. Information recorded at the relevé was the same as that recorded for quadrats, but for an unbounded area.

3.2.3 Opportunistic records and field notes

Additional flora taxa were recorded opportunistically while traversing between quadrats, and during the targeted survey. The targeted component of the survey (as reported in Rapallo 2021) involved walking transects across approximately two-thirds of the detailed survey area, which enabled many additional flora records of both conservation significant and common flora taxa.

Preliminary vegetation boundaries were mapped in the field using aerial photographs and GPS waypoints with associated vegetation notes.

3.2.4 Specimen collection and identification

Flora specimens were collected and pressed and as per Western Australian Herbarium (2008) guidelines. Each specimen was assigned a unique field name and field number and was marked with a plant tag containing specimen and location information. All specimens were pressed and dried on the day of collection. Fragile material such as flowers, seed capsules, or very small specimens were sealed in paper bags which were marked as per the plant tags.

Taxonomic identification of flora specimens was completed by Sharnya Thomson-Yates (Table 3.3) with the use of the WA Herbarium reference collection, latest flora identification keys, and recent scientific publications. As per section 7.2 of EPA (2016a) and under flora licence conditions, suitable voucher specimens will be lodged with the Western Australian Herbarium.

3.2.5 Vegetation classification and mapping

Vegetation types of the survey area were classified and mapped using a combination of statistical analysis, manual classification, and field-based observations.

Quadrats were initially grouped into interim vegetation types based on quadrat data collected on species composition, vegetation structure, fire history, landform, soil, rock cover, and site photographs. Next, PATN software was used to group the quadrats based on a statistical measure of similarity of species presence and density. Finally, the grouping of quadrats produced by the PATN analysis was augmented by the interim vegetation types, quadrat data as listed above, and interpretation of aerial photography, in order to derive the final vegetation types.

3.2.5.1 PATN analysis procedure

Statistical analysis to support classification of vegetation types was carried out using PATN software (Belbin 2013). The analysis was completed using data from all 19 survey quadrats. Taxa that were alien were removed from the dataset, and the analysis was conducted using the 149 remaining taxa. The analysis was undertaken using the density code values from the quadrat occurrence records. A two-step association measure was used to classify flora taxa into 13 groups.

A further analysis was done using these groups, which were then refined by removing taxa with Kruskall Wallis values (KW values) lower than 1.0. This resulted in 14 taxa being removed from the analysis. The final association of sites used the Agglomerative Hierarchical Fusion classification strategy, the Flexible UPGMA classification technique and the Bray and Curtis association measure, with beta of -0.1, producing 6 groups of sites. PATN results are presented in section 4.2.5.1 and Figure 4.1.

3.2.5.2 Personnel and licensing

The personnel involved in the field survey, data entry and analysis, and the preparation of this report are listed in Table 3.3. The field survey was conducted under was conducted under Flora Taking (Biological Assessment) Licences FB62000183, FB6200067-3, and FB62000331 pursuant to Regulation 62 of the *Biodiversity Conservation Regulations 2018.* As part of the license conditions, a list of flora and fauna species recorded in the survey will be forwarded to the DBCA.

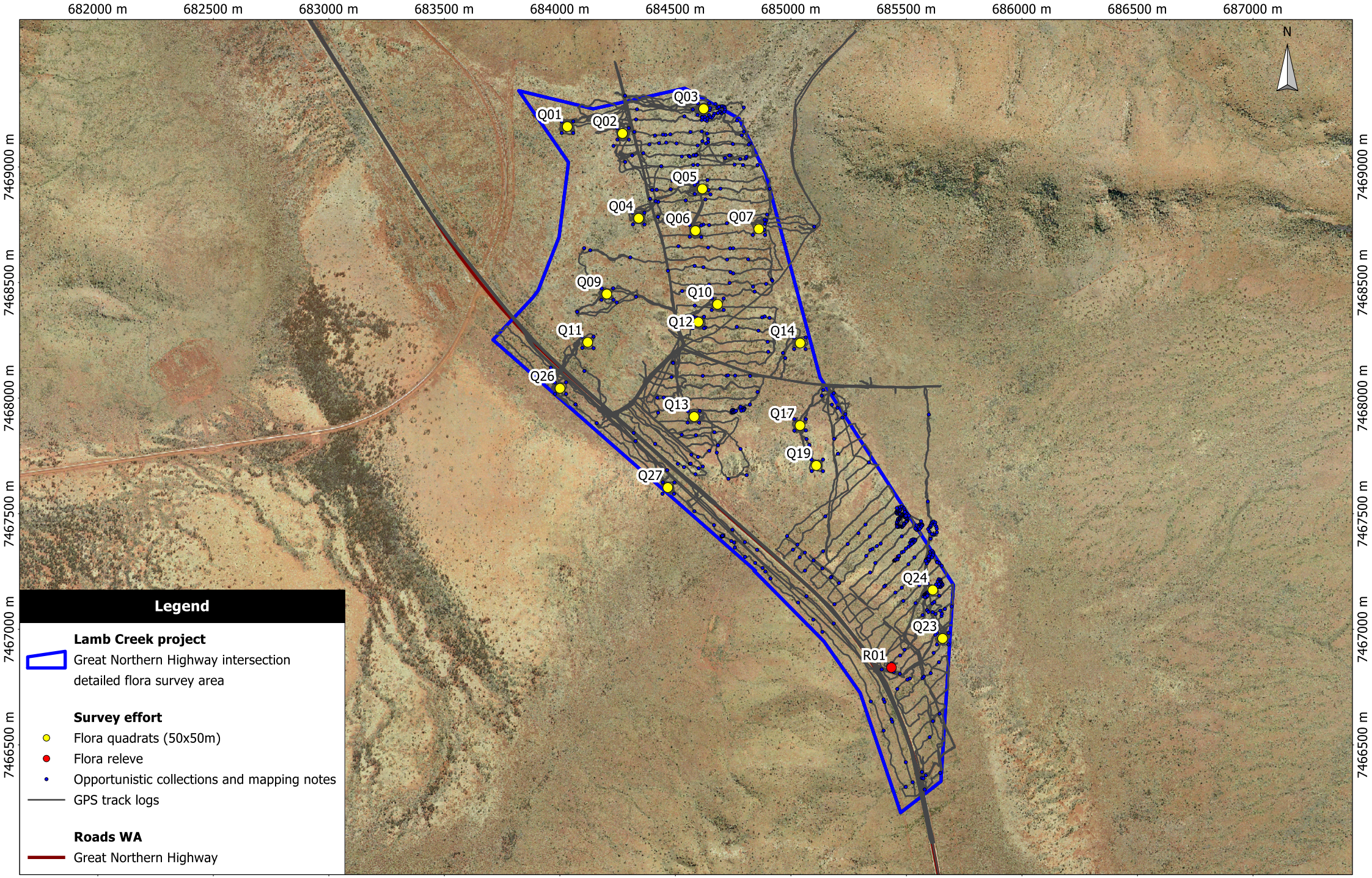
Table 3.3 Personnel

Name	Position	Field work	Taxonomy	Analysis	Reporting
Kate George	Principal Environmental Scientist				•
Marieke Weerheim	Senior Environmental Scientist			•	•
Sharnya Thomson-Yates[1]	Senior Botanist Botanical Taxonomist	•	•		
Linda Dalgliesh[2]	Senior Botanist	•			
Joshua Gilovitz[3]	Senior Botanist Senior Data Analyst	•		•	

Footnotes: 1 = License number FB62000183; 2 = License number FB6200067-3; 3 = License number FB62000331.

3.2.6 Nomenclature and conservation listing

Flora taxonomy and nomenclature follows FloraBase (Western Australian Herbarium 1998). FloraBase was also accessed to verify conservation codes, distribution records, habitat requirements, and flowering times. Conservation codes cited in this report are as per detailed Appendix I. Note that the conservation codes on FloraBase are the most up to date, whereas the DBCA Threatened (Declared Rare) and Priority Flora List (DBCA 2018) was last updated on 5 December 2018.



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Great Northern Highway intersection
detailed flora survey (May 2021)

Original Size: A4 Scale: 1:20,000
Datum: MGA94 Zone 50
0 800 m

Figure 3.2

Survey effort

4 Results and Discussion

4.1 Desktop results

The desktop study returned 800 vouchered vascular plant taxa (species and sub species) within 40 kilometres of the survey area, representing 252 genera and 79 families. Conservation significant flora, weeds, and conservation significant vegetation are discussed in sections 4.1.1, 4.1.2, and 4.1.3.

4.1.1 Conservation significant flora

The desktop study found 86 significant vascular flora taxa from within 60 kilometres of the Lamb Creek project area. An assessment was completed to estimate the likelihood of occurrence within the Great Northern Highway intersection area for each of these conservation taxa. Desktop results are summarised in Table 4.1 and complete search results and likelihood ranking presented in Appendix II.

Note that the likelihood scores presented in this report are different from those presented in the targeted report (Rapallo 2021), because the latter considered the Lamb Creek project as a whole, while the GNHI survey area covered a small subset of this area containing far fewer habitats. This led to a down-grading of likelihood scores for all taxa for which the GNHI survey area did not contain habitat.

Table 4.1 Summary of Lamb Creek desktop results for conservation significant taxa

Likelihood ranking	Status[1]						Total taxa
	VU[2]	CR[3]	P1	P2	P3	P4	
Confirmed	1			1	2	1	**5**
Likely to occur			1	1	3		**5**
May potentially occur				1			**1**
Unlikely to occur		1	7	11	32	6	**57**
Highly unlikely to occur			5	4	9		**18**
Grand Total	**1**	**1**	**13**	**18**	**46**	**7**	**86**

Footnotes:
1. P = Priority (administered by DBCA; Biodiversity Conservation Act 2016 (BC Act)), VU = Vulnerable, CR = Critically Endangered.
2. Listed under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and BC Act,
3. Listed BC Act only. Refer to Appendix I for detailed explanation of conservation codes.

Two species listed as vulnerable and critically endangered were returned via the threatened and priority flora database search (DBCA 2021a) and the protected matters search (AWE 2021).

- *Thryptomene wittweri* listed as vulnerable under the BC Act and EPBC Act was assessed as unlikely to occur due to habitat requirements and distance of records from the survey area (>20 kilometres). This species is not discussed further in this report.
- *Seringia exastia* listed as critically endangered under the BC Act is. However, this taxon is only listed as a result of a taxonomic revision and is likely to be delisted (section 4.2.2.

Most records were DBCA listed priority flora taxa and the greater majority (87%) were ranked as unlikely to highly unlikely to occur within the survey area (Appendix II). These taxa are not discussed further in this report. Five conservation significant taxa were confirmed to occur within the Great Northern Highway intersection area during the targeted flora survey (section 4.2.2). Conservation significant taxa recorded

in the Lamb Creek project area are discussed in detail in the targeted survey report (Rapallo 2021), with the discussion not repeated in this report.

4.1.2 Introduced flora (weeds)

4.1.2.1 Weed classification in Western Australia

The *Biosecurity and Agriculture Management Act 2007* (BAM Act) categorises the weeds of Western Australia into four main classifications:

- Declared Pests (under Section 22 of the Act);
- Permitted (under Section 11 of the Act);
- Prohibited (under Section 12 of the Act); and
- Permitted requiring a permit (Section 73, BAM Regulations 2013).

Under the BAM Act all declared plant pests are placed in one of three categories:

- C1 (Exclusion) — Pests will be assigned to this category if they are not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State;
- C2 (Eradication) — Pests will be assigned to this category if they are present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still feasible; and
- C3 (Management) — Pests will be assigned to this category if they are established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size.

Fifteen introduced taxa have been identified by DBCA as 'Priority Alerts' for the Pilbara region, including **Azadirachta indica, *Calotropis procera, *Chloris gayana, *Clitoria ternatea, *Cryptostegia grandiflora, *Cylindropuntia spp., *Euphorbia tirucalli, *Jatropha gossypifolia, *Lantana camara, *Moringa oleifera, *Ricinus communis, *Schinus molle var. areira, *Vachellia nilotica, *Washingtonia robusta and *Xanthium strumarium* (DPaW 2014). None of these taxa were recorded during the survey.

4.1.2.2 Weeds identified in the desktop study

The desktop study identified forty-nine introduced taxa from the vicinity of the survey area, as presented in Appendix III. The greater majority of weeds recorded in the desktop were listed as Permitted – s11, with one weed (**Argemone mexicana*) listed as Declared Pest (Prohibited) – s12 category C2 (Eradication) under the *Biosecurity and Agriculture Management Act 2007* (DAFWA 2021).

No Weeds of National Significance (WONS) were returned from the desktop search (Centre for Invasive Species Solutions 2021).

4.1.3 Conservation significant vegetation

The survey area is not located within a known TEC or PEC. The nearest known PEC is subtype 2 of the Coolibah-Lignum Flats vegetation community, with the edge of the buffer zone located less than five kilometres south of the survey area (DBCA 2021b) as shown in Figure 3.1.

The Coolibah-Lignum Flats vegetation complex is described as: Woodland or forest of *Eucalyptus victrix* (coolibah) over thicket of *Duma florulenta* (lignum) on red clays in run-on zones. Associated species include *Eriachne benthamii*, *Themeda triandra*, *Aristida latifolia*, *Eulalia aurea* and *Acacia aneura* (DBCA 2021d).

Three sub-types have been identified, of which sub-type 2 occurs near the project with the edge of the buffer zone less than five kilometres from the southern edge of the survey area (Figure 3.1).

1. Coolibah and mulga (*Acacia aneura*) woodland over lignum and tussock grasses on clay plains (Coondewanna Flats and Wanna Munna Flats) – Priority 3
2. Coolibah woodlands over lignum (*Duma florulenta*) over swamp wandiree (Lake Robinson is the only known occurrence) – Priority 1
3. Coolibah woodland over lignum and silky browntop (*Eulalia aurea*); two occurrences known on Mt Bruce Flats – Priority 1

A detailed flora and vegetation survey of the Lamb Creek project completed in 2012 (Rapallo 2012) concluded that the Coolibah-Lignum Flats PEC is unlikely to occur in the survey area because neither Coolibah (*E. victrix*) nor lignum species were recorded.

Onshore (2013b) reviewed vegetation mapping within Coodewanna Flats and Lake Robinson and confirmed fine-scale mapping for the two sub-types of the Coolibah-lignum Flats. Onshore (2013b) concluded that the Priority 1 sub-type 2 lies at the lowest point of the Coondewanna Flats associated with Lake Robinson, and the Priority 3(i) sub-type 1 occurs on alluvial flats (Coondewanna Flats) around Lake Robinson, to the south and found that the Great Northern Highway divides the PEC to the west from the MAC Development Envelope MAC. Based on the Onshore (2013b) mapping, the PEC occurs ca. 12 kilometres to the south of the survey area.

4.2 Field survey results

4.2.1 Flora taxa recorded during the survey

The survey recorded 187 flora taxa from 35 different families, as presented in Appendix IV. These included 178 native taxa and nine introduced taxa (weeds: section 4.2.3). The most well-represented families were Poaceae (40 taxa), Fabaceae (37 taxa), and Malvaceae (16 taxa).

Of the 187 flora taxa recorded, 26 taxa (14%) were annuals, 18 (10%) were annual or short-lived perennial, 131 (70%) were perennials. Twelve taxa (6%) did not have life cycle information available. The full list of taxa is presented in Appendix IV.

Five conservation significant flora taxa were recorded from the Great Northern Highway intersection area during the targeted. These are discussed in detail in Rapallo (2021) and briefly described in section 4.2.2.

A list of quadrat locations is presented in Appendix V and quadrat data is provided in Appendix VI.

4.2.2 Conservation significant flora

Five conservation significant flora taxa were recorded from the Great Northern Highway intersection area during both the detailed and targeted survey, as listed in Table 4.2. Conservation significant flora are described and mapped in detail in the targeted flora survey report (Rapallo 2021).

The desktop study identified eleven conservation significant flora taxa that were considered likely or highly likely to occur in the survey area, based on proximity of records and availability of habitats in the survey area (section 4.1.1, Appendix II).

The vegetation types of the survey area (section 4.2.5) all comprised varieties of acacia and/or mulga (*Acacia aptaneura*) woodland over either spinifex (*Triodia* spp.), mixed tussock grasses, or a combination thereof, located on a flat or gently sloping plain. The limited habitat information provided for the conservation significant taxa identified in the desktop did not allow a distinction in likelihood scores between the vegetation types recorded within the GNHI survey area. Hence, the likelihood assessment presented in Appendix II refers to the survey area as a whole.

Table 4.2 Conservation significant flora taxa recorded during the survey

Taxon	Conservation status	Locations recorded per vegetation type							
		A	B	C	D	E	F	X	O
Aristida lazaridis	Priority 2	9	28	38	196			1	31
Rhagodia sp. Hamersley (M. Trudgen 17794)	Priority 3		4	11					
Goodenia nuda	Priority 4				1				
Seringia exastia	Critically Endangered							2	
Euphorbia aff. *ferdinandi*	Potentially undescribed			3	1				

The most commonly recorded conservation significant taxon was *Aristida lazaridis* (Priority 2) which is species of grass recorded throughout vegetation types A and D. Numbers in Table 4.2 above refer to the number of locations this grass was recorded in 2021, not the total number of plants.

Seringia exastia is only listed as a results of a taxonomic revision, which merged a common and a restricted species. DBCA communications (24/08/2021) confirmed that the species is "considered common and widespread" and likely to be delisted in the future.

4.2.3 Introduced flora taxa (weeds)

Nine introduced flora taxa (weeds) were recorded during the survey, these are listed in Table 4.3 below. The weeds were recorded in five of the six vegetation types identified during the survey, as well as from disturbed areas and outside of the survey area. The greater majority of weed records were from vegetation type B which occurred on a gently sloping drainage plain intersected by minor creek lines.

Table 4.3 Weeds recorded during the survey

Taxon	WAOL status	Locations recorded per vegetation type							
		A	B	C	D	E	F	X	O
**Aerva javanica*	Permitted - s11		1						
**Bidens bipinnata*	Permitted - s11	1	6	2	6			1	
**Stylosanthes hamata*	Permitted - s11				1				
**Malvastrum americanum*	Permitted - s11		11	2				2	
**Cenchrus ciliaris*	Permitted - s11	1	25	1		1		1	1
**Cenchrus setiger*	Permitted - s11		10	1					1
**Melinis repens*	Permitted - s11	1							
**Portulaca oleracea*	Permitted - s11	1	2	5	1				
**Solanum lasiophyllum*	Permitted - s11	1	3	2					

The most frequently recorded weed was **Cenchrus ciliaris* (buffel grass) which was recorded from three quadrats as well as opportunistically across the survey area from four different vegetation types. Vegetation types A, B, and C were the most heavily affected, especially type B which supported seven different weed species recorded from a total of 58 locations.

4.2.4 Flora of other significance

Flora species, subspecies, varieties, hybrids, and ecotypes may be considered significant for reasons other than listing as a Threatened or Priority flora taxon. This may include, but is not limited to, range extensions, keystone species, relic status, local endemism and anomalous features (EPA 2004). Based on these features, *Euphorbia* aff. *ferdinandi* recorded during the survey may be considered flora of "other" significance, as it represents a potentially undescribed species with unknown and potentially restricted distribution range. This taxon is discussed in Rapallo (2021).

4.2.5 Vegetation of the survey area

The vegetation across the survey area generally comprised low open woodland to isolated trees dominated by mulga (*Acacia aptaneura*) or other acacia species, over an understorey of either spinifex, tussock grasses, or a combination thereof, on a flat to gently sloping clay-loam plain. The dominant spinifex species was *Triodia pungens*, however patches dominated by *Triodia wiseana* occurred throughout the southern part of the survey area, with some patches large enough to be mapped.

The vegetation of the survey area has been affected by fire, as visible on the ground during the survey, and supported by NAFI data which maps the entire survey area as having been burnt in 2015 (NAFI 2021). Disturbance notes taken during the survey indicated that fire killed between 5% and 90% of (tall) shrubs and trees in the area. Comparison of vegetation data recorded in 2012 over a subset of the current survey area , as well as direct field observations noting many burnt trees and shrubs, strongly indicate that the 2015 fire has altered vegetation structure and composition of the survey area. This was further supported by comparison of vegetation structure and boundaries visible on the ground, with those shown on the available aerial photographs of the survey aera, which were taken pre-fire (2009 and 2013).

The absence of a recent aerial photograph presented a limitation with respect to both survey planning and vegetation mapping, as the vegetation visible on the aerials no longer reflected the actual vegetation on the ground. Vegetation mapping therefore relied heavily on field notes, photographs, and associated GPS coordinates.

Vegetation condition across the survey area varied from Very Good to Degraded (EPA 2016a: Table 2), with the greater majority of the quadrats ranked as Good (Appendix VI).

4.2.5.1 PATN classification of quadrats

The PATN analysis results in six quadrat groups, as presented in Figure 4.1. The grouping derived by PATN aligned well with manual classification of the sites, as outlined in Table 4.4. PATN groups 5 and 6 were manually combined into vegetation type D, based on floristic composition, land form, and site photos.

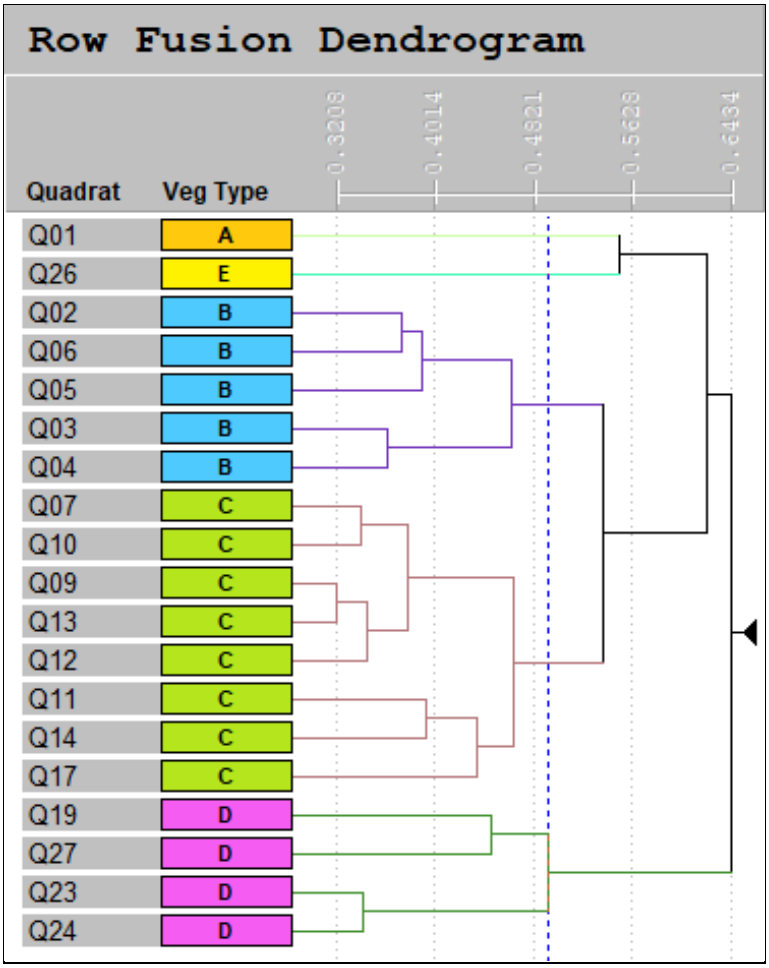


Figure 4.1 PATN dendrogram

Table 4.4 Comparison of PATN results with manual classification of vegetation types

PATN group	Vegetation types	Sites
1	Vegetation type A	Q01
2	Vegetation type E	Q26
3	Vegetation type B	Q02, Q03, Q04, Q05, Q06
4	Vegetation type C	Q07, Q09, Q10, Q11, Q12, Q13, Q14, Q17
5	Vegetation type D	Q19, Q27
6	Vegetation type D	Q23, Q24
n/a	Vegetation type F	R01

4.2.5.2 Vegetation types

Six vegetation types were mapped and described across the survey area, as summarised in Table 4.5 and mapped in Figure 4.2. The vegetation types of the survey area are described in detail in Table 4.6.

The vegetation types across the survey area were assessed as having moderate significance, based on criteria outlined in Appendix VII. This ranking was primarily due to the Priority 2 listed grass *Aristida lazaridis*, which was recorded in high numbers across the survey area, especially in vegetation type D, and also in types C, B, and A. Refer to Rapallo (Rapallo 2021) for further details on *Aristida lazaridis* populations within the survey area.

Table 4.5 Summary of vegetation types

Code	Vegetation type	Landform	Area (ha)
A	Low open *Eucalyptus gamophylla* woodland over *Triodia melvillei and T. pungens* on stony plain	Stony plain	39 ha
B	Mulga and acacia low open woodland over open tussock grassland on gently sloping (drainage) plain with variable rock cover	Gently sloping clay-loam plain with minor drainage channels and surface drainage	49 ha
C	Mulga and acacia low open woodland over open spinifex and tussock grassland on flat plain with medium rock cover	Clay-loam plain	84 ha
D	Mulga, *Hakea lorea*, and *Eucalyptus xerothermica* low open woodland over closed tussock grassland on gently sloping clay-loam plain (no rocks)	Gently sloping clay-loam plain without rocks	51 ha
E	Low mulga woodland over sparse understorey on stony plain	Flat stony plain	9 ha
F	*Triodia wiseana* hummock grassland with emergent shrubs and low trees on gently sloping stony plain	Gently sloping stony plain	4 ha
X	(not a vegetation type)	Disturbed / cleared / road	20 ha

Table 4.6 Vegetation types of the survey area

Type	Vegetation description	Photo
A	**Low open *Eucalyptus gamophylla* woodland over *Triodia melvillei* and *T. pungens* on stony plain** Description: *Eucalyptus gamophylla* (mallee) and *Corymbia deserticola* subsp. *deserticola* low open woodland; over *Acacia pruinocarpa*, *A. ancistrocarpa*, *A. atkinsiana* sparse shrubland; over isolated low shrubs; over isolated dwarf shrubs; over *Ptilotus calostachyus*, *Ptilotus obovatus*, *Trichodesma zeylanicum* var. *zeylanicum* sparse forbland; over *Triodia melvillei* and *Triodia pungens* sparse hummock grassland. Extent and landform: This vegetation type covers 38 hectares (15%) of the survey area. It occurs in the north-western part of the survey area, and along the Great Northern Highway. Vegetation type A falls primarily within the Boolgeeda land system. It occurs on a flat stony plain over a red-brown clay-loam plain. Rock cover is high, at approximately 90%. Quadrats: Q05 Vegetation condition: Good Disturbances: Tracks, clearing, recent fire, weeds Conservation significant flora: *Aristida lazaridis* (P2) Weeds: **Bidens bipinnata*, **Cenchrus ciliaris*, **Melinis repens*, **Portulaca oleracea*, **Solanum lasiophyllum* Significance: Local, Moderate	 **Site Q01** (Condition: Good)

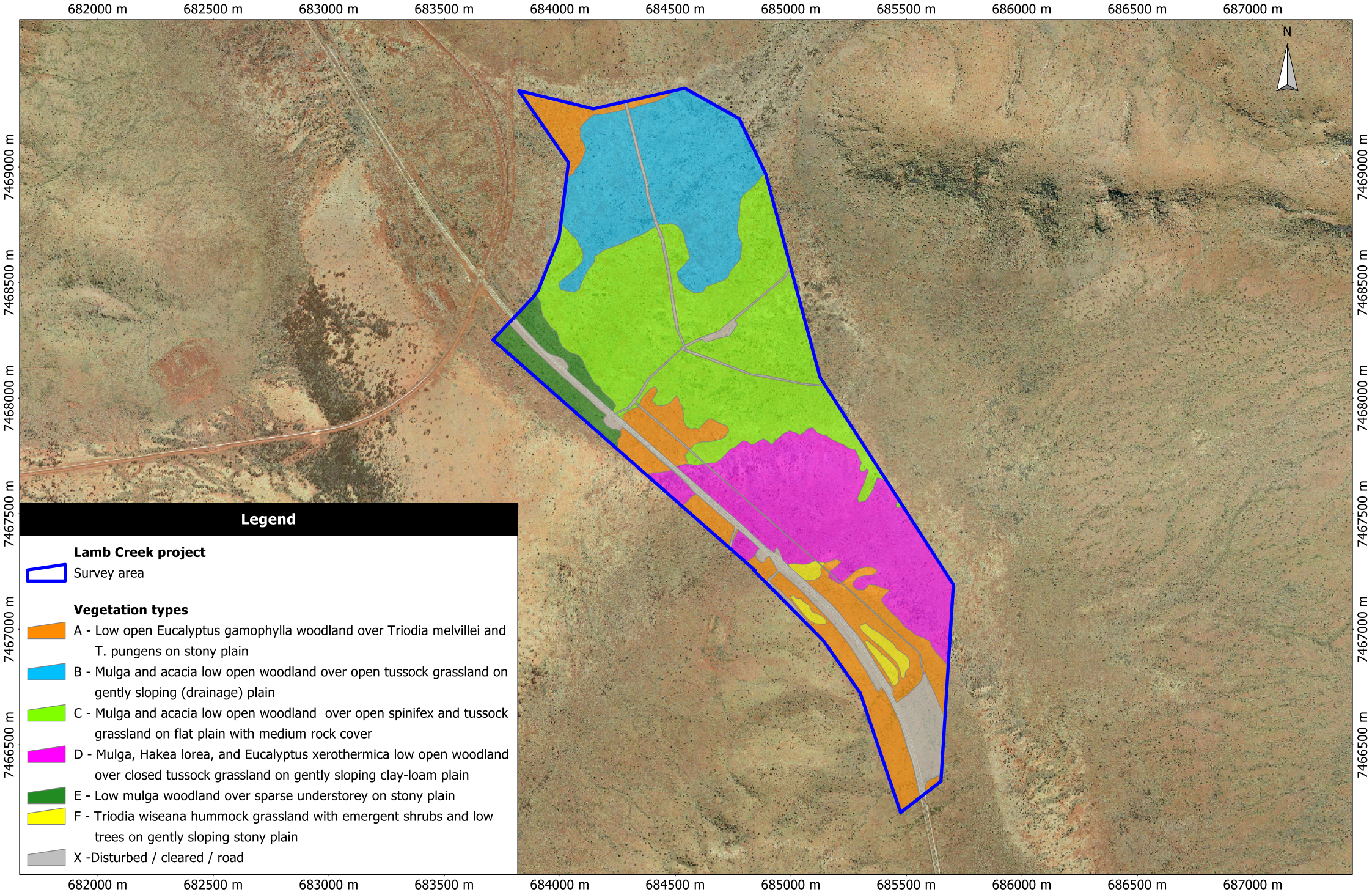
Type	Vegetation description	Photo
B	**Mulga and acacia low open woodland over open tussock grassland on gently sloping (drainage) plain with variable rock cover** Description: *Acacia aptaneura* and *A. pruinocarpa* low open woodland; over sparse tall shrubland including *Eremophila longifolia* and *Santalum lanceolatum*; over mixed isolated shrubs to sparse shrubland; over isolated forbs to open forbland dominated by *Pterocaulon sphacelatum*, *Ptilotus obovatus*, and *Arivela viscosa*; over sparse to medium-dense tussock grassland dominated by *Aristida inaequiglumis*, *A. contorta* and *Themeda triandra*. Extent and landform: Covers 49 hectares (19%) of the survey area. It occurs in the north of the survey area, on flat to gently sloping drainage plain, within the Boolgeeda land system. It is intersected by minor drainage lines, with mulga vegetation becoming denser along drainage lines. Soils are red-brown clay loam with generally low rock cover (2-10%) but with some areas of very high rock cover (90%). Quadrats: Q02, Q03, Q04, Q05, Q06 Vegetation condition: Good to Degraded Disturbances: Fire has killed on average 50% of trees and tall shrubs. Weeds. Conservation significant flora: *Aristida lazaridis* (P2), *Rhagodia* sp. Hamersley (P3) Weeds: **Aerva javanica*, **Bidens bipinnata*, **Malvastrum americanum*, **Cenchrus ciliaris*, **Cenchrus setiger*, **Portulaca oleracea*, **Solanum lasiophyllum*. Significance: Local, Moderate	 **Site Q04** (Condition: Good) **Site Q05** (Condition: Good)

Type	Vegetation description	Photo
C	**Mulga and acacia low open woodland over open spinifex and tussock grassland on flat plain with medium rock cover** Description: *Acacia aptaneura*, *A. pruinocarpa* low open woodland with occasional *Corymbia deserticola*; over isolated tall shrubs to sparse tall shrubland dominated by *Hakea lorea* subsp. *lorea*, *Acacia elachantha*, *A. aptaneura*, *A. pruinocarpa*, *Santalum lanceolatum*; over isolated medium to dwarf shrubs; over sparse forbland dominated by *Pterocaulon sphacelatum*, *Arivela viscosa*, *Ptilotus obovatus*; over *Triodia pungens* and *T. melvillei* open hummock grassland, with *Themeda triandra*, *Aristida inaequiglumis*, and *A. contorta* open tussock grassland. Extent and landform: The most common vegetation type, covering 84 hectares (33%) of the survey area. Flat clay-loam plain with medium (10-60%) rock cover. This vegetation type occurs primarily in the Boolgeeda land system, with a minor extent in the Wannamunna land system. Quadrats: Q07, Q09, Q10, Q11, Q12, Q13, Q14, Q17 Vegetation condition: Good (one quadrat rated Very Good) Disturbances: Fire has killed 10-50% of tall shrubs and trees. Conservation significant flora: *Aristida lazaridis* (P2), *Rhagodia* sp. Hamersley (P3) *Euphorbia* aff. *ferdinandi* (potentially undescribed) Weeds: **Bidens bipinnata*, **Malvastrum americanum*, **Cenchrus ciliaris*, **Cenchrus setiger*, **Portulaca oleracea*, **Solanum lasiophyllum* Significance: Local, Moderate	 **Site Q07** (Condition: Good) **Site Q17** (Condition: Good)

Type	Vegetation description	Photo
D	**Mulga, *Hakea lorea*, and *Eucalyptus xerothermica* low open woodland over closed tussock grassland on gently sloping clay-loam plain (no rocks)** Description: Low open woodland of *Acacia aptaneura*, *Hakea lorea* subsp. *lorea*, and *Eucalyptus xerothermica*; over isolated tall to dwarf shrubs; over sparse forbland to isolated forbs dominated by *Pterocaulon sphacelatum*; over closed tussock grassland dominated by *Themeda triandra*, with *Aristida inaequiglumis* and *A. contorta*. Extent and landform: Covers 51 hectares (20%) of the survey area, occurring only within the Wannamunna land system, with vegetation boundaries closely matching the land system boundaries. Flat clay-loam plain without rocks. Quadrats: Q19, Q23, Q24, Q27 Vegetation condition: Good Disturbances: Fire has killed on average 50% of trees and tall shrubs. Conservation significant flora: *Aristida lazaridis* (P2), *Goodenia nuda* (P4), *Euphorbia* aff. *ferdinandi* (potentially undescribed. Weeds: **Bidens bipinnata*, **Portulaca oleracea*, **Stylosanthes hamata* Significance: Local, Moderate	 **Site Q19** (Condition: Good) **Site Q23** (Condition: Good)

Type	Vegetation description	Photo
E	**Low mulga woodland over sparse understorey on stony plain** Description: *Acacia aptaneura* low mulga woodland; over *Acacia pachyacra* and *A. ?sibirica* sparse shrubland; over isolated dwarf shrubs; over isolated forbs and ferns; over *Digitaria ammophila*, *Chrysopogon fallax*, *Aristida inaequiglumis* sparse tussock grassland. Extent and landform: Covers 9 hectares (4% of the survey area). Flat stony plain with high (90%) rock cover on red-brown clay loam. Occurs in the western part of the survey area, along the Great Northern Highway, within the Boolgeeda land system. Quadrats: Q26 Vegetation condition: Good Disturbances: Fire, some evidence of clearing Conservation significant flora: None Weeds: **Cenchrus ciliaris* Significance: Negligible	 **Site Q26** (Condition: Good)
F	***Triodia wiseana* hummock grassland with emergent shrubs and low trees on gently sloping stony plain** Description: *Corymbia hamersleyana* and *Corymbia deserticola* subsp. *deserticola* isolated low trees; over isolated tall shrubs; over *Acacia ancistrocarpa* and mixed *Acacia* spp. sparse shrubland; over isolated dwarf shrubs; over isolated forbs; over *Triodia wiseana* hummock grassland. Extent and landform: Occurs across in patches throughout the survey area on a gentle sloping stony plain with high (80%) rock cover. Patches large enough to map cover a combined area of 4 hectares (1%) of the survey area, but the actual extent is greater than this. Quadrats: None. Represented only by relevé R01. Vegetation condition: Good Disturbances: Fire, berms, rubbish from highway, intersected by cleared areas. Conservation significant flora: None (patches too small) Weeds: None (patches too small) GDV indicator species: None Significance: Negligible	 **Site R01** (Condition: Good)

Type	Vegetation description	Photo
X	**Disturbed / cleared / road** Description: this is not a vegetation type. It includes roads, completely cleared or heavily disturbed areas, and areas with regrowth or revegetation of native species. It covers 20 hectares (8%) of the survey area. Conservation significant flora: *Seringia exastia* (CR), *Aristida lazaridis* (P2) Weeds: **Bidens bipinnata*, **Malvastrum americanum*, **Cenchrus ciliaris*	(no photo)
Vegetation Types were ranked for significance (High, Moderate, Low or Very Low) according to the criteria in Appendix VII		



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Great Northern Highway intersection
detailed flora survey (May 2021)

Original Size: A4 Scale: 1:20,000
Datum: MGA94 Zone 50
0 800 m

Figure 4.2

Vegetation types recorded in the survey area

4.2.6 Listed conservation significant vegetation

None of the vegetation types listed Table 4.5 and described in Table 4.6 aligned with listed PEC for the Pilbara region (DBCA 2021d). Neither Coolibah nor species of lignum were recorded in the survey area, supporting supports conclusions from (Rapallo 2012) and the desktop (section 4.1.3) that the Coolibah-Lignum flats PEC does not intersect the survey area.

4.2.7 Locally significant vegetation

Vegetation may be of significance for reasons other than a listing as a TEC or a PEC. This may include, although is not limited to, scarcity, combination of species, role as a refuge, restricted distribution and vegetation extent being below a threshold level (EPA 2004).

Local significance can be determined where a vegetation type is confined to a specialised habitat and/or landform that is not common in the local area or the vegetation types are supporting conservation significant species or groundwater dependent species.

Vegetation types retaining less than 30% of their pre-European extent generally experience accelerated species loss at an ecosystem level (EPA 2000) and are regarded as being 'vulnerable', while vegetation types retaining less than 10% of their original extent are regarded as being 'endangered' (EPA 2000, 2016b, Shepherd *et al.* 2002, DER 2014a).

The Hamersley 18 and Hamersley 82 vegetation system-associations intersected by the survey still have close to 100% of their original extent remaining, and would be considered 'least concern' (DER 2014a).

No vegetation considered to provide refugia for flora taxa (for example, vegetation associated with gorges or seepage areas), or otherwise providing an important function required to maintain ecological integrity of a significant ecosystem (as defined by EPA 2016a) was recorded in the survey area.

4.2.7.1 Mulga Vegetation on Floodplains

Mulga (species in the *Acacia aneura* complex) is widespread across arid and semi-arid regions of Western Australia, covering approximately 37 percent of the surface area of Western Australia (Fox 1980). Grove-intergrove Mulga communities of the eastern Hamersley range are considered as "ecosystems at risk" by (Kendrick 2001) because it is thought that sensitivity to disturbance is greatest at the northern limit mulga's distribution (Fox 1980), related to the dominant summer rainfall pattern of the Pilbara (Fox 1980, Kendrick 2001, Maslin & Reid 2012).

Kendrick (2001) lists a number of 'ecosystems at risk' including grove/inter-grove mulga of the eastern Hamersley range, and 'valley floor mulga' within the Hamersley IBRA subregion. Given the lack of detail provided by Kendrick, it is not possible to determine if the mulga vegetation at Lamb Creek match the mulga ecosystems at risk. However, vegetation types B, C, D and E (Table 4.6) do contain *Acacia aptaneura* as dominant upper storey on stony or clay plains and floodplains, which matches the broad description of 'valley floor mulga'.

Regionally, (Biota 2014) consider "valley floor mulga" to extend over a range of approximately 350 kilometres through the southern half of the Pilbara (Biota, unpublished data, cited in Biota 2014) and Onshore (2017) conclude that mulga vegetation of *Acacia catenulata* subsp. *occidentalis* and *Acacia aptaneura* that aligns with valley floor mulga' on the MAC Development Envelope is common on plains between Newman and Roy Hill (approximate range 150 kilometres).

Onshore (2017) concluded that seven other vegetation associations within BHP Billiton Iron Ore's consolidated vegetation mapping database support *Acacia catenulata* subsp. o*ccidentalis* and *Acacia aptaneura* as dominant upper storey components, and are considered to be closely affiliated with the mulga communities recorded on the lower stony plains of the MAC development area. As such Onshore (2017) does not considered the mulga communities within the MAC Development Area to be locally endemic or unique.

Neither the vegetation association nor related ecosystem of "valley floor mulga" has been nominated as a PEC by DBCA since identified as an ecosystem at risk by Kendrick (2001b) suggesting a low level of perceived conservation significance.

4.2.7.2 Vegetation supporting conservation significant species

Irrespective of whether the vegetation types of the survey area align with mulga vegetation as identified by (Kendrick (2001b) (section 4.2.7.1), vegetation types A, B, C and D are considered locally significant due to supporting the Priority 2 listed grass *Aristida lazaridis*, as well as other conservation significant species. For further information on conservation listed species refer to Rapallo (Rapallo 2021). Vegetation types A, B, C, and D are regarded as moderate significance, and types E and F as negligible significance, based on the criteria presented in Appendix VII,

4.2.8 Watercourses and groundwater dependent vegetation

No groundwater dependent taxa were recorded during the survey.

4.3 Survey adequacy and limitations

4.3.1 Level of assessment and survey timing

The flora survey was conducted in accordance with EPA (2016a) *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*, and conformed to requirements for a single-season detailed flora survey.

Survey level and timing were as per client request. Survey timing was primarily aimed to intercept the flowering period of several conservation significant taxa identified in the desktop and recorded during previous surveys of the Lamb Creek project. The survey period of May 2021 aligned with the recommended timing for vegetation surveys in the Eremaean Botanical Province, and fell within the primary survey period (EPA 2016a).

4.3.2 Survey completeness

To provide an indication of survey completeness of the detailed flora survey, the software program EstimateS (Version 9.1.0) (Colwell 2013) was used to generate species accumulation curves and to calculate predicted species richness. Species accumulation curves represent a theoretical model of the relationship between survey effort and species accumulation: as the number of quadrats increases, the accumulation of flora taxa decreases until the curve reaches an asymptote (Gotelli & Colwell 2011).

Since models can only be generated from data collected through systematic methods, the species accumulation curve and predicted species richness could only be calculated from quadrat data. Analyses were conducted on presence-absence data from the quadrats (152 taxa from 19 quadrats), using the default settings, with the following exceptions:

- Accumulations (runs) were randomised 1,000 times without replacement.
- Upper abundance limit for rare or infrequent species was set to 5.

The species accumulation curve is presented in Figure 4.3, plotting number of flora taxa (y-axis) against the number of quadrats surveyed (x-axis). Observed species richness is presented as a sample-based rarefaction curve, computing the mean expected number of flora taxa (S(est)) over all possible combinations of 1, 2, and up to 19 quadrats (Colwell *et al.* 2012). Predicted species richness was calculated by taking the average of the estimators ICE, Chao 2, Jackknife 1, and Jackknife 2.

Predicted species richness was 185 taxa, which indicates that 82% of the (estimated) total flora taxa present in the survey area were recorded in the quadrats. This is reflected in the species accumulation curve, which after 19 quadrats is approaching an asymptote (Figure 4.3).

Opportunistic collections and relevé data yielded an additional 35 taxa not recorded in quadrats, hence the actual number of taxa recorded (187 taxa) exceeds the predicted total. Since predicted species richness calculated by EstimateS is based on quadrat data, and cannot take into account opportunistic and relevé records, the predicted number of 185 taxa appeared to be a slight underestimation of the actual species richness in the survey area.

The fact that 19% of the taxa recorded during the survey were from opportunistic collections rather than quadrats supports the observation that not all vegetation types of the survey area were adequately sampled (see Table 4.4, and section 4.3.3 and 4.3.4), with types A and E only represented by a single quadrat, and type F only sampled by a single relevé.

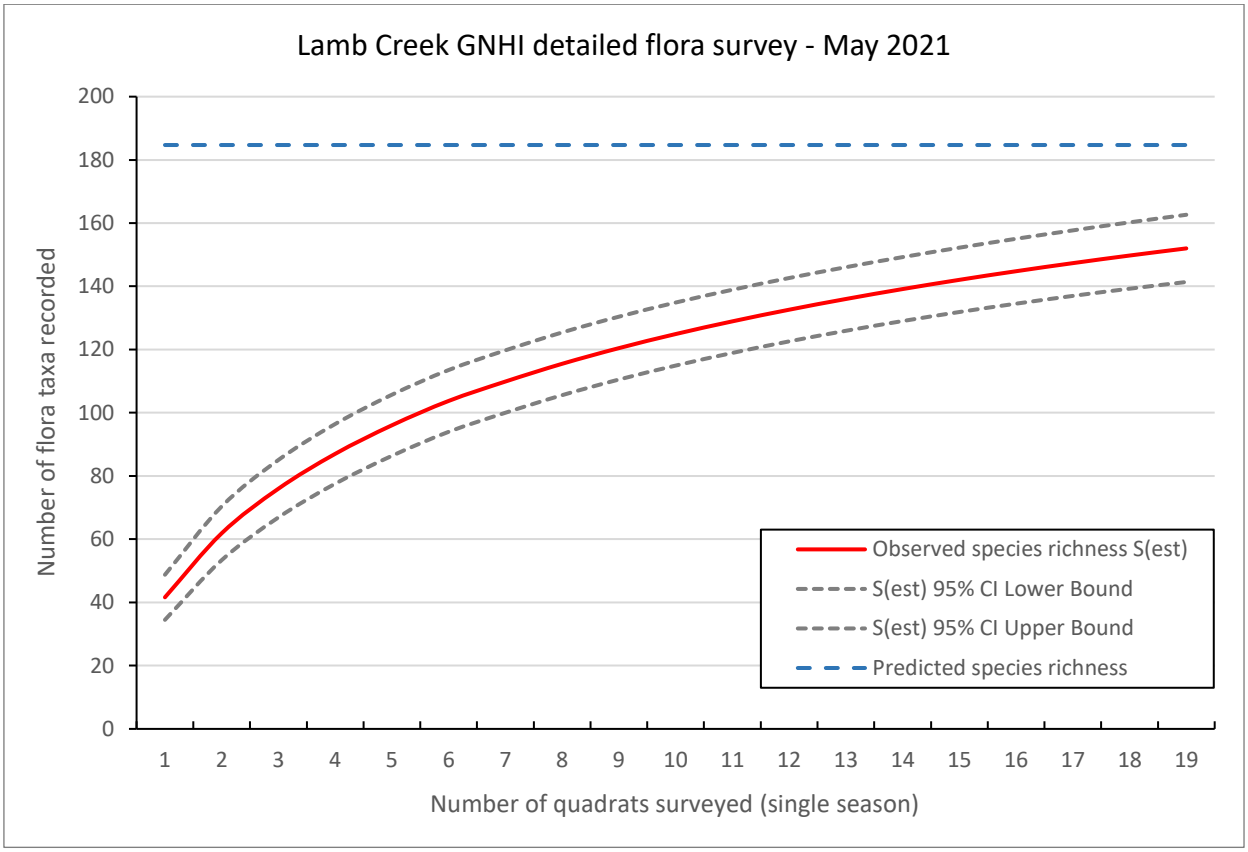


Figure 4.3 Species accumulation curve based on presence-absence quadrat data

In summary, although the survey effort appeared to have been adequate to sample the flora species richness present in the survey area at the time of survey, additional quadrats are expected to improve vegetation type classification and mapping.

4.3.3 Assessment against EPA technical guidance

The detailed flora and vegetation survey was conducted in accordance with Environmental Protection Authority (EPA) *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* and aligned with criteria for a detailed flora survey (EPA 2016a). An assessment of the survey against EPA criteria for detailed flora and vegetation surveys, and for quadrat sampling, is provided in Table 4.7.

Table 4.7 Assessment of the survey against EPA technical guidance

EPA (2016a) criteria for detailed flora surveys	Survey met EPA criterion	Details
Surveys should be conducted during optimal survey timing for the botanical province.	Yes	The survey was completed in May 2021 which in the Pilbara is the post-wet season and is the primary survey season for the Eremaean botanical province.
Adequate survey may necessitate multiple sampling events in the same season or in different seasons.	No	The survey was completed during a single season. Additional surveys during the supplementary survey period (after winter rainfall) are likely to yield additional taxa.
Where desktop results indicate that there is insufficient local and regional	Yes	Sufficient local and regional information is available.

EPA (2016a) criteria for detailed flora surveys	Survey met EPA criterion	Details
information, the survey must extend beyond the proposal area.		
Interpretation of vegetation boundaries and selection of sampling sites should be conducted with the use of aerial photography at 1:10,000 – 1:40,000 scale.	No	The aerial photograph available was of 1:80,000 scale and not recent enough to enable accurate interpretation of vegetation boundaries.
Quadrats should be placed at representative locations throughout the survey area considering landform, geology, elevation, slope, aspect, surface or groundwater expression, and soil type, as well vegetation structure, composition, and condition.	Yes	Quadrats were positioned at representative locations within preliminary vegetation types identified at the time of survey.
Quadrats should be positioned to avoid the boundary or transition zone between vegetation units and to minimise the influence of edge effects.	Yes	Quadrats were positioned away from vegetation boundaries.
Where possible, quadrats should be located in intact mature vegetation and in areas of best condition.	Yes	The entire survey area was affected by fire, and it was not possible to avoid these areas. Quadrats were positioned in the best quality representative areas within.
Survey design should consider disturbance events (such as fire)	Yes	Disturbances were present throughout the survey area and could not be avoided.
Quadrat size should be appropriate for the bioregion.	Yes	Quadrats were 50 by 50 metres, as is appropriate for the Pilbara.
The survey effort should be adequate to characterise the flora and vegetation within the survey area.	Partial	The species accumulation curve indicates that survey effort was adequate to sample the floristic diversity of the survey area, however additional quadrats are required to adequately describe and map vegetation types.
A minimum of three quadrats should be sampled in each vegetation unit. Quadrats within a widespread vegetation unit should be located to sample throughout its geographic range.	No	Six vegetation types were identified within the survey area. Of these, only three were sampled with three or more quadrats. Vegetation types A and E were sampled with a single quadrat only, while type F was only represented by a relevé. This occurred due to the quality and age of aerial photograph available to plan the survey.
Opportunistic collections, systematic transects and targeted inspections of potential habitat are required to verify that the survey area has been well characterised and important values identified.	Yes	Extensive opportunistic collections and mapping notes were taken during the detailed survey as well as the targeted survey.
Survey effort should be intensified in areas with unusual habitat or potential to provide habitat for conservation significant flora and or vegetation.	Yes	A targeted survey was completed to supplement the detailed survey results.

4.3.4 *Survey limitations table*

Table 4.8 Limitations of the targeted flora survey

Aspect	Limitation	Discussion
Availability of contextual information at a regional and local scale	No	Sufficient flora and vegetation information was available for the Hamersley subregion (of the Pilbara Bioregion) to place the survey area in a regional context. At a local scale, sufficient (publicly available) flora and vegetation surveys have been completed in the vicinity of the survey area. There has been a significant body of work completed at Mining Area C which is in close proximity to the Lamb Creek project.
Competency/experience of the team carrying out the survey, including experience in bioregion surveyed	No	The survey was completed by a team of senior botanists, each with between 10-20 years' experience completing flora and vegetation surveys throughout Western Australia. Sharnya Thomson-Yates is also an experienced botanical taxonomist.
Proportion of flora recorded and/or collected, any identification issues	No	There were no identification issues.
Was the appropriate area fully surveyed (effort and extent)	Partial	The entirety of the survey area was visited by the team. However, results of PATN analysis indicates that not all vegetation types were adequately sampled with at least three quadrats. The absence of a representative aerial photograph made it difficult to determine whether all vegetation types were adequately covered, and also limited vegetation mapping post-survey.
Access restrictions within the survey area	No	The entirety of the survey area was readily accessible by vehicle and on foot. There were no survey limitations due to access restrictions.
Survey timing, rainfall, season of survey	No	The field survey was completed in May 2021, which falls within the primary recommended timing for surveys in the Eremaean botanical province (EPA 2016a). The survey area experienced good rainfall over the months preceding both surveys, and this was reflected in the relatively high number of annuals and short-lived perennials present in the dataset, making up 23% of the dataset. Overall, survey timing was deemed to be appropriate for the survey area and the region.
Disturbances that may have affected the results of the survey (e.g. fire, flooding, clearing)	Yes	The survey area has been affected by a fire which burnt across the entirety of the survey area in 2015. No recent aerial photographs are available that show the current state of the survey area, and this limited both site selection before and during the field survey, and also the detail with which the vegetation boundaries could be mapped. Vegetation mapping relied heavily on mapping notes which did not always match vegetation boundaries visible on the aerial photographs which were taken in 2009 and 2013, pre-fire. The fire history of the survey area appears to have altered vegetation structure and composition of the vegetation types, which is supported by site photos and notes indicating between 5-90% of trees and tall shrubs had been killed by fire. The survey area was also affected by weeds, especially vegetation type B.

5 Conclusion

A single-season detailed flora and vegetation survey was completed across the Great Northern Highway intersection area of the Lamb Creek project over a period of six days, from 12 to 17 May 2021. The survey was completed in conjunction with a targeted conservation significant flora survey (Rapallo 2021). All preliminary vegetation types present in the survey area were visited and sampled through a total of 19 quadrats, one relevé, opportunistic collections, and mapping notes.

The detailed flora survey recorded 187 vascular flora taxa from 35 families, including 178 native species and nine introduced taxa. One Threatened flora taxon was recorded, *Seringia exastia*. This taxon is currently listed as Critically Endangered, but this ranking is due to a taxonomic revision. The DBCA (communications received 24/08/2021) considers the taxon common and widespread and likely to be delisted. Three Priority flora taxa were recorded, these were *Aristida lazaridis* (Priority 2), *Rhagodia* sp. Hamersley (Priority 3) and *Goodenia nuda* (Priority 4). One other taxon, *Euphorbia* aff. *ferdinandi*, is considered significant because it represents a potentially undescribed taxon.

The survey recorded nine weeds, none of which were Declared Pests. No Threatened or Priority Ecological Communities (TEC-PEC) were recorded from the survey area. None of the taxa recorded during the survey were indicative of groundwater dependent vegetation.

Six broad vegetation types were identified and mapped across the survey area. Vegetation types A, B, C and D were considered moderately significant because they supported populations of *Aristida lazaridis*. This further discussed in the Targeted report (Rapallo 2021).

The survey area was affected by a fire which burnt across the entire survey area in 2015. Vegetation condition ranged from Very Good to Degraded, with most quadrats ranked as Good. The main reason for this ranking was fire.

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7 Appendices

Number	Title
Appendix I	Conservation codes for Australian flora
Appendix II	Flora desktop results: Conservation significant flora and likelihood assessment
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Appendix I Conservation codes for Australian flora

Threatened species under the Commonwealth EPBC Act

Threatened fauna and flora may be listed under Section 178 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in any one of the following categories:

EX Extinct

EW Extinct in the wild

CR Critically endangered

EN Endangered

VU Vulnerable

CD Conservation dependent

Conservation codes for Western Australian flora under the Western Australian *Biodiversity Conservation Act 2016*

Threatened, Extinct and Specially Protected fauna or flora are species which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such.

The *Wildlife Conservation (Specially Protected Fauna) Notice 2018* and the *Wildlife Conservation (Rare Flora) Notice 2018* have been transitioned under regulations 170, 171 and 172 of the *Biodiversity Conservation Regulations 2018* to be the lists of Threatened, Extinct and Specially Protected species under Part 2 of the *Biodiversity Conservation Act 2016*.

Categories of Threatened, Extinct and Specially Protected fauna and flora are:

Threatened species

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR Critically endangered species

Threatened species considered to be "facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines.

Published under **schedule 1** of the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN Endangered species

Threatened species considered to be "facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under **schedule 2** of the the *Wildlife Conservation (Rare Flora) Notice 2018 for endangered flora*.

VU Vulnerable species

Threatened species considered to be "facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines.

Published under **schedule 3** of the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

Priority species

Priority species are possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations. In this report, priority species are given the codes P1, P2, P3 and P4.

P1 Priority 1: Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2 Priority 2: Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3 Priority 3: Poorly-known species

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 Priority 4: Rare, Near Threatened and other species in need of monitoring

(a) **Rare**. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.

(b) **Near Threatened**. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Appendix II Flora desktop results: Conservation significant flora and likelihood assessment

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at in GNHI survey area?	Distance to survey area	Likelihood ranking
Acacia bromilowiana	P4	Tree or shrub to 12 m high	WAH and TPFL : High in landscape, Slope, cliff, gully, crest, summit , very steep	Red skeletal stony loam, orange-brown pebbly,gravel loam, laterite, banded ironstone, basalt. Rocky hills, breakaways, scree slopes, gorges, creek beds.	May, July, August	No	Within 20 km	Unlikely to occur
Acacia daweana	P3	Shrub from 0.3- 2m.	WAH: Gentle slopes, Along diffuse drainage area where it leaves low rocky hills. Low shrubland with Triodia basedowii, Acacia bivenosa, A. validinervia and A. maitlandii.	Stony red loamy soils. Low rocky rises, along drainage lines	July-October	Yes	Not within 20km	Unlikely to occur
Acacia effusa	P3	Low, dense, spreading, somewhat viscid shrub, 0.3-1 m high.	WAH: Scree, gentle slope, footslope, creeklines, low iron stone hill, stony plain base of hills , skeletal soils, red brown, Red brown clay loam.	Stony red loam. Scree slopes of low ranges.	May-August	No	Within 20 km	Unlikely to occur
Acacia subtiliformis	P3	Spindly, slender, erect shrub, to 3.5 m	WAH: Calcrete slope, rise, plain	On rocky calcrete plateau.	April-June	No	Within 20 km	Unlikely to occur
Adiantum capillus-veneris	P2	Perennial small herb from 0.1-0.2m. Frond 1-2 pinnate	WAH: In wet rocky crevices, associated with gorges or springs.	Moist sheleted sites in gorges and on cliff walls.	March, September	No	Not within 20km	Unlikely to occur
Amaranthus centralis	P3	Annual Herb	WAH: Tussock grassland of Themeda triandra, Eulalia aurea and Aristida inaequiglumis with open woodland of Eucalyptus victrix and Corymbia aspera over low open woodland of Corymbia aspera and Hakea lorea subsp. lorea over high open shrubland of Gossypium robi. Low in the landscape, alluvial flats, River banks, Mulga woodland[3]	no info	No info	Yes	Not within 20km	Unlikely to occur
Ampelopteris prolifera	P3	Perennial herb/fern to 4m	no info	Near water or in wet ground.	No info	No	Not within 20km	Unlikely to occur
Aristida jerichoensis var. subspinulifera	P3	Compactly tufted perennial, grass-like or herb, 0.3-0.8 m high	WAH: Plain or Flat, clay/loam. Often mulga woodlands or acacia shrublands over spinifex and/or tussock grassland.	Hardpan plains	May, July, September	Yes	Recorded elsewhere in Lamb Creek project	Likely to occur
Aristida lazaridis	P2	Tufted perennial, grass-like or herb, 0.4-1.5 m high.	WAH: Plain, clay /loam, drainage, slope; often mulga low open woodland with or without Eucalypts, over variety of shrubs and herbs, often over tussock grassland but sometimes with Triodia hummock grassland.	Sand or loam	April, May	Yes	Confirmed	Confirmed
Arthropodium vanleeuwenii	P2	Perennial herb 0.3 to nearly 1m.	WAH. Moderately steep facing slopes including banded and Brockman ironstone formations on red-brown, orange-brown loams and sandy loams. Low open woodland of Eucalyptus leucophloia subsp and Corymbia hamersleyana over hummock grassland of Triodia brizoides. Other tussock grassland species include Themeda triandra. Known from two small populations growing above 900 m on south-facing hillslopes of Brockman Iron Formation in the Pilbara bioregion of Western Australia. Associated vegetation includes Eucalyptus leucophloia subsp. leucophloia, Corymbia hamersleyana, Indigofera fractiflexa, Triodia spp. and Themeda triandra. Often found growing under the Triodia and occasionally under the Themeda, very rarely growing in the open. Flowering from mid- to late September. Fruiting from late September to mid-October[4]	No info	October	Yes but off footprint	Not within 20km	Unlikely to occur

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at in GNHI survey area?	Distance to survey area	Likelihood ranking
Atriplex flabelliformis	P3	Monoecious, erect, rounded perennial, herb, to 0.35 m high.	WAH: Saline areas. Often salt tolerant shrublands, over low open heath.	Clay loam, loam. Saline flats or marshes.	No info	No	Not within 20km	Highly unlikely to occur
Barbula ehrenbergii	P1	Moss	Moss. Shaded moist environment on rock face 1.A species of hydric environments [2]	No info	No info	No	Not within 20km	Highly unlikely to occur
Calotis squamigera	P1	Procumbent annual, herb, to 0.21 m high.	WAH: Flat. Red brown loam clay, Stony plain with sandy loam soil. Low woodland of Acacia aptaneura, over open tussock grassland of Aristida contorta and Chrysopogon fallax with high open shrubland of Acacia synchronicia and Psydrax latifolia.	Pebbly loam	July	Yes	Not within 20km	Unlikely to occur
Cladium procerum	P2	Densely tufted perennial, grass-like or herb (sedge), 2 m high.	WAH: Major creeklines , Eucalyptus camaldulensis and Melaleuca argentea open woodland	Perennial pools	July, October, November	No	Not within 20km	Highly unlikely to occur
Dampiera anonyma	P3	Multi-stemmed perennial herb, 0.5 - 1m. Blue purple flower	WAH: Hillside; rocky red ironstone.	Skeletal red-brown gravelly soil over banded ironstone, basalt, shale and Jaspilite. Hills, summits and upper slopes (>1000m)	June, July, September	No	Not within 20km	Unlikely to occur
Dampiera metallorum	P3	Rounded, multi-stemmed perennial, herb, to 0.5 m high.	WAH: Summit of hill, high in landscape, steep slope, skeletal red gritty soil over massive banded ironstone.	Skeletal red-brown gravelly soil over banded ironstone. Steep slopes, summits of hills.	April-October	No	Not within 20km	Unlikely to occur
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)	P3	no info	WAH: Cracking clay	Spreading annual herb to 10 cm tall, with blue flowers in March; occurs on cracking clay on flat to gently undulating plains with large surface rock	March, May, July	No	Within 20 km	Unlikely to occur
Dysphania congestiflora	P3	no info	WAH: Saline floodplain. Recorded from the western side of Fortescue Marsh from flats on the margin and towards the centre of seasonally inundated flood plains and lake beds, on saline, deep, light-medium to heavy clay soils. A single collection has also been recorded from the Lyndon River in close proximity to Lake Macleod [5]	No info	June, July	No	Not within 20km	Highly unlikely to occur
Eleocharis papillosa	P3	Annual, herb.	WAH: Claypan low dune/berm on eastern edge of wetland.	Red clay over granite, open clay flats. Claypans.	November	No	Not within 20km	Unlikely to occur
Eragrostis crateriformis	P3	Annual, grass-like or herb, 0.17-0.42 m high	WAH: Drainage area / floodplain.	Clayey loam or clay. Creek banks, depressions.	January-July	Yes	Not within 20km	Unlikely to occur
Eragrostis sp. Erect spikelets (P.K. Latz 2122)	P3	Erect perennial grass-like or herb to 0.3 m high	WAH: Near samphire flat. Associated species: Goodenia omeriana, G. forrestii, Cullen cinereum, Scaevola spinescens, Acacia tetragonophylla, A. victoriae. Associated species: Halosarcia spp., Eragrostis falcata (mostly as first year plants), Nicotiana sp., Swainsona sp., Angianthus sp. Low calcrete platforms/rises [12]	No info	No	No	Not within 20km	Highly unlikely to occur

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at in GNHI survey area?	Distance to survey area	Likelihood ranking
Eragrostis sp. Mt Robinson (S. van Leeuwen 4109)	P1	Tussock-forming perennial, grass-like or herb, to 0.3 m high	WAH and TPFL: Open mallee shrubland; Summit of hill, steep western slopes. Skeletal gritty soil. Massive banded Brockman Iron Formation.	Red-brown skeletal soils, ironstone. Steep slopes, summits.	September	No	Not within 20km	Unlikely to occur
Eremophila magnifica subsp. magnifica	P4	Shrub, 0.5-1.5 m high.	WAH: High in landscape, steep slopes, summits, gullies, skeletal red gritty soil over massive banded ironstone of the Brockman Iron Formation.	Skeletal soils over ironstone. Rocky screes.	June-November	No	Within 20 km	Unlikely to occur
Eremophila magnifica subsp. velutina	P3	Shrub, 0.5-1.5 m high.	WAH: Summit of steep hill, high in landscape, steep slopes, rock screes and cliff faces, skeletal red stony soil over massive ironstone of the Brockman Iron Formation.	Skeletal soils over ironstone. Summits.	July-October	No	Not within 20km	Highly unlikely to occur
Eremophila pusilliflora	P2	Shrub to 0.5m	WAH: Low lying associated with drainage lines on red/brown clay loams and ironstone. Low open woodlands scattered with Corymbia hamersleyana and with Acacia aneura, A. inaequlatera, A. pyrifolia over hummock grasslands of T. wiseana, T. pungens and T. brizoides. TPFL: Low lying in valleys, gibber plains above drainage line with Goodenia over red clay loams. Open woodlands of Acacia aneura with Ptilotus exaltatus and Ptilotus helipteroides. Found on seasonally inundated alluvial plains between Turee Creek, Pingandy Creek and drainage systems leading into the Ashburton River, growing in red-brown sandy loam soils in open low shrubland with Acacia aneura, Ptilotus nobilis, Goodenia and Triodia species[6]	No info	April-September and after rainfall	Yes	Within 20 km	May potentially occur
Eremophila sp. Hamersley Range (K. Walker KW 136)	P3	no info	WAH: Rocky gullies and gorges. Steep rocky hill slopes and summits, high in the landscape	No info	June, August, September	No	Recorded elsewhere in Lamb Creek project	Unlikely to occur
Eremophila sp. West Angelas (S. van Leeuwen 4068)	P1	no info	WAH: TPFL Summits and slopes of hills, high in the landscape.	No info	August, September	Yes but off footprint, infrequently recorded ain locality	Not within 20km	Unlikely to occur
Eremophila spongiocarpa	P3	Compact, succulent-leaved shrub, to 1 m high.	WAH and TPFL: Saline , Alluvial margin of marsh. Edge of marsh, saline flats, broad plain, floodplain, claypan, Slope of linear dune.	Weakly saline alluvial plain on margins of marsh.	May, August, September	No	Not within 20km	Unlikely to occur
Eremophila youngii subsp. lepidota	P4	Dense, spreading shrub, (0.2-)1-3 m high.	WAH: Mulga woodland or acacia shrublands. Can grow near salt marshes in combination with Atriplex and other chenopods.	Stony red sandy loam. Flats plains, floodplains, sometimes semi-saline, clay flats.	January-March or August, September	Yes	Not within 20km	Unlikely to occur
Euphorbia australis var. glabra	P3	Prostrate herb, 10cm	WAH: Vegetation dominated by Acacia aptaneura. Acacia aff. aneura (long, flat, recurved; F. .MR 35.3), (Eucalyptus xerothermica) low woodland over *Malvastrum americanum, Sida aff. fibulifera low open shrubland over Sporobolus australasicus scattered bunch grasses. Associated Species: Acacia tetragonophylla. Broad, flat plain; calcrete platform to west and major creekline to east. Flat, red brown loam.	Prostrate annual herb. Typically occurs on cracking clay and clay plains	No	Yes	Not within 20km	Unlikely to occur
Euphorbia clementii	P3	Erect herb to 0.6m	TPFL; Sparse low woodland over Senna spp. moderately dense low shrubland over Triodia spp. and other grasses. Rock (Laterite) and red sand. Occasional Eucalyptus leucophloia. TPFL Taxon has been recorded on plains and outwash slopes, and in minor drainage lines or areas of sheet flow. This taxon is typically a fire-responder (and relatively short-lived) and can be observed in large numbers in recently burnt areas. [7]	Gravelly hillsides, stony grounds	May-July	Yes, would be obvious but as is a big post fire coloniser	Not within 20km	Unlikely to occur

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at in GNHI survey area?	Distance to survey area	Likelihood ranking
Euphorbia inappendiculata var. inappendiculata	P2	small prostrate, much branched annual herb	Acacia aptaneura dominated vegetation. Flat, red brown loam. Recorded in cracking claypans of red sandy clay at Miralga Creek [7]	No info	No info	Yes, infrequently recorded	Not within 20km	Unlikely to occur
Euphorbia inappendiculata var. queenslandica	P2	prostrate annual herb	WAH: Tussock grassland of Astrebla elymoides, Chrysopogon fallax and Urochloa occidentalis var. occidentalis with open herbs of Polymeria longifolia, with high open shrubland of Acacia synchronicia. Cracking clay soil, Gilgai plain.	No info	No info	No	Not within 20km	Unlikely to occur
Euphorbia stevenii	P3	Succulent perennial herb from 0.1-0.5	Gently sloping area to gently undulating. Soils include: Red-brown cracking clay with scattered pebbles and cobbles on the surface. Occurs with many grasses including Astrebla sp, Themeda sp and Aristida sp.	Clay, sandy soils	June	Yes, infrequently recorded in locality	Not within 20km	Unlikely to occur
Fimbristylis sieberiana	P3	Shortly rhizomatous, tufted perennial, grass-like or herb (sedge), 0.25-0.6 m high.	WAH: Major drainage, edge of watercourse. With Eleocharis sp. Eucalyptus camaldulensis and Melaleuca argentea open woodland over Acacia pyrifolia var. pyrifolia; Acacia tumida var. pilbarensis and Clerodendrum tomentosum mid sparse shrubland over Cladium procerum and Cyperus vaginatus sedges and Cenchrus ciliaris. Woodland to forest of Eucalyptus camaldulensis and/or Melaleuca leucadendra and Acacia coriacea subsp. pendens over high shrubland.	Mud, skeletal soil pockets. Pool edges, sandstone cliffs.	May-August	No	Not within 20km	Unlikely to occur
Geijera salicifolia	P3	Tree from 1.5m-6m	WAH: Growing in flood area at base of gorge wall. Stony.	Skeletal soils, stony soils; Massive rock scree and gorges	September	No	Not within 20km	Unlikely to occur
Glycine falcata	P3	Mat-forming perennial, herb, to 0.2 m high	WAH: Sump, low in landscape. With Cullen and Vittadinia sp., Goodenia pascua and Bulbine pendula. Often low grassland or herbland with Acacia shrublands and hummock grassland, sometimes Eucalypts. Clay soils, cracking clays	Black clayey sand. Along drainage depressions in crabhole plains on river floodplains.		No	No	Within 20 km
Gompholobium karijini	P2	Low shrub growing to 70 cm tall, with coarsely fibrous, grey bark.	Eucalyptus leucophloia subsp. leucophloia over Triodia sp. Triodia hummock grassland with scattered shrubs and trees on ironstone gravel 9 Breakaway habitats and associated rocky slopes, the top edge of mesas, broadly rocky and rugged upland habitats, and incised gullies/ rocky gullies of the upland areas' and 'mesa top habitat consisting of hill top, mesa top, and broad rolling hill habitats. [10]	Typically occurs on rocky crests and slopes of hill	January, August-September	No	Not within 20km	Unlikely to occur
Goodenia lyrata	P3	Prostrate herb with lyrate leaves. Ephemeral	Broad drainage tract in hardpan plain. Mulga woodland. Mulga woodland or acacia shrublands, sometimes with E. victrix, over open shrubland, herbs.	Red sandy loam. Near claypan	May, August, October	No	Within 20 km	Unlikely to occur
Goodenia nuda	P4	Erect to ascending herb, to 0.5 m high.	WAH and TPFL : Variety of habitats	No info	March-August	Yes	Confirmed	Confirmed
Goodenia sp. East Pilbara (A.A. Mitchell PRP 727)	P3	Open, erect annual or biennial, herb, to 0.2 m high.	WAH and TPFL : Variety of habitats with calcrete , Grassland on crabhole clay flats.	Red-brown clay soil, calcrete pebbles. Low undulating plain, swampy plains.	March-May and after rainfall	No	Within 20 km	Unlikely to occur
Grevillea saxicola	P3	Tall shrub or tree	WAH: High in landscape, steep and undulating terrain, skeletal red-brown gritty soil over massive banded ironstone of the Brockman Iron Formation. Mulga woodlands over shrublands with Eremophilas and other species, over Scaevola. No mention of Triodia. Skeletal red-brown sandy loam on steep slopes, rocky hills and ridges, usually growing with Mulga 10	No info	February, March	No	Not within 20km	Unlikely to occur
Gymnanthera cunninghamii	P3	Erect shrub, 1-2 m high.	WAH: South facing ironstone scree slope adjacent to Weeli Wolli Creek.	Sandy soils on islands in river and creek channels	Year-round	No, very scattered distribution.	Not within 20km	Unlikely to occur

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at in GNHI survey area?	Distance to survey area	Likelihood ranking
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	P2	Shrub to 3m.	Gorges and Gullies associated with ironstone (inc: Brockman ironstone) outcroppings and boulders. Soils include Red-brown loams amongst boulders. Rocky ground high in the landscape. Gullies and gorges. [10]	No info	No info	No	Not within 20km	Highly unlikely to occur
Indigofera gilesii	P3	Shrub, to 1.5 m high.	WAH: Near summit of hill, high in landscape, skeletal red-brown stony soil over massive ironstone of the Brockman Iron Formation, Gorge / gully. Red brown skeletal. Continuous ironstone pebbles, Breakaway. Red dry soil.	Pebbly loam. Amongst boulders & outcrops, hills.	May, June, August	No	Within 20 km	Unlikely to occur
Indigofera ixocarpa	P2	Shrub to 1m	WAH: Dry creekline. Ironstone rocks and loamy soil	Skeletal red soils over massive ironstone	May, June, August	No	Not within 20km	Highly unlikely to occur
Iotasperma sessilifolium	P3	Erect herb	WAH: Sump, low in landscape, flat terrain, cracking red clay-loam.	Cracking clay, black loam. Edges of waterholes, plains.	September	No	Not within 20km	Highly unlikely to occur
Ipomoea racemigera	P2	Creeping annual, herb or climber.	WAH: Medium drainage line, fringing vegetation. Open forest of Eucalyptus camaldulensis and Melaleuca argentea	No info	June	No	Not within 20km	Unlikely to occur
Isotropis parviflora	P2	Shrub, 0.1 m high.	WAH: Stony plain, lower slopes, Hillcrest/upper slope.	Valley slope of ironstone plateaus, hill slopes and stony plains.	March-August	Yes	Within 20 km	Likely to occur
Kohautia australiensis	P2	Erect sparsely or much-branched annual, herb, 0.1-0.5 m high..	WAH: Calcrete plains, hills and rises	No info	March-May	No	Not within 20km	Unlikely to occur
Lepidium catapycnon	P4	Open, woody perennial, herb or shrub, 0.2-0.3 m high, stems zigzag.	Variety of vegetation types, typically with E. leucophloia over Acacias over Triodia. Strong habitat preference for steep upper breakaway slopes of mesa hills where it grows in skeletal light brown loam or sandy loam soils with a large proportion of loose rocks at the surface (50-100 percent) comprising a mixture of banded iron formation (BIF), banded chert and siltstone [11]	Skeletal soils. Hillsides.	May, June, August-November	No	Not within 20km	Unlikely to occur
Lindernia sp. Pilbara (M.N. Lyons & L. Lewis FV 1069)	P1	Annual or perennial herb, to 0.6 cm high	WAH: Claypan, low dune, edge of wetland.	No info	No info	No	Not within 20km	Unlikely to occur
Myriocephalus scalpellus	P1	Semi-erect herb, 0.03-0.08 m high.	WAH: At edge of claypan, In fringing vegetation.	Claypan	June	No	Not within 20km	Unlikely to occur
Nicotiana umbratica	P3	Erect, short-lived annual or perennial, herb, 0.3-0.7 m high. Fl. white, Apr to Jun. Shallow soils. Rocky outcrops.	no info	Shallow soils. Rocky outcrops.	April-June	No	Within 20km	Unlikely to occur
Olearia mucronata	P3	Densely branched, unpleasantly aromatic shrub (0.6-1m)	WAH: Steep upper slope, Soil: Red-brown scree boulders (ironstone), stones, base of south facing ironstone cliff, bordering a large scree slope.	Schistose hills along drainage channels	July-January	No	Not within 20km	Highly unlikely to occur
Oxalis sp. Pilbara (M.E. Trudgen 12725)	P2	Small annual herb to 10 cm tall. Leaves green above, purple below	WAH: Gorge, gully, cliff	No info	May, July	No	Not within 20km	Highly unlikely to occur

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at in GNHI survey area?	Distance to survey area	Likelihood ranking
Pentalepis trichodesmoides subsp. Hispida	P2	Compact shrub to 1m	WAH: Summit of ridge, high in landscape, steep terrain, skeletal brown gritty soil over metabasaltic pillow lava, breccia; metatuff and minor cherts of the Bunjinah Formation, altitude ca. = 1020 m.	No info	August, September	No	Not within 20km	Unlikely to occur
Pilbara trudgenii	P3	Gnarled, aromatic shrub, to 1 m high.	WAH: Skeletal soil Summit, slopes, screes and cliffs. Brockman Iron Formation. With Eucalyptus leucophloia, E. gamophylla.	Skeletal, red stony soil over ironstone. Hill summits, steep slopes, screes, cliff faces.	July, September	No	Not within 20km	Highly unlikely to occur
Ptilotus mollis	P4	Compact, perennial shrub, to 0.5 m high, soft grey foliage.	WAH: Steep, rocky scree slope, laterite.	Stony hills and screes.	May, July, September	No	Not within 20km	Unlikely to occur
Rhagodia sp. Hamersley (M. Trudgen 17794)	P3	A spindly shrub growing to 2 m tall;	WAH: Mulga over mixed grassland. Emergent eucalypts and Triodia grassland. Very open mulga woodland over patchy mixed grasses. Floodplains, hardpan plains.	Red sandy clay loam plains and floodplains growing in association with Mulga (Acacia aneura)	March, May, September	Yes	Confirmed	Confirmed
Rhodanthe ascendens	P1	Ascending annual herb to 0.1m	WAH: Flat terrain, low in landscape, stony gibber with red cracking clay soils. Acacia aneura over Open Tussock Grass of Aristida spp.	Clay, roadside verge	August, September	Yes, infrequently collected	Not within 20km	Unlikely to occur
Rhynchosia bungarensis	P4	Compact, prostrate shrub, to 0.5 m high.	WAH: Creekline in a gorge	Pebbly, shingly coarse sand amongst boulders. Banks of flow line in the mouth of a gully in a valley wall.	November	No	Not within 20km	Unlikely to occur
Rostellularia adscendens var. latifolia	P3	Herb or shrub, 0.1-0.3 m high.	Acacia shrubland, sometimes with Eucalypts and Corymbias, over shrublands and herblands, over tussock grassland, or Triodia pungens hummock grassland.	Ironstone soils. Near creeks, rocky hills.	April, June, August	Yes	Confirmed	Confirmed
Samolus sp. Fortescue Marsh (A. Markey & R. Coppen FM 9702)	P1	Erect perennial herb, 0.3-1.0 m high	Margins of semi-permanent/permanent freshwater pools and the margins of samphire shrublands where creeks discharge freshwater following periods of high rainfall. [13]	No info	September	No	Not within 20km	Highly unlikely to occur
Scaevola sp. Hamersley Range basalts (S. van Leeuwen 3675)	P2	Shrub, to 1 m high	Steep slopes and screes. Growing in Regenerating Open Shrub Mallee of Eucalyptus kingsmillii and E. gamophylla over Dwarf Scrub C/D of Triumfetta sp, Corchorus sp, Hibiscus sp. and Acacia bivenosa over Open Hummock Grass of Triodia sp.	Skeletal, brown gritty soil over basalt. Summits of hills, steep hils.	July-August	No	Not within 20km	Unlikely to occur
Seringia exastia	CR	Shrub	Variety of mulga woodlands, sometimes with Eucalypts, over Acacia shrublands over Trioda pungens hummock grassland. Gully - washout. Red sand/laterite over sandstone.	No info	Year-round	Yes	Confirmed	Confirmed
Sida sp. Barlee Range (S. van Leeuwen 1642)	P3	Spreading shrub, to 0.5 m high.	WAH: Cliff line and scree slopes, gorge and steep gully	Skeletal red soils pockets. Steep slope.	August	No	Not within 20km	Highly unlikely to occur
Sida sp. Hammersley Range basalts (K. Newbey 10692)	P3	Herb or shrub to 0.15m	Plants growing amongst rocks along the south side of a small ironstone breakaway. Low open woodland over hummock grassland of Triodia sp.	No info	May, August, October	Possible, very little info, infrequently recorded at locality	Not within 20km	Unlikely to occur
Solanum kentrocaule	P3	Perennial shrub to 2.5m	WAH: Near summit of hill, high in landscape, skeletal red-brown stony soil over massive ironstone of the Brockman Iron Formation, steep slopes, steep gullies	No info	May, July, August	No	Not within 20km	Unlikely to occur
Stackhousia clementii	P3	Dense broom-like perennial, herb, to 0.45 m high.	Acacia shrubland, sometimes with E. victrix, over Acacia sclerosperma. WAH: Clay loam plains, drainage plains	Skeletal soils. Sandstone hills.	April, September		Not within 20km	Unlikely to occur

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at in GNHI survey area?	Distance to survey area	Likelihood ranking
Streptoglossa sp. Cracking clays (S. van Leeuwen et a. PBS 7353)	P3	Multi stemmed annual herb	Cracking clay, Acacia aneura var. longicarpa high open shrubland over Rhagodia eremaea scattered shrubs over Aristida latifolia and Astrebla elymoides scattered tussock grasses. Acacia aneura var. longicarpa 3-5 m < 1-5%; Rhagodia eremaea 0.4-1.2 m < 1%; Aristida latifolia.	No info	June	No	Not within 20km	Unlikely to occur
Stylidium weeliwolli	P3	Annual, herb, 0.1-0.25 m high, throat appendages 4, rod-shaped.	WAH: In damp soil in rock clefts of river bed, permanent pools.	Damp soil in rock clefts of river bed, permanent pools, edge of water courses	July-October	No	Not within 20km	Unlikely to occur
Swainsona thompsoniana	P3	Prostrate annual herb to 10 cm high	WAH: Gently sloping area to gently undulating. Soil: Red-brown cracking clay with scattered pebbles and cobbles on the surface. Includes a flowline. Varies to areas of orange-brown cracking clay. Colluvial and alluvial gravels in fan or floodplain	No info	April, June, August	No	Not within 20km	Unlikely to occur
Synostemon hamersleyensis	P1	no info	WAH: Steep scree slope below banded iron formation cliff line with brown sandy loam soil. Steep hillslope, narrow gorge	No info	No info	No	Not within 20km	Highly unlikely to occur
Tecticornia globulifera	P1	no info	WAH: Saline flats and marsh with light medium clay soil.	No info	No info	No	Not within 20km	Highly unlikely to occur
Tecticornia medusa	P3	no info	WAH: Growing on the lake bed a few 100 metres from the shoreline. Red clayey sand., Claypan	No info	November	No	Not within 20km	Highly unlikely to occur
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	P1	no info	Samphire flats.	No info	No info	No	Not within 20km	Highly unlikely to occur
Tetratheca fordiana	P2	Dwarf shrub; 0.3-0.4m	WAH: Vertical cliff faces amongst ironstone. Breakaways on Skeletal soils. Scattered low trees of Eucalyptus leucophloia, E. kingsmillii over scattered shrubs of Acacia hamersleyensis over open hummock grassland of Triodia epactia, Triodia wiseana and Triodia sp. Mt Ella (M.E. Trudgen 12739) with scattered tussock grasses of Eriachne mucronata.	Shale pocket amongst ironstone	April, May	No	Not within 20km	Unlikely to occur
Teucrium pilbaranum	P2	Upright shrub, 0.2 m high	WAH: High shrubland of Acacia sclerosperma, Acacia synchronicia, Eremophila longifolia and Acacia citrinoviridis over open herbs of Malvastrum americanum, Corchorus tridens and Cleome viscosa with low open woodland of Acacia citrinoviridis and Acacia aptaneura. Plain with brown clay loam soil.	Crab hole plain in a river floodplain, margin of calcrete table.	May, September	No	Not within 20km	Unlikely to occur
Themeda sp. Hamersley Station (M.E. Trudgen 11431)	P3	Tussocky perennial, grass-like or herb, 0.9-1.8 m high.	Variety of habitats including Mulga woodlands and mixed shrublands. Cracking clays, Red clay. Clay pan, grass plain.	Red clay. Clay pan, grass plain.	July-September	Yes	Within 20 km	Likely to occur
Thryptomene wittweri	VU	Spreading or rounded shrub from 0.5 - 1.5(2.1m)	WAH: Growing on tops of cliffs, ledges along cliff, in rock crevices and on boulder screes in shades southerly situations. Skeletal red stony soil. Ironstone. High in landscape, rocks on edge of cliff face and growing on face itself, S aspect, skeletal red-brown soil over massive banded ironstone of the Brockman Iron Formation, lots of rock and large sheets of ironstone on surface.	Skeletal red stony soils. Breakaways, stony creek beds.	April-August	No	Not within 20km	Unlikely to occur
Triodia basitricha	P3	no info	WAH Rehabilitation adjacent to Coondewanna airstrip, Mining Area C: Isolated Eucalyptus victrix and Corymbia hamersleyana, OR isolated Corymbia opaca trees over open to sparse Acacia aptaneura, A. bivenosa, A. pruinocarpa, and other shrubs, sometimes over Triodia, sometimes over low shrubs.	No info	No info	No	Within 20 km	Unlikely to occur

Taxon	Status	Growth Form	Habitat from DBCA database records	Habitat from FloraBase	Flowering period	Habitat present at in GNHI survey area?	Distance to survey area	Likelihood ranking
Triodia sp. Karijini (S. van Leeuwen 4111)	P1	no info	WAH: Triodia hummock grassland, variety of species including T. pungens, T. wiseana, often with emergent eucalypts and Corymbias, with Acacia shrublands. Very steep hillslope of grey silty loam.	No info	September	No	Within 20 km	Unlikely to occur
Triodia sp. Mt Ella (M.E. Trudgen 12739)	P3	Perennial, grass-like or herb, 0.4 m high.	WAH: Rocky creeklines, often grows together with Triodia pungens. With E. leucophloia and C. hamersleyana.	Light orange-brown, pebbly loam. Amongst rocks & outcrops, gully slopes.	February, March, September	Yes	Within 20 km	Likely to occur
Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684)	P1	Annual daisy	WAH: Woodland to open forest of variety of mulga species and other acacias, OR shrubland of acacias and other species, sometimes with Eucalypts, over diverse shrubland, often over open Triodia grassland (T. pungens, T. melvillei). Plain, floodplain, drainage, sandy-clay loam,	No info	May, July, September	Yes	Within 20 km	Likely to occur
Xerochrysum boreale	P3	no info	WAH: Mulga, stony plain	No info	No info	Yes but rarely collected in locality	Not within 20km	Unlikely to occur

Appendix III Flora desktop results: Introduced taxa (weeds)

Family	Taxon	WAOL status	Total records
Amaranthaceae	**Aerva javanica*	Permitted s11	9
Apiaceae	**Cyclospermum leptophyllum*	Permitted s11	1
Arecaceae	**Phoenix dactylifera*	Permitted s11	1
Asteraceae	**Bidens bipinnata*	Permitted s11	34
Asteraceae	**Bidens subalternans var. simulans*	Not listed	1
Asteraceae	**Centaurea melitensis*	Permitted s11	1
Asteraceae	**Conyza bonariensis*	Permitted s11	2
Asteraceae	**Flaveria trinervia*	Permitted s11	12
Asteraceae	**Lactuca saligna*	Permitted s11	1
Asteraceae	**Lactuca serriola*	Permitted s11	2
Asteraceae	**Lactuca serriola forma serriola*	Permitted s11	2
Asteraceae	**Sonchus asper*	Permitted s11	1
Asteraceae	**Sonchus oleraceus*	Permitted s11	9
Asteraceae	**Symphyotrichum squamatum*	Permitted s11	1
Asteraceae	**Taraxacum khatoonae*	Permitted s11	1
Asteraceae	**Tridax procumbens*	Permitted s11	1
Brassicaceae	**Brassica rapa*	Permitted s11	1
Cucurbitaceae	**Citrullus amarus*	Permitted s11	1
Cucurbitaceae	**Citrullus colocynthis*	Permitted s11	3
Cucurbitaceae	**Citrullus lanatus*	Permitted s11	1
Cucurbitaceae	**Cucumis melo*	Permitted s11	4
Cucurbitaceae	**Cucumis myriocarpus*	Permitted s11	2
Cucurbitaceae	**Cucumis myriocarpus subsp. myriocarpus*	Permitted s11	1
Fabaceae	**Stylosanthes hamata*	Permitted s11	2
Fabaceae	**Vachellia farnesiana*	Permitted s11	14
Malvaceae	**Malvastrum americanum*	Permitted s11	26
Oxalidaceae	**Oxalis corniculata*	Permitted s11	1
Papaveraceae	**Argemone mexicana*	Declared Pest, Prohibited - s12 (C1 Prohibited)	1
Papaveraceae	**Argemone ochroleuca*	Permitted s11	6
Papaveraceae	**Argemone ochroleuca subsp. ochroleuca*	Permitted s11	3
Poaceae	**Cenchrus ciliaris*	Permitted s11	25
Poaceae	**Cenchrus echinatus*	Permitted s11	2
Poaceae	**Cenchrus setiger*	Permitted s11	5
Poaceae	**Chloris barbata*	Permitted s11	2

Family	Taxon	WAOL status	Total records
Poaceae	**Chloris virgata*	Permitted s11	22
Poaceae	**Cynodon dactylon*	Permitted s11	5
Poaceae	**Digitaria ciliaris*	Permitted s11	1
Poaceae	**Echinochloa colona*	Permitted s11	1
Poaceae	**Polypogon monspeliensis*	Permitted s11	1
Poaceae	**Rostraria cristata*	Permitted s11	1
Poaceae	**Setaria verticillata*	Permitted s11	18
Poaceae	**Sigesbeckia orientalis*	Permitted s11	12
Polygonaceae	**Rumex vesicarius*	Permitted s11	8
Portulacaceae	**Portulaca pilosa*	Permitted s11	3
Primulaceae	**Lysimachia arvensis*	Permitted s11	1
Solanaceae	**Datura leichhardtii*	Permitted s11	5
Solanaceae	**Datura leichhardtii subsp. leichhardtii*	Permitted s11	3
Solanaceae	**Solanum nigrum*	Permitted s11	3
Zygophyllaceae	**Tribulus terrestris*	Permitted s11	1

Appendix IV Taxa per vegetation type collected from the survey area

Family	Taxon name	Status	Vegetation type [1]						Other [2]	
			A	B	C	D	E	F	X	O
Amaranthaceae	**Aerva javanica*	Weed		X						
Amaranthaceae	*Alternanthera nana*			X	X	X	X			
Amaranthaceae	*Amaranthus cuspidifolius*			X						
Amaranthaceae	*Gomphrena canescens* subsp. *canescens*			X	X					
Amaranthaceae	*Ptilotus calostachyus*		X		X			X		
Amaranthaceae	*Ptilotus clementii*					X				
Amaranthaceae	*Ptilotus exaltatus*		X	X	X	X				
Amaranthaceae	*Ptilotus fusiformis*		X							
Amaranthaceae	*Ptilotus gaudichaudii*				X	X				
Amaranthaceae	*Ptilotus helipteroides*		X	X	X	X	X			
Amaranthaceae	*Ptilotus obovatus*		X	X	X	X	X			
Amaranthaceae	*Ptilotus rotundifolius*				X					
Asteraceae	**Bidens bipinnata*	Weed	X	X	X	X			X	
Asteraceae	*Chrysocephalum apiculatum* subsp. *pilbarense*				X					
Asteraceae	*Chrysocephalum gilesii*					X				
Asteraceae	*Peripleura virgata*				X					
Asteraceae	*Peripleura obovata*			X	X	X				X
Asteraceae	*Pterocaulon sphacelatum*			X	X	X				
Asteraceae	*Roebuckiella similis*		X							
Boraginaceae	*Capparis lasiantha*				X					
Boraginaceae	*Stenopetalum nutans*					X				
Boraginaceae	*Trichodesma zeylanicum* var. *zeylanicum*		X	X	X	X				
Brassicaceae	*Lepidium echinatum*				X					
Campanulaceae	*Wahlenbergia tumidifructa*		X							
Caryophyllaceae	*Polycarpaea corymbosa*		X	X	X					
Caryophyllaceae	*Polycarpaea holtzei*		X							
Celastraceae	*Stackhousia* sp. swollen gynophore (W.R. Barker 2041)							X		
Chenopodiaceae	*Dysphania kalpari*				X	X				
Chenopodiaceae	*Dysphania rhadinostachya* subsp. *inflata*			X	X	X				
Chenopodiaceae	*Maireana villosa*		X	X	X	X	X			
Chenopodiaceae	*Rhagodia eremaea*			X						

Family	Taxon name	Status	Vegetation type [1]						Other [2]	
			A	B	C	D	E	F	X	O
Chenopodiaceae	*Rhagodia* sp. Hamersley (M. Trudgen 17794)	Priority 3		X	X					
Chenopodiaceae	*Salsola australis*			X	X					
Chenopodiaceae	*Sclerolaena cornishiana*			X	X					
Cleomaceae	*Arivela viscosa*			X	X	X				
Convolvulaceae	*Convolvulus clementii*			X						
Convolvulaceae	*Duperreya commixta*		X	X	X	X	X			
Convolvulaceae	*Dysphania glomulifera* subsp. *eremaea*					X				
Convolvulaceae	*Evolvulus alsinoides* var. *villosicalyx*		X	X	X	X	X			
Cucurbitaceae	*Cucumis variabilis*			X	X	X				
Cyperaceae	*Bulbostylis barbata*					X				
Euphorbiaceae	*Euphorbia* aff. *ferdinandi*	Potentially undescribed			X	X				
Euphorbiaceae	*Euphorbia australis* var. *hispidula*		X							
Euphorbiaceae	*Euphorbia australis* var. *subtomentosa*			X	X					
Euphorbiaceae	*Euphorbia biconvexa*				X	X				
Euphorbiaceae	*Euphorbia coghlanii*			X						
Euphorbiaceae	*Euphorbia tannensis* subsp. *erem ophila*			X						
Fabaceae	**Stylosanthes hamata*	Weed			X	X				
Fabaceae	*Acacia ? aneura*							X		
Fabaceae	*Acacia ? sibirica*		X				X			
Fabaceae	*Acacia acradenia*				X					
Fabaceae	*Acacia adoxa* var. *adoxa*								X	
Fabaceae	*Acacia adsurgens*					X				
Fabaceae	*Acacia ancistrocarpa*		X					X		
Fabaceae	*Acacia aptaneura*		X	X	X	X	X			
Fabaceae	*Acacia atkinsiana*		X					X		
Fabaceae	*Acacia bivenosa*		X	X	X					
Fabaceae	*Acacia dictyophleba*		X		X	X		X		
Fabaceae	*Acacia elachantha*				X	X				
Fabaceae	*Acacia maitlandii*								X	
Fabaceae	*Acacia marramamba*							X		
Fabaceae	*Acacia minyura*									X
Fabaceae	*Acacia monticola*								X	

Family	Taxon name	Status	Vegetation type [1]						Other [2]	
			A	B	C	D	E	F	X	O
Fabaceae	*Acacia pachyacra*		X		X	X	X			X
Fabaceae	*Acacia pruinocarpa*		X	X	X	X				
Fabaceae	*Acacia pyrifolia* var. *pyrifolia*							X		
Fabaceae	*Acacia tenuissima*		X		X	X				
Fabaceae	*Acacia pachyacra*				X					
Fabaceae	*Acacia* sp.			X	X					
Fabaceae	*Cajanus marmoratus*			X						
Fabaceae	*Glycine canescens*				X					
Fabaceae	*Glycine* sp.			X	X					
Fabaceae	*Gompholobium oreophilum*		X							
Fabaceae	*Indigofera monophylla*								X	
Fabaceae	*Indigofera georgei*		X	X	X	X	X			
Fabaceae	*Isotropis iophyta*				X					X
Fabaceae	*Rhynchosia minima*			X						
Fabaceae	*Senna artemisioides* subsp. *x artemisioides*				X	X				
Fabaceae	*Senna artemisioides* subsp. *helmsii*			X	X					
Fabaceae	*Senna artemisioides* subsp. *oligophylla*		X	X	X					
Fabaceae	*Senna glutinosa* subsp. *glutinosa*		X							
Fabaceae	*Senna glutinosa* subsp. *X luerssenii*								X	
Fabaceae	*Senna notabilis*				X	X				X
Fabaceae	*Tephrosia* sp.				X				X	
Goodeniaceae	*Goodenia microptera*		X		X					
Goodeniaceae	*Goodenia nuda*	Priority 4				X				
Goodeniaceae	*Goodenia prostrata*			X	X	X				
Goodeniaceae	*Goodenia stellata*			X	X					
Goodeniaceae	*Scaevola parvifolia* subsp. *parvifolia*		X		X					
Gyrostemonaceae	*Codonocarpus* sp.					X				
Lamiaceae	*Clerodendrum floribundum* var. *angustifolium*					X				
Lamiaceae	*Teucrium teucriiflorum*					X				
Loranthaceae	*Lysiana murrayi*				X	X		X		
Malvaceae	**Malvastrum americanum*	Weed		X	X				X	
Malvaceae	*Abutilon fraseri*			X	X	X				

Family	Taxon name	Status	Vegetation type [1]						Other [2]	
			A	B	C	D	E	F	X	O
Malvaceae	*Abutilon lepidum*			X						
Malvaceae	*Abutilon macrum*			X	X					
Malvaceae	*Abutilon otocarpum*		X	X	X	X	X			
Malvaceae	*Androcalva luteiflora*			X						
Malvaceae	*Corchorus lasiocarpus* subsp. *parvus*								X	
Malvaceae	*Gossypium australe*		X							
Malvaceae	*Gossypium robinsonii*			X						
Malvaceae	*Melhania oblongifolia*			X						
Malvaceae	*Seringia exastia*	Critically Endangered							X	
Malvaceae	*Seringia velutina*							X		
Malvaceae	*Sida ? echinocarpa*			X						
Malvaceae	*Sida platycalyx*			X	X	X				
Malvaceae	*Sida* sp. *? L (A.M. Ashby 4202)*		X	X	X	X	X			
Malvaceae	*Sida* sp. spiciform panicles (E. Leyland s.n. 14/8/90)			X	X					
Montiaceae	*Calandrinia pumila*					X				
Myrtaceae	*Corymbia deserticola* subsp. *deserticola*		X		X			X		
Myrtaceae	*Corymbia hamersleyana*							X	X	
Myrtaceae	*Eucalyptus gamophylla*		X		X					
Myrtaceae	*Eucalyptus leucophloia* subsp. *leucophloia*		X							
Myrtaceae	*Eucalyptus xerothermica*					X				
Nyctaginaceae	*Boerhavia coccinea*			X	X	X				
Nyctaginaceae	*Boerhavia schomburgkiana*				X					
Oleaceae	*Jasminum didymum* subsp. *lineare*					X				
Phyllanthaceae	*Phyllanthus erwinii*				X					
Plantaginaceae	*Stemodia grossa*			X		X				
Poaceae	**Cenchrus ciliaris*	Weed	X	X	X		X		X	X
Poaceae	**Cenchrus setiger*	Weed		X	X					X
Poaceae	**Melinis repens*	Weed	X							
Poaceae	*Aristida contorta*		X	X	X	X	X			
Poaceae	*Aristida holathera* var. *holathera*		X		X	X				
Poaceae	*Aristida inaequiglumis*		X	X	X	X	X			
Poaceae	*Aristida lazaridis*	Priority 2	X	X	X	X			X	X

Family	Taxon name	Status	Vegetation type [1]						Other [2]	
			A	B	C	D	E	F	X	O
Poaceae	*Aristida obscura*						X			
Poaceae	*Aristida lazaridis*				X					
Poaceae	*Bothriochloa ewartiana*					X				
Poaceae	*Chrysopogon fallax*			X	X	X	X			
Poaceae	*Cymbopogon ambiguus*		X	X						
Poaceae	*Cymbopogon obtectus*		X		X	X				
Poaceae	*Dactyloctenium radulans*			X						
Poaceae	*Dichanthium sericeum* subsp. *humilius*		X			X				
Poaceae	*Digitaria ammophila*			X		X	X			
Poaceae	*Digitaria brownii*				X		X			
Poaceae	*Digitaria ctenantha*			X						
Poaceae	*Enneapogon caerulescens*		X	X	X		X			
Poaceae	*Enneapogon polyphyllus*		X	X	X	X	X			
Poaceae	*Enneapogon robustissimus*			X	X					
Poaceae	*Enneapogon lindleyanus*				X		X			
Poaceae	*Eragrostis cumingii*		X				X			
Poaceae	*Eragrostis eriopoda*		X	X						
Poaceae	*Eragrostis pergracilis*					X				
Poaceae	*Eriachne mucronata*			X	X					
Poaceae	*Eriachne pulchella* subsp. *pulchella*		X	X	X		X			
Poaceae	*Eulalia aurea*			X	X	X				
Poaceae	*Iseilema macratherum*					X	X			
Poaceae	*Panicum decompositum*		X	X	X	X	X			
Poaceae	*Paraneurachne muelleri*		X	X	X		X			
Poaceae	*Paspalidium rarum*				X	X				
Poaceae	*Perotis rara*			X	X	X	X			
Poaceae	*Schizachyrium fragile*		X	X	X		X			
Poaceae	*Sporobolus australasicus*			X	X		X			
Poaceae	*Themeda triandra*			X	X	X				
Poaceae	*Tragus australianus*			X						
Poaceae	*Triodia melvillei*		X		X	X	X			
Poaceae	*Triodia pungens*		X	X	X					
Poaceae	*Triodia wiseana*							X		
Polygalaceae	*Polygala glaucifolia*				X		X			

Family	Taxon name	Status	Vegetation type [1]						Other [2]	
			A	B	C	D	E	F	X	O
Portulacaceae	**Portulaca oleracea*	Weed	X	X	X	X				
Proteaceae	*Grevillea wickhamii* subsp. *hispidula*								X	
Proteaceae	*Hakea chordophylla*		X		X			X		
Proteaceae	*Hakea lorea* subsp. *lorea*			X	X	X				
Proteaceae	*Heliotropium inexplicitum*		X							
Proteaceae	*Hibiscus burtonii*		X	X	X	X	X			
Proteaceae	*Hibiscus coatesii*		X		X	X				
Proteaceae	*Hibiscus sturtii* var. *platychlamys*			X	X					
Pteridaceae	*Cheilanthes sieberi* subsp. *sieberi*				X	X	X			
Rubiaceae	*Psydrax latifolia*			X	X					
Rubiaceae	*Psydrax rigidula*				X					
Rubiaceae	*Psydrax suaveolens*					X				
Rubiaceae	*Spermacoce brachystema*					X				
Santalaceae	*Anthobolus leptomerioides*		X		X					
Santalaceae	*Santalum lanceolatum*			X	X	X				
Scrophulariaceae	*Eremophila forrestii* subsp. *forrestii*		X	X	X					
Scrophulariaceae	*Eremophila fraseri* subsp. *fraseri*		X							
Scrophulariaceae	*Eremophila lanceolata*					X				
Scrophulariaceae	*Eremophila latrobei* subsp. *filiformis*			X	X					
Scrophulariaceae	*Eremophila longifolia*			X	X	X				
Solanaceae	**Solanum lasiophyllum*	Weed	X	X	X					
Solanaceae	*Solanum ? horridum*				X					
Solanaceae	*Solanum ferocissimum*				X					
Zygophyllaceae	*Tribulus astrocarpus*						X			
Zygophyllaceae	*Tribulus macrocarpus*		X	X	X					
Zygophyllaceae	*Tribulus suberosus*								X	

Footnotes:
1: Vegetation types A to F.
2: X = Disturbed / cleared / revegetated areas; O = taxa recorded just outside the survey area boundaries

Appendix V List of quadrat locations

Site name	Site type	Vegetation type	Coordinates (MGA94 zone 50)	
			Easting	Northing
Q01	Quadrat (50x50m)	A	684032	7469174
Q02	Quadrat (50x50m)	B	684271	7469145
Q03	Quadrat (50x50m)	B	684622	7469252
Q04	Quadrat (50x50m)	B	684341	7468778
Q05	Quadrat (50x50m)	B	684617	7468905
Q06	Quadrat (50x50m)	B	684587	7468724
Q07	Quadrat (50x50m)	C	684861	7468732
Q09	Quadrat (50x50m)	C	684203	7468450
Q10	Quadrat (50x50m)	C	684682	7468406
Q11	Quadrat (50x50m)	C	684121	7468241
Q12	Quadrat (50x50m)	C	684599	7468329
Q13	Quadrat (50x50m)	C	684581	7467920
Q14	Quadrat (50x50m)	C	685040	7468238
Q17	Quadrat (50x50m)	C	685039	7467882
Q19	Quadrat (50x50m)	D	685110	7467709
Q23	Quadrat (50x50m)	D	685657	7466960
Q24	Quadrat (50x50m)	D	685614	7467170
Q26	Quadrat (50x50m)	E	684001	7468042
Q27	Quadrat (50x50m)	D	684467	7467613
R01	Relevé	F	685435	7466834

Appendix VI Quadrat Data

Site	Q01	Site photo
Date	14/05/21	Flora_Quadrat/PhotoP5140012
Vegetation type	A - Low open Eucalyptus gamophylla woodland over Triodia melvillei and T. pungens on stony plain	
Landform	Plain	
Slope	Negligible	
Soil	Clay, Dark red/brown	
Rock type	Shale, Quartzite, Laterite	
Rock size	Up to 8cm	
Rock cover	90%	
Vegetation cover	10%	
Condition	Good	
Disturbances	Fire killed off 50% of shrubs >2m, Acacias, e.g. A. pruinocarpa	
Easting (MGA94 Zone 51)	684008	
Northing (MGA94 Zone 51)	7469197	
Vegetation description	*Eucalyptus gamophylla* (mallee) and *Corymbia deserticola* subsp. *deserticola* low open woodland; over *Acacia pruinocarpa*, *A. ancistrocarpa*, A. atkinsiana sparse shrubland; over isolated low shrubs; over isolated dwarf shrubs; over *Ptilotus calostachyus*, *Ptilotus obovatus*, *Trichodesma zeylanicum* var. zeylanicum sparse forbland; over *Triodia melvillei* and *Triodia* pungens sparse hummock grassland	

Taxon name	Growth form	Height (m)	Cover%
**Cenchrus ciliaris*	grass	0.3	0.1
**Portulaca oleracea*	herb	0.1	0.1
**Solanum lasiophyllum*	shrub	0.5	0.1
Abutilon otocarpum	shrub	0.3	0.1
Acacia ancistrocarpa	shrub	1.5	0.1
Acacia aptaneura	shrub	0.5	0.1
Acacia atkinsiana	shrub	1.5	0.1
Acacia dictyophleba	shrub	1.5	0.1
Acacia pruinocarpa	shrub	2	1
Acacia tenuissima	shrub	0.5	0.1
Anthobolus leptomerioides	shrub	0.8	0.1
Aristida contorta	grass	0.3	0.1
Aristida holathera var. holathera	grass	0.4	0.1
Aristida inaequiglumis	grass	0.5	0.1
Corymbia deserticola subsp. Deserticola	tree	7	0.1
Cymbopogon ambiguus	grass	0.4	0.1
Cymbopogon obtectus	grass	0.4	0.1
Duperreya commixta	creeper	n/a	0.1
Enneapogon caerulescens	grass	0.2	0.1
Enneapogon polyphyllus	grass	0.2	0.1
Eragrostis eriopoda	grass	0.4	0.1
Eremophila forrestii subsp. forrestii	shrub	1.2	0.1
Eremophila fraseri subsp. fraseri	shrub	0.5	0.1
Eriachne pulchella subsp. pulchella	grass	0.2	0.1
Eucalyptus gamophylla	mallee	4.5	1

Euphorbia australis var. hispidula	herb	0.1	0.1
Evolvulus alsinoides var. villosicalyx	herb	0.2	0.1
Goodenia microptera	herb	0.1	0.1
Heliotropium inexplicitum	herb	0.2	0.1
Hibiscus burtonii	shrub	0.3	0.1
Hibiscus coatesii	shrub	0.3	0.1
Indigofera georgei	shrub	0.4	0.1
Maireana villosa	shrub	0.2	0.1
Panicum decompositum	grass	0.5	0.1
Paraneurachne muelleri	grass	0.2	0.1
Polycarpaea corymbosa	herb	0.1	0.1
Ptilotus calostachyus	herb	0.8	0.1
Ptilotus exaltatus	herb	0.5	0.1
Ptilotus helipteroides	herb	0.2	0.1
Ptilotus obovatus	herb	0.4	0.1
Schizachyrium fragile	grass	0.1	0.1
Senna artemisioides subsp. oligophylla	shrub	0.3	0.1
Senna glutinosa subsp. glutinosa	shrub	0.5	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.2	0.1
Tribulus macrocarpus	herb	0.1	0.1
Trichodesma zeylanicum var. zeylanicum	herb	0.4	0.1
Triodia melvillei	grass	0.5	2
Triodia pungens	grass	0.4	1

Site	Q02	Site photo
Date	14/5/21	Flora_Quadrat/PhotoP5140012
Vegetation type	B - Mulga and acacia low open woodland over open tussock grassland on gently sloping (drainage) plain with variable rock cover	
Landform	Open woodland of Acacias over grasses + shrubs (Eremophila)	
Slope	Plain	
Soil	Negligible	
Rock type	Clay, Red brown	
Rock size	Quartzite, Laterite	
Rock cover	Up to 5cm	
Vegetation cover	5%	
Condition	Good	
Disturbances	Fire has killed 10% of shrubs >2m	
Easting (MGA94 Zone 51)	684249	
Northing (MGA94 Zone 51)	7469197	
Vegetation description	*Acacia aptaneura* (mulga) and *A. pruinocarpa* low open woodland; over *Eremophila longifolia*, *E. forrestii* subsp. *forrestii*, and *Acacia aptaneura* sparse tall shrubland; over *Eremophila latrobei* subsp. *filiformis* and *Santalum lanceolatum* sparse shrubland; over isolated low shrubs; over isolated dwarf shrubs; over *Pterocaulon sphacelatum* and *Ptilotus obovatus* sparse forbland; over *Aristida inaequiglumis*, *Aristida contorta*, and *Themeda triandra* open tussock grassland.	

Taxon name	Growth form	Height (m)	Cover%
Abutilon fraseri	shrub	0.3	0.1
Abutilon lepidum	herb	0.2	0.1
Abutilon otocarpum	shrub	0.3	0.1
Acacia aptaneura	tree	8	2
Acacia aptaneura	shrub	2.5	0.1
Acacia pruinocarpa	tree	4	1
Aristida contorta	grass	0.3	3
Aristida inaequiglumis	grass	0.4	4
Arivela viscosa	herb	0.8	0.1
Boerhavia coccinea	herb	0.1	0.1
Chrysopogon fallax	grass	0.6	0.1
Cucumis variabilis	creeper	n/a	0.1
Cymbopogon ambiguus	grass	0.8	0.1
Dactyloctenium radulans	grass	0.1	0.1
Digitaria ctenantha	grass	0.2	0.1
Duperreya commixta	creeper	n/a	0.1
Dysphania rhadinostachya subsp. inflata	herb	0.1	0.1
Enneapogon caerulescens	grass	0.2	0.1
Enneapogon polyphyllus	grass	0.2	0.1
Enneapogon robustissimus	grass	0.2	0.1
Eremophila forrestii subsp. forrestii	shrub	2.2	1
Eremophila latrobei subsp. filiformis	shrub	1.5	1
Eremophila longifolia	shrub	2.5	3
Eriachne mucronata	grass	0.3	0.1

Eulalia aurea	grass	0.1	0.1
Euphorbia coghlanii	herb	0.1	0.1
Evolvulus alsinoides var. villosicalyx	herb	0.1	0.1
Gomphrena canescens subsp. Canescens	herb	0.2	0.1
Hibiscus burtonii	shrub	0.6	0.1
Maireana villosa	shrub	0.1	0.1
Perotis rara	grass	0.1	0.1
Pterocaulon sphacelatum	herb	1	1
Ptilotus exaltatus	herb	0.2	0.1
Ptilotus helipteroides	herb	0.1	0.1
Ptilotus obovatus	herb	1	1
Rhynchosia minima	herb	0.3	0.1
Salsola australis	shrub	0.3	0.1
Santalum lanceolatum	shrub	2	0.1
Sclerolaena cornishiana	herb	0.2	0.1
Senna artemisioides subsp. helmsii	shrub	0.6	0.1
Senna artemisioides subsp. helmsii	shrub	0.6	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.1	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	shrub	0.9	0.1
Themeda triandra	grass	0.2	3
Tragus australianus	grass	0.1	0.1
Triodia pungens	grass	0.4	0.1

Site	Q03	Site photo
Date	14/05/21	Flora_Quadrat/PhotoP5140010
Vegetation type	B - Mulga and acacia low open woodland over open tussock grassland on gently sloping (drainage) plain with variable rock cover	
Landform	Plain	
Slope	Negligible	
Soil	Clay, Red brown	
Rock type	Quartzite, laterite	
Rock size	<10cm	
Rock cover	2%	
Vegetation cover	80%	
Condition	Good	
Disturbances	Fire has killed 90% of shrubs over 3m (Old burnt stage to 6m)	
Easting (MGA94 Zone 51)	684598	
Northing (MGA94 Zone 51)	7469275	
Vegetation description	*Acacia pruinocarpa* low open woodland; over *Eremophila longifolia* and *Santalum lanceolatum* sparse tall shrubland; over *Acacia aptaneura* and *Acacia* spp. sparse shrubland; over isolated low shrubs; over isolated dwarf shrubs; over *Pterocaulon sphacelatum*, *Ptilotus obovatus*, *Arivela viscosa* open forbland; over *Aristida inaequiglumis*, *Themeda triandra*, *Aristida lazaridis* open tussock grassland.	

Taxon name	Growth form	Height (m)	Cover%
**Cenchrus setiger*	grass	0.5	0.1
**Malvastrum americanum*	herb	0.4	0.1
**Solanum lasiophyllum*	shrub	0.5	0.1
Abutilon macrum	shrub	0.3	0.1
Abutilon otocarpum	shrub	0.3	0.1
Acacia aptaneura	shrub	2	0.1
Acacia bivenosa	shrub	2	0.1
Acacia pruinocarpa	tree	5	1
Acacia sp.	shrub	2	1
Alternanthera nana	herb	0.2	0.1
Androcalva luteiflora	shrub	1.3	0.1
Aristida contorta	grass	0.3	0.1
Aristida inaequiglumis	grass	0.6	5
Aristida lazaridis	grass	0.8	0.1
Arivela viscosa	herb	0.5	0.1
Boerhavia coccinea	herb	0.1	0.1
Cajanus marmoratus	herb	0.1	0.1
Chrysopogon fallax	grass	0.5	0.1
Convolvulus clementii	creeper	n/a	0.1
Cucumis variabilis	creeper	n/a	0.1
Dactyloctenium radulans	grass	0.1	0.1
Duperreya commixta	creeper	n/a	0.1
Enneapogon polyphyllus	grass	0.3	0.1
Enneapogon robustissimus	grass	0.5	0.1

Eremophila longifolia	shrub	4	2
Euphorbia australis var. subtomentosa	herb	0.1	0.1
Euphorbia coghlanii	herb	0.2	0.1
Euphorbia tannensis subsp. eremophila	herb	0.2	0.1
Evolvulus alsinoides var. villosicalyx	herb	0.2	0.1
Glycine sp.	herb	0.4	0.1
Goodenia stellata	herb	0.1	0.1
Hibiscus sturtii var. platychlamys	shrub	0.3	0.1
Indigofera georgei	shrub	0.5	0.1
Maireana villosa	shrub	0.3	0.1
Melhania oblongifolia	shrub	0.4	0.1
Panicum decompositum	grass	0.5	0.1
Paraneurachne muelleri	grass	0.2	0.1
Perotis rara	grass	0.1	0.1
Pterocaulon sphacelatum	herb	0.7	20
Ptilotus exaltatus	herb	0.4	0.1
Ptilotus helipteroides	herb	0.4	0.1
Ptilotus obovatus	herb	0.6	0.1
Rhynchosia minima	creeper	n/a	0.1
Salsola australis	shrub	1.1	0.1
Santalum lanceolatum	shrub	2	0.1
Senna artemisioides subsp. oligophylla	shrub	0.3	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.3	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.3	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	shrub	1	0.1
Themeda triandra	grass	0.4	4
Tribulus macrocarpus	herb	0.1	0.1
Trichodesma zeylanicum var. zeylanicum	herb	1.2	0.1

Site	Q04	Site photo
Date	14/05/21	Flora_Quadrat/PhotoP5140022
Vegetation type	B - Mulga and acacia low open woodland over open tussock grassland on gently sloping (drainage) plain with variable rock cover	
Landform	Plain	
Slope	Very Slight	
Soil	Clay, Red brown	
Rock type	Quartzite, Shale	
Rock size	To 5cm	
Rock cover	10%	
Vegetation cover	85%	
Condition	Good	
Disturbances	Fire deaths 50% of shrubs >3m	
Easting (MGA94 Zone 51)	684314	
Northing (MGA94 Zone 51)	7468803	
Vegetation description	*Acacia aptaneura* isolated low trees; over *Acacia pruinocarpa*, *Santalum lanceolatum*, *Gossypium robinsonii* sparse tall shrubland; over isolated shrubs; over isolated low shrubs; over isolated dwarf shrubs; over *Pterocaulon sphacelatum*, *Arivela viscosa*; *Trichodesma zeylanicum* var. *zeylanicum* open forbland; over *Aristida inaequiglumis* and *Aristida contorta* tussock grassland.	

Taxon name	Growth form	Height (m)	Cover%
**Bidens bipinnata*	herb	0.4	0.1
**Malvastrum americanum*	herb	0.6	0.1
Abutilon fraseri	shrub	0.5	0.1
Abutilon otocarpum	shrub	0.4	0.1
Acacia aptaneura	tree	8	0.1
Acacia pruinocarpa	shrub	3	2
Alternanthera nana	herb	0.2	0.1
Amaranthus cuspidifolius	herb	0.2	0.1
Aristida contorta	grass	0.3	5
Aristida inaequiglumis	grass	0.5	60
Arivela viscosa	herb	1	0.1
Chrysopogon fallax	grass	0.7	0.1
Cucumis variabilis	creeper	n/a	0.1
Dactyloctenium radulans	grass	0.1	0.1
Duperreya commixta	creeper	n/a	0.1
Enneapogon polyphyllus	grass	0.3	0.1
Eragrostis eriopoda	grass	0.3	0.1
Glycine sp.	creeper	n/a	0.1
Gossypium robinsonii	shrub	4	0.1
Maireana villosa	shrub	0.4	0.1
Panicum decompositum	grass	0.5	0.1
Paraneurachne muelleri	grass	0.5	0.1
Perotis rara	grass	0.1	0.1
Psydrax latifolia	shrub	1	0.1
Pterocaulon sphacelatum	herb	0.9	15

Ptilotus exaltatus	grass	0.8	0.1
Ptilotus helipteroides	herb	0.1	0.1
Rhynchosia minima	creeper	n/a	0.1
Salsola australis	shrub	0.5	0.1
Santalum lanceolatum	tree	2	0.1
Senna artemisioides subsp. helmsii	shrub	1	0.1
Sida platycalyx	shrub	0.3	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.1	0.1
Themeda triandra	grass	0.6	0.1
Tribulus macrocarpus	herb	0.1	0.1
Trichodesma zeylanicum var. zeylanicum	herb	1.5	0.1

Site	Q05	Site photo
Date	14/05/21	Flora_Quadrat/PhotoP5140017
Vegetation type	B - Mulga and acacia low open woodland over open tussock grassland on gently sloping (drainage) plain with variable rock cover	
Landform	Drainage line on Plain	
Slope	Drains to south (200°)	
Soil	Clay	
Rock type	Quartzite, laterite	
Rock size	To 8cm	
Rock cover	2%	
Vegetation cover	60%	
Condition	Degraded	
Disturbances	Weeds, fire has killed some large trees, as well as shrubs >2m (5%)	
Easting (MGA94 Zone 51)	684684	
Northing (MGA94 Zone 51)	7468922	
Vegetation description	Acacia aptaneura low mulga woodland; over isolated shrubs; over isolated low shrubs; over isolated dwarf shrubs; over Pterocaulon sphacelatum, *Bidens bipinnata, *Malvastrum americanum open forbland; over Cenchrus ciliaris, Aristida contorta, A. inaequiglumis, Themeda triandra (56.2%) tussock grassland.	

Taxon name	Growth form	Height (m)	Cover%
**Bidens bipinnata*	herb	0.2	2
**Cenchrus ciliaris*	grass	1	40
**Malvastrum americanum*	herb	0.3	2
**Portulaca oleracea*	herb	0.1	0.1
**Solanum lasiophyllum*	shrub	0.3	0.1
Abutilon macrum	shrub	0.2	0.1
Abutilon otocarpum	shrub	0.3	0.1
Acacia aptaneura	tree	9	20
Alternanthera nana	herb	0.2	0.1
Aristida contorta	grass	0.3	8
Aristida inaequiglumis	grass	0.6	5
Arivela viscosa	herb	1	0.1
Boerhavia coccinea	herb	0.1	0.1
Chrysopogon fallax	grass	0.7	0.1
Cucumis variabilis	creeper	n/a	0.1
Digitaria ammophila	grass	0.2	0.1
Digitaria ctenantha	grass	0.1	0.1
Duperreya commixta	creeper	n/a	0.1
Dysphania rhadinostachya subsp. inflata	herb	0.1	0.1
Enneapogon caerulescens	grass	0.2	0.1
Enneapogon polyphyllus	grass	0.3	0.1
Eragrostis eriopoda	grass	0.2	0.1
Eremophila latrobei subsp. filiformis	shrub	1.5	0.1
Eriachne pulchella subsp. pulchella	grass	0.1	0.1
Euphorbia australis var. subtomentosa	herb	0.1	0.1

Evolvulus alsinoides var. villosicalyx	herb	0.1	0.1
Glycine sp.	Creeper	n/a	0.1
Goodenia prostrata	herb	0.01	0.1
Gossypium robinsonii	shrub	n/a	0.1
Maireana villosa	shrub	0.2	0.1
Melhania oblongifolia	shrub	0.3	0.1
Paraneurachne muelleri	grass	0.1	0.1
Perotis rara	grass	0.1	0.1
Polycarpaea corymbosa	herb	0.1	0.1
Pterocaulon sphacelatum	herb	0.5	5
Ptilotus exaltatus	grass	0.7	0.1
Ptilotus helipteroides	herb	0.2	0.1
Ptilotus obovatus	herb	0.5	0.1
Rhagodia eremaea	shrub	1	0.1
Rhagodia sp. Hamersley (M. Trudgen 17794)	shrub	2	0.1
Rhynchosia minima	creeper	0.3	0.1
Salsola australis	shrub	1	0.1
Schizachyrium fragile	grass	0.1	0.1
Senna artemisioides subsp. helmsii	shrub	0.6	0.1
Senna artemisioides subsp. oligophylla	shrub	0.4	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.2	0.1
Sporobolus australasicus	herb	0.15	0.1
Stemodia grossa	herb	0.4	0.1
Themeda triandra	grass	0.9	2
Tragus australianus	grass	0.1	0.1
Tribulus macrocarpus	herb	0.1	0.1
Trichodesma zeylanicum var. zeylanicum	herb	1.5	0.1
Triodia pungens	grass	0.3	0.1

Site	Q06	Site photo
Date	14/05/21	Flora_Quadrat/PhotoP5140020
Vegetation type	B - Mulga and acacia low open woodland over open tussock grassland on gently sloping (drainage) plain with variable rock cover	
Landform	Plain	
Slope	Negligible	
Soil	Clay, Red brown	
Rock type	Shale, quartzite, laterite	
Rock size	To 10cm	
Rock cover	95%	
Vegetation cover	6%	
Condition	Good	
Disturbances	Fire deaths of 50% of shrubs >2m	
Easting (MGA94 Zone 51)	684562	
Northing (MGA94 Zone 51)	7468748	
Vegetation description	*Acacia pruinocarpa* and *A. aptaneura* low open woodland; over *Hakea lorea* subsp. *lorea*, *Eremophila forrestii* subsp. *forrestii*, **Solanum lasiophyllum* isolated shrubs; over isolated low shrubs; over isolated dwarf shrubs; over isolated forbs; over *Aristida contorta*, *A. inaequiglumis*, *Themeda triandra* sparse tussock grassland.	

Taxon name	Growth form	Height (m)	Cover%
**Portulaca oleracea*	herb	0.1	0.1
**Solanum lasiophyllum*	shrub	1	0.1
Abutilon otocarpum	shrub	0.2	0.1
Acacia aptaneura	tree	4	1
Acacia pruinocarpa	tree	9	1
Aristida contorta	grass	0.2	6
Aristida inaequiglumis	grass	0.5	0.1
Boerhavia coccinea	herb	0.1	0.1
Cucumis variabilis	Creeper	n/a	0.1
Cymbopogon ambiguus	grass	1	0.1
Duperreya commixta	Creeper	1.2	0.1
Dysphania rhadinostachya subsp. inflata	herb	0.1	0.1
Enneapogon caerulescens	grass	0.2	0.1
Enneapogon polyphyllus	grass	0.3	0.1
Enneapogon robustissimus	grass	0.2	0.1
Eremophila forrestii subsp. forrestii	shrub	1.2	0.1
Goodenia prostrata	herb	0.01	0.1
Hakea lorea subsp. lorea	shrub	1.5	0.1
Hibiscus burtonii	shrub	0.3	0.1
Maireana villosa	shrub	0.5	0.1
Paraneurachne muelleri	grass	0.4	0.1
Perotis rara	grass	0.1	0.1
Pterocaulon sphacelatum	herb	1	0.1
Ptilotus exaltatus	grass	1	0.1
Ptilotus helipteroides	herb	0.2	0.1
Ptilotus obovatus	herb	0.9	0.1

Rhagodia eremaea	shrub	0.6	0.1
Salsola australis	shrub	1	0.1
Senna artemisioides subsp. helmsii	shrub	0.5	0.1
Sida ? echinocarpa	shrub	0.5	0.1
Stemodia grossa	herb	0.2	0.1
Themeda triandra	grass	0.7	0.1
Tribulus macrocarpus	herb	0.1	0.1
Triodia pungens	grass	0.6	0.1

Site	Q07	Site photo
Date	12/05/21	Flora_Quadrat/PhotoP5120003
Vegetation type	C - Mulga and Acacia low open woodland over open spinifex and tussock grassland on flat plain with medium rock cover	
Landform	Plain	
Slope	N/A	
Soil	Clay, Dark red/black	
Rock type	Laterite	
Rock size	<10cm	
Rock cover	50%	
Vegetation cover	40%	
Condition	Very Good	
Disturbances	Fire >10 y.b.p	
Easting (MGA94 Zone 51)	684837	
Northing (MGA94 Zone 51)	7468759	
Vegetation description	Acacia pruinocarpa and Eucalyptus gamophylla low open woodland; over Acacia aptaneura, A. elachantha, and Santalum lanceolatum sparse tall shrubland; over isolated shrubs; over isolated low shrubs; over isolated dwarf shrubs; over Ptilotus obovatus, Pterocaulon sphacelatum, Arivela viscosa sparse forbland; over Aristida inaequiglumis, Themeda triandra, Triodia pungens, T. melvillei open grassland.	

Taxon name	Growth form	Height (m)	Cover%
**Portulaca oleracea*	herb	0.1	0.1
Abutilon otocarpum	shrub	0.4	0.1
Acacia aptaneura	shrub	4	2
Acacia dictyophleba	shrub	1.2	0.1
Acacia elachantha	shrub	4	0.1
Acacia pruinocarpa	tree	5	4
Acacia sp.	shrub	2	0.1
Alternanthera nana	herb	0.2	0.1
Aristida contorta	grass	0.1	0.1
Aristida inaequiglumis	grass	0.8	10
Arivela viscosa	herb	0.4	0.1
Boerhavia schomburgkiana	herb	0.2	0.1
Capparis lasiantha	shrub	1	0.1
Chrysopogon fallax	grass	0.3	0.1
Cucumis variabilis	Creeper	n/a	0.1
Duperreya commixta	Creeper	n/a	0.1
Enneapogon polyphyllus	grass	0.2	0.1
Enneapogon robustissimus	grass	0.5	0.1
Eremophila forrestii subsp. forrestii	shrub	2	0.1
Eriachne pulchella subsp. pulchella	grass	0.1	0.1
Eucalyptus gamophylla	tree	3	1
Evolvulus alsinoides var. villosicalyx	herb	0.1	0.1
Goodenia microptera	herb	0.1	0.1
Hakea chordophylla	shrub	2	0.1
Hibiscus burtonii	shrub	0.3	0.1

Hibiscus coatesii	shrub	0.3	0.1
Hibiscus sturtii var. platychlamys	shrub	0.2	0.1
Maireana villosa	shrub	0.2	0.1
Panicum decompositum	grass	0.5	0.1
Paraneurachne muelleri	grass	0.2	0.1
Perotis rara	grass	0.1	0.1
Polycarpaea corymbosa	herb	0.1	0.1
Psydrax latifolia	shrub	1.2	0.1
Pterocaulon sphacelatum	herb	0.7	0.1
Ptilotus exaltatus	herb	0.2	0.1
Ptilotus helipteroides	herb	0.2	0.1
Ptilotus obovatus	herb	1	1
Rhagodia sp. Hamersley (M. Trudgen 17794)	shrub	1.1	0.1
Salsola australis	shrub	0.1	0.1
Santalum lanceolatum	tree	3	0.1
Senna artemisioides subsp. helmsii	shrub	0.5	0.1
Sida platycalyx	shrub	0.3	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.1	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	herb	0.8	0.1
Themeda triandra	grass	0.8	10
Trichodesma zeylanicum var. zeylanicum	herb	1.1	0.1
Triodia pungens	grass	0.5	5

Site	Q09	Site photo
Date	17/05/21	Flora_Quadrat/PhotoP5170080
Vegetation type	C - Mulga and Acacia low open woodland over open spinifex and tussock grassland on flat plain with medium rock cover	
Landform	Plain	
Slope	-	
Soil	Clay, Red brown	
Rock type	Quartzite + laterite fines	
Rock size	<10cm	
Rock cover	10%	
Vegetation cover	50%	
Condition	Good	
Disturbances	Fire deaths 20% of shrubs/trees >2m	
Easting (MGA94 Zone 51)	684181	
Northing (MGA94 Zone 51)	7468474	
Vegetation description	*Acacia aptaneura*, *A. pruinocarpa*, and *Corymbia deserticola* isolated low trees; over *Acacia dictyophleba* and *Santalum lanceolatum* isolated tall shrubs; over isolated shrubs; over isolated low shrubs; over isolated dwarf shrubs; over *Pterocaulon sphacelatum*, **Malvastrum americanum*, *Arivela viscosa* sparse forbland; *Triodia pungens*, *Aristida inaequiglumis* and *Themeda triandra* open grassland.	

Taxon name	Growth form	Height (m)	Cover%
**Malvastrum americanum*	herb	0.8	0.1
**Portulaca oleracea*	herb	0.1	0.1
**Stylosanthes hamata*	herb	0.3	0.1
Abutilon otocarpum	shrub	0.3	0.1
Acacia acradenia	shrub	1.5	0.1
Acacia aptaneura	tree	8	0.1
Acacia bivenosa	shrub	2	0.1
Acacia dictyophleba	shrub	2.5	0.1
Acacia elachantha	shrub	1.1	0.1
Acacia pachyacra	shrub	1.2	0.1
Acacia pruinocarpa	tree	6	0.1
Alternanthera nana	herb	0.2	0.1
Aristida contorta	grass	0.3	0.1
Aristida holathera var. holathera	grass	0.4	0.1
Aristida inaequiglumis	grass	0.4	3
Arivela viscosa	herb	0.7	0.1
Boerhavia coccinea	herb	0.2	0.1
Chrysopogon fallax	grass	0.5	0.1
Corymbia deserticola subsp. Deserticola	tree	3.2	0.1
Cucumis variabilis	Creeper	n/a	0.1
Cymbopogon obtectus	grass	1	0.1
Duperreya commixta	Creeper	n/a	0.1
Dysphania kalpari	herb	0.1	0.1
Enneapogon polyphyllus	grass	0.4	0.1
Enneapogon robustissimus	grass	0.5	0.1

Eremophila forrestii subsp. forrestii	shrub	1.2	0.1
Eremophila latrobei subsp. filiformis	shrub	1	0.1
Eremophila longifolia	shrub	1.2	0.1
Eulalia aurea	grass	0.7	0.1
Evolvulus alsinoides var. villosicalyx	herb	0.2	0.1
Goodenia microptera	herb	0.3	0.1
Hibiscus sturtii var. platychlamys	shrub	0.5	0.1
Maireana villosa	shrub	0.5	0.1
Panicum decompositum	grass	0.5	0.1
Paraneurachne muelleri	grass	0.5	0.1
Perotis rara	grass	0.1	0.1
Phyllanthus erwinii	shrub	0.1	0.1
Pterocaulon sphacelatum	herb	1	0.1
Ptilotus exaltatus	grass	0.6	0.1
Ptilotus helipteroides	herb	0.2	0.1
Ptilotus obovatus	herb	0.6	0.1
Santalum lanceolatum	tree	2	0.1
Senna notabilis	shrub	0.4	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.2	0.1
Themeda triandra	grass	0.6	2
Trichodesma zeylanicum var. zeylanicum	herb	1.2	0.1
Triodia melvillei	grass	0.5	0.1
Triodia pungens	grass	0.5	4

Site	Q10	Site photo
Date	17/05/21	Flora_Quadrat/PhotoP5170078
Vegetation type	C - Mulga and Acacia low open woodland over open spinifex and tussock grassland on flat plain with medium rock cover	
Landform	Plain	
Slope	-	
Soil	Clay, Red brown	
Rock type	Clay + Laterite fines	
Rock size	<8cm	
Rock cover	40%	
Vegetation cover	45%	
Condition	Good	
Disturbances	Fire killed 20% shrubs >2m	
Easting (MGA94 Zone 51)	684659	
Northing (MGA94 Zone 51)	7468432	
Vegetation description	*Acacia pruinocarpa*, *A. aptaneura*, *Corymbia deserticola* subsp. *deserticola* low open woodland; over isolated tall shrubs; over isolated shrubs; over sparse dwarf shrubs; over *Arivela viscosa*, *Pterocaulon sphacelatum*, *Ptilotus obovatus* isolated forbs; over *Triodia pungens*, *Aristida inaequiglumis*, *Themeda triandra* grassland.	

Taxon name	Growth form	Height (m)	Cover%
*Cenchrus ciliaris	grass	0.6	0.1
Abutilon otocarpum	shrub	0.2	0.1
Acacia aptaneura	tree	5	2
Acacia dictyophleba	shrub	2.5	0.1
Acacia pruinocarpa	tree	6	4
Aristida contorta	grass	0.3	0.1
Aristida holathera var. holathera	grass	0.3	0.1
Aristida inaequiglumis	grass	0.4	2
Arivela viscosa	herb	0.8	0.1
Chrysopogon fallax	grass	0.5	0.1
Corymbia deserticola subsp. Deserticola	tree	4	0.1
Cucumis variabilis	Creeper	n/a	0.1
Duperreya commixta	Creeper	n/a	0.1
Enneapogon caerulescens	grass	0.2	0.1
Enneapogon polyphyllus	grass	0.3	0.1
Eremophila forrestii subsp. forrestii	shrub	2	0.1
Eremophila latrobei subsp. filiformis	shrub	0.5	0.1
Eremophila longifolia	shrub	2.5	0.1
Eriachne pulchella subsp. pulchella	grass	0.1	0.1
Eulalia aurea	grass	1	0.1
Euphorbia australis var. subtomentosa	herb	0.2	0.1
Evolvulus alsinoides var. villosicalyx	herb	0.3	0.1
Hibiscus sturtii var. platychlamys	shrub	0.2	0.1
Maireana villosa	shrub	0.4	0.1
Panicum decompositum	grass	0.5	0.1
Paraneurachne muelleri	grass	0.4	0.1

Perotis rara	grass	0.1	0.1
Polycarpaea corymbosa	herb	0.2	0.1
Pterocaulon sphacelatum	herb	0.8	0.1
Ptilotus exaltatus	grass	0.3	0.1
Ptilotus obovatus	herb	0.4	0.1
Salsola australis	shrub	0.3	0.1
Schizachyrium fragile	grass	0.2	0.1
Sclerolaena cornishiana	herb	0.1	0.1
Senna artemisioides subsp. oligophylla	shrub	0.1	0.1
Sida platycalyx	shrub	0.3	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.4	0.1
Themeda triandra	grass	0.5	2
Tribulus macrocarpus	herb	0.2	0.1
Triodia pungens	grass	0.5	40

Site	Q11	Site photo
Date	16/05/21	Flora_Quadrat/PhotoP5160044
Vegetation type	C - Mulga and Acacia low open woodland over open spinifex and tussock grassland on flat plain with medium rock cover	
Landform	Plain	
Slope	Negligible	
Soil	Clay, Red brown	
Rock type	Quartzite	
Rock size	Up to 8cm	
Rock cover	20%	
Vegetation cover	20%	
Condition	Good	
Disturbances	Fire deaths Acacia >2m 50%	
Easting (MGA94 Zone 51)	684096	
Northing (MGA94 Zone 51)	7468226	
Vegetation description	*Acacia aptaneura* low open woodland; over *Acacia pruinocarpa* and *A. elachantha* isolated tall shrubs; over *Acacia dictyophleba*, *A. pachyacra*, *Psydrax latifolia* isolated shrubs; over isolated low shrubs; over isolated dwarf shrubs; over *Ptilotus calostachyus*, *Ptilotus obovatus*, *Evolvulus alsinoides* var. *villosicalyx* sparse forbland; over *Triodia melvillei*, *Aristida contorta*, *Themeda triandra* open grassland.	

Taxon name	Growth form	Height (m)	Cover%
Abutilon otocarpum	shrub	0.6	0.1
Acacia aptaneura	tree	7	5
Acacia dictyophleba	shrub	2	0.1
Acacia elachantha	shrub	2.5	0.1
Acacia pruinocarpa	shrub	2.5	0.1
Acacia pachyacra	shrub	1.2	0.1
Aristida contorta	grass	0.4	5
Aristida holathera var. holathera	grass	0.4	0.1
Arivela viscosa	herb	0.2	0.1
Cheilanthes sieberi subsp. sieberi	fern	0.2	0.1
Chrysopogon fallax	grass	0.5	0.1
Cucumis variabilis	Creeper	n/a	0.1
Duperreya commixta	Creeper	n/a	0.1
Dysphania kalpari	herb	0.1	0.1
Enneapogon polyphyllus	grass	0.2	0.1
Enneapogon robustissimus	grass	0.6	0.1
Eulalia aurea	grass	0.6	0.1
Euphorbia aff. ferdinandi	herb	0.1	0.1
Euphorbia biconvexa	herb	0.2	0.1
Evolvulus alsinoides var. villosicalyx	herb	0.3	0.1
Goodenia microptera	herb	0.2	0.1
Goodenia stellata	herb	0.1	0.1
Hibiscus burtonii	shrub	0.5	0.1
Hibiscus sturtii var. platychlamys	shrub	0.5	0.1
Indigofera georgei	shrub	0.8	0.1

Maireana villosa	shrub	0.3	0.1
Panicum decompositum	grass	0.3	0.1
Paraneurachne muelleri	grass	0.4	1
Paspalidium rarum	grass	0.2	0.1
Perotis rara	grass	0.1	0.1
Psydrax latifolia	shrub	1.8	0.1
Pterocaulon sphacelatum	herb	1.2	0.1
Ptilotus calostachyus	herb	0.8	0.1
Ptilotus exaltatus	grass	0.4	0.1
Ptilotus helipteroides	herb	0.2	0.1
Ptilotus obovatus	herb	0.5	0.1
Scaevola parvifolia subsp. parvifolia	shrub	0.4	0.1
Sclerolaena cornishiana	herb	0.1	0.1
Senna artemisioides subsp. oligophylla	shrub	0.3	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.2	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	shrub	1.2	0.1
Themeda triandra	grass	0.8	2
Triodia melvillei	grass	0.7	10

Site	Q12	Site photo
Date	17/05/21	Flora_Quadrat/PhotoP5170076
Vegetation type	C - Mulga and Acacia low open woodland over open spinifex and tussock grassland on flat plain with medium rock cover	
Landform	Plain	
Slope	-	
Soil	Clay, Red brown	
Rock type	Quartzite	
Rock size	<5cm	
Rock cover	25%	
Vegetation cover	55%	
Condition	Good	
Disturbances	Fire deaths 10% Shrubs >2m	
Easting (MGA94 Zone 51)	684574	
Northing (MGA94 Zone 51)	7468353	
Vegetation description	*Acacia pruinocarpa*, *Eremophila longifolia*, *Hakea lorea* subsp. *lorea* open (5.2%) woodland; over *Acacia aptaneura* (0.1%) isolated tall shrubs; over *Acacia dictyophleba*, *Anthobolus leptomerioides*, *Salsola australis* (0.3%) shrubs; over *Abutilon macrum*, *Abutilon otocarpum*, *Hibiscus burtonii* (0.4%) low shrubs; over isolated dwarf shrubs; over *Pterocaulon sphacelatum*, *Arivela viscosa*, *Ptilotus calostachyus* sparse forbland; over *Themeda triandra*, *Eulalia aurea*, *Triodia pungens* and *T. melvillei* open grassland.	

Taxon name	Growth form	Height (m)	Cover%
Abutilon macrum	shrub	0.5	0.1
Abutilon otocarpum	shrub	0.6	0.1
Acacia aptaneura	shrub	3	0.1
Acacia dictyophleba	shrub	1.5	0.1
Acacia pruinocarpa	tree	7	5
Alternanthera nana	herb	0.4	0.1
Anthobolus leptomerioides	shrub	1	0.1
Aristida contorta	grass	0.3	1
Aristida holathera var. holathera	grass	0.5	0.1
Aristida inaequiglumis	grass	0.6	0.1
Aristida lazaridis	grass	0.3	0.1
Arivela viscosa	herb	1	0.1
Boerhavia coccinea	herb	0.1	0.1
Cheilanthes sieberi subsp. sieberi	fern	0.2	0.1
Chrysocephalum apiculatum subsp. pilbarense	grass	0.25	0.1
Chrysopogon fallax	grass	0.7	0.1
Cucumis variabilis	Creeper	n/a	0.1
Duperreya commixta	Creeper	n/a	0.1
Dysphania kalpari	herb	0.1	0.1
Enneapogon polyphyllus	grass	0.4	0.1
Enneapogon robustissimus	grass	0.5	0.1
Enneapogon lindleyanus	grass	0.3	0.1
Eremophila longifolia	shrub	6	0.1
Eulalia aurea	grass	0.5	10

Euphorbia australis var. subtomentosa	herb	0.1	0.1
Evolvulus alsinoides var. villosicalyx	herb	0.2	0.1
Glycine sp.	Creeper	n/a	0.1
Hakea lorea subsp. lorea	tree	5	0.1
Hibiscus burtonii	shrub	0.5	0.1
Maireana villosa	shrub	0.4	0.1
Panicum decompositum	grass	0.5	0.1
Paraneurachne muelleri	grass	0.5	0.1
Peripleura virgata	herb	0.3	0.1
Perotis rara	grass	0.1	0.1
Pterocaulon sphacelatum	herb	0.5	5
Ptilotus calostachyus	herb	0.8	0.1
Ptilotus exaltatus	grass	0.7	0.1
Ptilotus helipteroides	herb	0.2	0.1
Ptilotus obovatus	herb	1	0.1
Salsola australis	shrub	1	0.1
Senna notabilis	shrub	0.3	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.2	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	shrub	0.6	0.1
Themeda triandra	grass	0.5	20
Triodia pungens	grass	0.5	5

Site	Q13	Site photo
Date	17/05/21	Flora_Quadrat/PhotoP5170082
Vegetation type	C - Mulga and Acacia low open woodland over open spinifex and tussock grassland on flat plain with medium rock cover	
Landform	Plain	
Slope	<2°	
Soil	Clay, Red brown	
Rock type	Quartzite + laterite fines	
Rock size	<10cm	
Rock cover	60%	
Vegetation cover	40%	
Condition	Good	
Disturbances	Fire deaths 50% trees + Shrubs >2m	
Easting (MGA94 Zone 51)	684555	
Northing (MGA94 Zone 51)	7467944	
Vegetation description	*Acacia aptaneura* low open mulga woodland; over *Acacia pruinocarpa*, *Hakea lorea* subsp. *lorea*, *Acacia elachantha* sparse tall shrubland; over isolated shrubs; over isolated low shrubs; over isolated dwarf shrubs; over *Pterocaulon sphacelatum*, *Arivela viscosa*, *Ptilotus obovatus* sparse forbland; over *Eulalia aurea*, *Aristida inaequiglumis*, and *Themeda triandra* tussock grassland.	

Taxon name	Growth form	Height (m)	Cover%
**Bidens bipinnata*	herb	0.2	0.1
**Cenchrus setiger*	grass	0.2	0.1
**Portulaca oleracea*	herb	0.1	0.1
**Solanum lasiophyllum*	shrub	0.2	0.1
Abutilon otocarpum	shrub	0.2	0.1
Acacia aptaneura	shrub	4	2
Acacia dictyophleba	shrub	1.5	0.1
Acacia elachantha	shrub	3	0.1
Acacia pachyacra	shrub	2	0.1
Acacia pruinocarpa	shrub	2.2	1
Alternanthera nana	herb	0.3	0.1
Aristida contorta	grass	0.3	1
Aristida inaequiglumis	grass	0.5	10
Aristida lazaridis	grass	0.5	0.1
Arivela viscosa	herb	0.6	0.1
Boerhavia coccinea	herb	0.2	0.1
Chrysopogon fallax	grass	0.3	0.1
Cucumis variabilis	Creeper	n/a	0.1
Digitaria brownii	grass	0.6	0.1
Duperreya commixta	Creeper	n/a	0.1
Dysphania rhadinostachya subsp. Inflata	herb	0.2	0.1
Enneapogon polyphyllus	grass	0.4	1
Enneapogon robustissimus	grass	0.5	0.1
Eremophila latrobei subsp. filiformis	shrub	1.1	0.1
Eremophila longifolia	shrub	1.2	0.1

Eriachne pulchella subsp. pulchella	grass	0.1	0.1
Eulalia aurea	grass	0.7	15
Euphorbia aff. ferdinandi	herb	0.1	0.1
Euphorbia biconvexa	shrub	0.1	0.1
Evolvulus alsinoides var. villosicalyx	herb	0.1	0.1
Hakea lorea subsp. lorea	tree	2	1
Hibiscus burtonii	shrub	0.8	0.1
Indigofera georgei	shrub	1.1	0.1
Maireana villosa	shrub	0.4	0.1
Panicum decompositum	grass	0.5	0.1
Paraneurachne muelleri	grass	0.1	0.1
Peripleura virgata	herb	0.3	0.1
Peripleura obovata	herb	0.3	0.1
Perotis rara	grass	0.1	0.1
Psydrax latifolia	shrub	0.7	0.1
Pterocaulon sphacelatum	herb	1	4
Ptilotus exaltatus	grass	0.5	0.1
Ptilotus helipteroides	herb	0.3	0.1
Ptilotus obovatus	herb	0.5	0.1
Senna artemisioides subsp. x artemisioides	shrub	1	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.2	0.1
Solanum ? horridum	shrub	0.5	0.1
Sporobolus australasicus	herb	0.1	0.1
Themeda triandra	grass	0.6	5
Triodia melvillei	grass	0.6	1
Triodia pungens	grass	0.6	2

Site	Q14	Site photo
Date	16/05/21	Flora_Quadrat/PhotoP5160058
Vegetation type	C - Mulga and Acacia low open woodland over open spinifex and tussock grassland on flat plain with medium rock cover	
Landform	Plain	
Slope	-	
Soil	Clay, Red brown	
Rock type	Quartzite, Shale	
Rock size	Up to 10cm	
Rock cover	45%	
Vegetation cover	25%	
Condition	Good	
Disturbances	Fire deaths 10% of shrubs >2m	
Easting (MGA94 Zone 51)	685014	
Northing (MGA94 Zone 51)	7468361	
Vegetation description	*Acacia acradenia* and *Acacia aptaneura* low open woodland; over *Acacia pruinocarpa*, *A. dictyophleba*, *Hakea lorea* subsp. *lorea* sparse tall shrubland; over isolated shrubs; over isolated low shrubs; over isolated dwarf shrubs; over *Pterocaulon sphacelatum*, *Goodenia microptera*, *Ptilotus exaltatus* sparse forbland; over *Triodia melvillei* open hummock grassland.	

Taxon name	Growth form	Height (m)	Cover%
**Bidens bipinnata*	herb	0.1	0.1
**Portulaca oleracea*	herb	0.1	0.1
**Solanum lasiophyllum*	shrub	0.5	0.1
Abutilon fraseri	shrub	0.3	0.1
Abutilon otocarpum	shrub	0.3	0.1
Acacia acradenia	tree	8	2
Acacia aptaneura	tree	6	2
Acacia dictyophleba	shrub	3	2
Acacia pruinocarpa	shrub	4	2
Alternanthera nana	herb	0.1	0.1
Anthobolus leptomerioides	shrub	1	0.1
Aristida contorta	grass	0.4	0.1
Aristida inaequiglumis	grass	0.5	0.1
Arivela viscosa	herb	0.1	0.1
Boerhavia coccinea	herb	0.1	0.1
Chrysopogon fallax	grass	0.6	0.1
Digitaria brownii	grass	0.5	0.1
Duperreya commixta	Creeper	n/a	0.1
Enneapogon polyphyllus	grass	0.3	0.1
Eriachne mucronata	grass	0.1	0.1
Eriachne pulchella subsp. pulchella	grass	0.1	0.1
Eulalia aurea	grass	0.9	0.1
Euphorbia aff. ferdinandi	herb	0.1	0.1
Evolvulus alsinoides var. villosicalyx	herb	0.2	0.1
Goodenia microptera	herb	0.3	0.1

Goodenia prostrata	herb	0.01	0.1
Hakea lorea subsp. lorea	tree	2.1	0.1
Hibiscus burtonii	shrub	0.5	0.1
Hibiscus sturtii var. platychlamys	shrub	0.5	0.1
Panicum decompositum	grass	0.5	0.1
Paraneurachne muelleri	grass	0.5	0.1
Polycarpaea corymbosa	herb	0.1	0.1
Polygala glaucifolia	herb	0.1	0.1
Psydrax latifolia	shrub	1	0.1
Psydrax rigidula	shrub	1	0.1
Pterocaulon sphacelatum	herb	0.3	0.1
Ptilotus exaltatus	herb	0.3	0.1
Ptilotus helipteroides	herb	0.3	0.1
Ptilotus obovatus	grass	0.4	0.1
Scaevola parvifolia subsp. parvifolia	shrub	0.3	0.1
Schizachyrium fragile	grass	0.2	0.1
Senna notabilis	shrub	0.1	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.3	0.1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	shrub	1	0.1
Tephrosia sp.	shrub	0.4	0.1
Themeda triandra	grass	0.5	0.1
Triodia melvillei	grass	1	10

Site	Q17	Site photo
Date	16/05/21	Flora_Quadrat/PhotoP5160051
Vegetation type	C - Mulga and Acacia low open woodland over open spinifex and tussock grassland on flat plain with medium rock cover	
Landform	Plain	
Slope	-	
Soil	Clay, Red brown	
Rock type	Quartzite + laterite fines	
Rock size	<5cm	
Rock cover	5%	
Vegetation cover	22%	
Condition	Good	
Disturbances	Fire death 5% of shrubs/trees over 2m	
Easting (MGA94 Zone 51)	685015	
Northing (MGA94 Zone 51)	7467909	
Vegetation description	*Acacia aptaneura* low open (mulga) woodland; over *Hakea lorea* subsp. *lorea*, *Acacia pachyacra* and *A. tenuissima* sparse tall shrubland; over isolated shrubs; over isolated low shrubs; over isolated dwarf shrubs; over *Ptilotus helipteroides*, *Pterocaulon sphacelatum*, *Ptilotus exaltatus* sparse forbland; over *Triodia melvillei*, *Aristida contorta, A. inaequiglumis* open grassland.	

Taxon name	Growth form	Height (m)	Cover%
**Portulaca oleracea*	herb	0.1	0.1
Abutilon otocarpum	shrub	0.2	0.1
Acacia aptaneura	tree	6	5
Acacia pachyacra	shrub	2.5	0.1
Acacia tenuissima	shrub	2.5	0.1
Anthobolus leptomerioides	shrub	1	0.1
Aristida contorta	grass	0.2	2
Aristida holathera var. holathera	grass	0.3	0.1
Aristida inaequiglumis	grass	0.5	2
Boerhavia coccinea	herb	0.1	0.1
Chrysopogon fallax	grass	0.6	0.1
Cymbopogon obtectus	grass	0.3	0.1
Digitaria brownii	grass	0.5	0.1
Duperreya commixta	Creeper	n/a	0.1
Dysphania kalpari	herb	0.1	0.1
Enneapogon polyphyllus	grass	0.3	0.1
Enneapogon robustissimus	grass	0.5	0.1
Eremophila latrobei subsp. filiformis	shrub	1.5	0.1
Eremophila longifolia	shrub	1.2	0.1
Eriachne pulchella subsp. pulchella	grass	0.1	0.1
Eulalia aurea	grass	0.6	0.1
Euphorbia biconvexa	shrub	0.1	0.1
Evolvulus alsinoides var. villosicalyx	herb	0.2	0.1
Gomphrena canescens subsp. Canescens	herb	0.2	0.1
Goodenia prostrata	herb	0.01	0.1

Hakea lorea subsp. lorea	tree	2	2
Hibiscus burtonii	shrub	1	0.1
Lysiana murrayi	Mistletoe	n/a	0.1
Maireana villosa	shrub	0.1	0.1
Perotis rara	grass	0.1	0.1
Polycarpaea corymbosa	herb	0.1	0.1
Pterocaulon sphacelatum	herb	0.8	0.1
Ptilotus exaltatus	herb	0.1	0.1
Ptilotus gaudichaudii	herb	0.2	0.1
Ptilotus helipteroides	herb	0.2	1
Ptilotus obovatus	grass	0.4	0.1
Rhagodia sp. Hamersley (M. Trudgen 17794)	shrub	1	0.1
Schizachyrium fragile	grass	0.1	0.1
Senna notabilis	shrub	0.1	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.5	0.1
Solanum ferocissimum	herb	0.2	0.1
Themeda triandra	grass	0.5	0.1
Triodia melvillei	grass	0.5	10

Site	Q19	Site photo
Date	16/05/21	Flora_Quadrat/PhotoP5160053
Vegetation type	D – Mulga, Hakea lorea, and Eucalyptus xerothermica low open woodland over closed tussock grassland on flat clay plain (no rocks)	
Landform	Plain	
Slope	-	
Soil	Clay, Red brown	
Rock type	-	
Rock size	-	
Rock cover	-	
Vegetation cover	80%	
Condition	Good	
Disturbances	Fire deaths of shrubs <1m about 20%	
Easting (MGA94 Zone 51)	685089	
Northing (MGA94 Zone 51)	7467734	
Vegetation description	*Acacia aptaneura*, *Hakea lorea* subsp. *lorea* low open woodland; over *Hakea lorea* subsp. *lorea* sparse tall shrubland; over isolated shrubs; over isolated dwarf shrubs; over *Pterocaulon sphacelatum*, **Bidens bipinnata*, *Euphorbia biconvexa* sparse forbland; over *Aristida inaequiglumis*, *Themeda triandra*, *Aristida contorta* tussock grassland.	

Taxon name	Growth form	Height (m)	Cover%
**Bidens bipinnata*	herb	0.3	0.1
Acacia aptaneura	tree	10	3
Acacia pachyacra	shrub	1.2	0.1
Alternanthera nana	herb	0.1	0.1
Aristida contorta	grass	0.2	2
Aristida holathera var. holathera	grass	0.2	0.1
Aristida inaequiglumis	grass	0.4	32
Boerhavia coccinea	herb	0.2	0.1
Cheilanthes sieberi subsp. sieberi	fern	0.2	0.1
Chrysopogon fallax	grass	0.5	0.1
Cucumis variabilis	Creeper	n/a	0.1
Digitaria ammophila	grass	0.2	0.1
Dysphania rhadinostachya subsp. Inflata	herb	0.1	0.1
Enneapogon polyphyllus	grass	0.4	0.1
Eremophila longifolia	shrub	1.2	0.1
Eulalia aurea	grass	0.4	0.1
Euphorbia biconvexa	herb	0.2	0.1
Goodenia prostrata	herb	0.01	0.1
Hakea lorea subsp. lorea	tree	3	2
Indigofera georgei	shrub	0.3	0.1
Lysiana murrayi	Mistletoe	n/a	0.1
Maireana villosa	shrub	0.3	0.1
Panicum decompositum	grass	0.5	0.1
Panicum decompositum	grass	0.1	0.1
Perotis rara	grass	0.1	0.1
Pterocaulon sphacelatum	herb	0.5	2

Ptilotus clementii	grass	0.3	0.1
Ptilotus obovatus	grass	0.5	0.1
Sida platycalyx	shrub	0.4	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.4	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.2	0.1
Teucrium teucriiflorum	shrub	0.4	0.1
Themeda triandra	grass	0.5	32
Themeda triandra	grass	0.5	0.1

Site	Q23	Site photo
Date	16/05/21	Flora_Quadrat/PhotoP5160048
Vegetation type	D – Mulga, Hakea lorea, and Eucalyptus xerothermica low open woodland over closed tussock grassland on flat clay plain (no rocks)	
Landform	Almost indiscernible	
Slope	Clay, Red brown	
Soil	-	
Rock type	-	
Rock size	-	
Rock cover	95%	
Vegetation cover	Good	
Condition	Fire deaths of 25% of shrubs >2m	
Disturbances	685632	
Easting (MGA94 Zone 51)	7466984	
Northing (MGA94 Zone 51)	Plain	
Vegetation description	*Acacia aptaneura*, *Hakea lora* subsp. *lorea*, *Eucalyptus xerothermica* low open woodland; over isolated shrubs; over isolated low shrubs; over isolated dwarf shrubs; over *Trichodesma zeylanicum* var. *zeylanicum*, *Arivela viscosa*, *Pterocaulon sphacelatum* isolated forbs; over *Themeda triandra*, *Aristida inaequiglumis*, *Aristida contorta* closed tussock grassland.	

Taxon name	Growth form	Height (m)	Cover%
Abutilon otocarpum	shrub	0.5	0.1
Acacia aptaneura	tree	7	6
Acacia tenuissima	shrub	1.2	0.1
Alternanthera nana	herb	0.2	0.1
Aristida contorta	grass	0.4	2
Aristida inaequiglumis	grass	0.6	5
Aristida lazaridis	grass	0.5	0.1
Arivela viscosa	herb	1	0.1
Chrysocephalum gilesii	herb	0.3	0.1
Chrysopogon fallax	grass	0.7	0.1
Cucumis variabilis	creeper	n/a	0.1
Digitaria ammophila	grass	0.5	0.1
Duperreya commixta	Creeper	n/a	0.1
Dysphania kalpari	herb	0.2	0.1
Eremophila lanceolata	shrub	0.5	0.1
Eucalyptus xerothermica	tree	8	1
Eulalia aurea	grass	0.9	0.1
Evolvulus alsinoides var. villosicalyx	herb	0.1	0.1
Hakea lorea subsp. lorea	tree	4	2
Panicum decompositum	grass	0.6	0.1
Pterocaulon sphacelatum	herb	0.4	0.1
Ptilotus obovatus	grass	0.5	0.1
Sida platycalyx	shrub	0.5	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.3	0.1
Stemodia grossa	herb	0.2	0.1

Themeda triandra	grass	0.6	85
Trichodesma zeylanicum var. zeylanicum	herb	1.5	0.1
Triodia melvillei	grass	0.5	0.1

Site	Q24	Site photo
Date	16/05/21	Flora_Quadrat/PhotoP5160049
Vegetation type	D – Mulga, Hakea lorea, and Eucalyptus xerothermica low open woodland over closed tussock grassland on flat clay plain (no rocks)	
Landform	Plain	
Slope	Almost indiscernible	
Soil	Clay, Red brown	
Rock type	-	
Rock size	-	
Rock cover	-	
Vegetation cover	98%	
Condition	Good	
Disturbances	Fire deaths of 90% of shrubs _ trees >2m, Acacia regrowth <2m	
Easting (MGA94 Zone 51)	685593	
Northing (MGA94 Zone 51)	7467197	
Vegetation description	*Eucalyptus xerothermica* isolated low trees; over *Acacia dictyophleba*, *A. pachyacra*, *Clerodendrum floribundum* isolated tall shrubs; over isolated shrubs; over isolated low shrubs; over isolated dwarf shrubs; over isolated forbs; over *Themeda triandra* and *Aristida inaequiglumis* closed tussock grassland.	

Taxon name	Growth form	Height (m)	Cover%
Abutilon fraseri	shrub	0.4	0.1
Abutilon otocarpum	shrub	0.1	0.1
Acacia dictyophleba	shrub	2.5	0.1
Acacia elachantha	shrub	1.5	0.1
Acacia pachyacra	shrub	2.5	0.1
Acacia pruinocarpa	shrub	0.4	0.1
Alternanthera nana	creeper	n/a	0.1
Aristida contorta	grass	0.2	0.1
Aristida inaequiglumis	grass	0.5	15
Aristida lazaridis	grass	0.3	0.1
Arivela viscosa	herb	0.8	0.1
Chrysopogon fallax	grass	0.8	0.1
Clerodendrum floribundum var. angustifolium	shrub	2.3	0.1
Cucumis variabilis	creeper	2	0.1
Digitaria ammophila	grass	0.2	0.1
Duperreya commixta	creeper	n/a	0.1
Enneapogon polyphyllus	grass	0.5	0.1
Eremophila longifolia	shrub	2	0.1
Eucalyptus xerothermica	tree/mallee	9	0.1
Eulalia aurea	grass	0.7	0.1
Evolvulus alsinoides var. villosicalyx	herb	0.2	0.1
Hibiscus burtonii	shrub	0.6	0.1
Jasminum didymum subsp. lineare	Creeper	n/a	0.1
Pterocaulon sphacelatum	herb	1.1	0.1
Ptilotus obovatus	grass	0.5	0.1

Sida sp. ? L (A.M. Ashby 4202)	shrub	1	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.4	0.1
Themeda triandra	grass	0.6	80
Themeda triandra	grass	0.6	0.1
Trichodesma zeylanicum var. zeylanicum	herb	1.2	0.1

Site	Q26	Site photo
Date	16/05/21	Flora_Quadrat/PhotoP5160042
Vegetation type	E - Low mulga woodland over sparse understorey on stony plain	
Landform	Plain	
Slope	Negligible	
Soil	Clay, Red brown	
Rock type	Quartzite	
Rock size	Up to 8cm	
Rock cover	90%	
Vegetation cover	25%	
Condition	Good	
Disturbances	Some? Fire deaths (Logs on ground).	
Easting (MGA94 Zone 51)	683979	
Northing (MGA94 Zone 51)	7468067	
Vegetation description	*Acacia aptaneura* low mulga woodland; over *Acacia pachyacra* and *A. ?sibirica* sparse shrubland; over isolated dwarf shrubs; over isolated ferns; over isolated forbs; over *Digitaria ammophila*, *Chrysopogon fallax*, *Aristida inaequiglumis* sparse tussock grassland.	

Taxon name	Growth form	Height (m)	Cover%
Abutilon otocarpum	shrub	0.3	0.1
Acacia ? sibirica	shrub	1.2	2
Acacia aptaneura	tree	4	20
Acacia pachyacra	shrub	1.2	5
Alternanthera nana	herb	0.2	0.1
Aristida contorta	grass	0.1	0.1
Aristida inaequiglumis	grass	0.3	0.1
Aristida obscura	grass	0.1	0.1
Cheilanthes sieberi subsp. sieberi	fern	0.2	0.1
Chrysopogon fallax	grass	0.4	0.1
Digitaria ammophila	grass	0.5	0.1
Digitaria brownii	grass	0.3	0.1
Duperreya commixta	Creeper	n/a	0.1
Enneapogon caerulescens	grass	0.3	0.1
Enneapogon polyphyllus	grass	0.3	0.1
Enneapogon lindleyanus	grass	0.2	0.1
Eragrostis cumingii	grass	0.1	0.1
Eriachne pulchella subsp. pulchella	grass	0.1	0.1
Evolvulus alsinoides var. villosicalyx	herb	0.2	0.1
Hibiscus burtonii	shrub	0.3	0.1
Indigofera georgei	shrub	0.3	0.1
Iseilema macratherum	grass	0.2	0.1
Iseilema macratherum	grass	0.1	0.1
Maireana villosa	shrub	0.2	0.1
Panicum decompositum	grass	0.2	0.1
Paraneurachne muelleri	grass	0.2	0.1
Perotis rara	grass	0.1	0.1

Polygala glaucifolia	herb	0.1	0.1
Polygala glaucifolia	herb	0.1	0.1
Ptilotus helipteroides	herb	0.3	0.1
Ptilotus obovatus	herb	0.2	0.1
Schizachyrium fragile	grass	0.1	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.3	0.1
Sporobolus australasicus	herb	1.3	0.1
Tribulus astrocarpus	herb	0.1	0.1
Triodia melvillei	grass	0.3	0.1

Site	Q27	Site photo
Date	16/05/21	Flora_Quadrat/PhotoP5160040
Vegetation type	D – Mulga, Hakea lorea, and Eucalyptus xerothermica low open woodland over closed tussock grassland on flat clay plain (no rocks)	
Landform	Plain, next to GNH	
Slope	Negligible	
Soil	Clay, Red brown	
Rock type	-	
Rock size	-	
Rock cover	-	
Vegetation cover	80%	
Condition	Good	
Disturbances	Fire has killed 50% of trees/shrubs >2m Fence through quadrat	
Easting (MGA94 Zone 51)	684446	
Northing (MGA94 Zone 51)	7467636	
Vegetation description	*Hakea lorea* subsp. *lorea* low open woodland; over isolated shrubs; over isolated dwarf shrubs; over *Pterocaulon sphacelatum*, *Abutilon otocarpum*, *Ptilotus obovatus* sparse forbland; over *Themeda triandra*, *Aristida contorta*, *Aristida inaequiglumis*, *Enneapogon polyphyllus* closed tussock grassland.	

Taxon name	Growth form	Height (m)	Cover%
**Bidens bipinnata*	herb	0.1	0.1
**Portulaca oleracea*	herb	0.1	0.1
**Stylosanthes hamata*	herb	0.2	0.1
Abutilon otocarpum	herb	0.4	0.1
Acacia aptaneura	shrub	2	0.1
Alternanthera nana	herb	0.3	0.1
Aristida contorta	grass	0.2	20
Aristida inaequiglumis	grass	0.4	10
Arivela viscosa	herb	0.5	0.1
Bulbostylis barbata	sedge	0.05	0.1
Cheilanthes sieberi subsp. sieberi	fern	0.3	0.1
Chrysopogon fallax	grass	0.3	0.1
Cucumis variabilis	Creeper	n/a	0.1
Dichanthium sericeum subsp. Humilius	grass	0.2	0.1
Duperreya commixta	Creeper	n/a	0.1
Dysphania glomulifera subsp. eremaea	herb	0.1	0.1
Enneapogon polyphyllus	grass	0.4	10
Eragrostis pergracilis	grass	0.1	0.1
Euphorbia aff. ferdinandi	herb	0.1	0.1
Euphorbia biconvexa	herb	0.1	0.1
Evolvulus alsinoides var. villosicalyx	herb	0.2	0.1
Goodenia nuda	herb	0.3	0.1
Goodenia prostrata	herb	0.01	0.1
Hakea lorea subsp. lorea	tree	5	2
Hibiscus coatesii	shrub	0.2	0.1

Iseilema macratherum	grass	0.3	0.1
Panicum decompositum	grass	0.1	0.1
Paspalidium rarum	grass	0.2	0.1
Perotis rara	grass	0.1	0.1
Pterocaulon sphacelatum	herb	0.5	0.1
Ptilotus exaltatus	herb	0.5	0.1
Ptilotus gaudichaudii	herb	0.4	0.1
Ptilotus helipteroides	herb	0.4	0.1
Ptilotus obovatus	herb	0.4	0.1
Senna notabilis	shrub	0.1	0.1
Sida sp. ? L (A.M. Ashby 4202)	shrub	0.3	0.1
Spermacoce brachystema	herb	0.2	0.1
Stenopetalum nutans	herb	0.3	0.1
Themeda triandra	grass	0.3	40

Site	R01	Site photo
Date	17/05/21	
Vegetation type	F - Triodia wiseana hummock grassland with emergent shrubs and low trees on gently sloping stony plain	
Landform	Gentle slope, foothills	
Slope	2°	
Soil	Clay, Red brown	
Rock type	Quartzite	
Rock size	<5cm	
Rock cover	80%	
Vegetation cover	40%	
Condition	Good	
Disturbances	Droppers, berms, rubbish from Hwy.	
Easting (MGA94 Zone 51)	685435	
Northing (MGA94 Zone 51)	7466834	
Vegetation description	*Corymbia hamersleyana* and *Corymbia deserticola* subsp. *deserticola* isolated low trees; over isolated tall shrubs; over *Acacia ancistrocarpa* and mixed *Acacia* spp. sparse shrubland; over isolated dwarf shrubs; over isolated forbs; over *Triodia wiseana* hummock grassland	

Taxon name	Growth form	Height (m)	Cover%
Acacia ? aneura	shrub	1.5	0.1
Acacia ancistrocarpa	shrub	2	2
Acacia atkinsiana	shrub	1.5	1
Acacia dictyophleba	shrub	1.3	0.1
Acacia marramamba	shrub	2	0.1
Acacia pyrifolia var. pyrifolia	shrub	2	0.1
Corymbia deserticola subsp. Deserticola	tree	3	0.1
Corymbia hamersleyana	tree	6	0.1
Hakea chordophylla	shrub	2.2	0.1
Ptilotus calostachyus	herb	1	0.1
Seringia velutina	shrub	0.2	0.1
Stackhousia sp. swollen gynophore (W.R. Barker 2041)	herb	0.2	0.1
Triodia wiseana	grass	0.5	40

Appendix VII Significance Assessment Criteria (Vegetation)

Score	Criteria
High	Supports threatened flora species/ threatened ecological community listed under the EPBC Act and/ or BC Act or supports a: unique or regionally significant population of Priority 1 or Priority 2 species; a unique or regionally significant priority ecological community or occurs in association with a major river or creek system.
Moderate	Supports a population of priority 1, priority 2 flora species or an unlisted species that is restricted and warrants listing/ priority ecological community or occurs in association with a major river or creek system or supports a unique/ unusual floral assemblage not recognised by DBCA as a PEC.
Low	Supports a population of priority 3 or priority 4 species / priority ecological community or occurs in association with a medium ephemeral river or creek system with sensitive obligate phreatophytic vegetation or supports a unique/ unusual floral assemblage or disturbance sensitive communities such as mulga on sheet flow, or occurs in association with a unique/ unusual landform or refugia such as gorges, high ranges, outcrops or seepage areas not common in the IBRA subregion
Very Low	Vegetation and landform is widespread/common and does not solely support priority 3 or priority 4 flora species. May contain, presumed facultative phreatophytic vegetation species not in association with a river or creek system typically in association with un-incised drainage lines and flood plains.
Negligible	Vegetation and landform is widespread/common and does not support priority flora species. May contain presumed facultative phreatophytic vegetation.

LEVEL 2 FLORA AND VEGETATION SURVEY

OF

LAMB CREEK PROJECT AREA

FOR

PROCESS MINERALS INTERNATIONAL

JUNE 2012

Revision	Date	Prepared by	Reviewed By	Approved by
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EXECUTIVE SUMMARY

Process Minerals International (PMI) proposes to develop a small iron ore mine with associated haul roads and infrastructure at Lamb Creek. The Lamb Creek project area is located approximately 130 kilometres (km) north-west of Newman in the East Pilbara Region of Western Australia, and is accessed via the Great Northern Highway.

A Level 2 flora and vegetation survey was completed in the approximately 20 km^2 survey area, comprising a desktop search and a single-phase comprehensive field survey from 27 March to 1 April 2012 by a team of three botanists. 46 survey quadrats were established.

A total of 230 species, from 110 genera and 42 families, were recorded during the survey of the Lamb Creek area, from 414 specimens collected. Of those, 209 were collected within survey quadrats; the rest were collected opportunistically.

No species of Threatened Flora (Declared Rare Flora) pursuant to the Western Australian *Wildlife Conservation Act* 1950, and no species listed as Threatened pursuant to the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* were recorded in the project area.

Three species of Priority Flora listed by DEC were recorded during the survey, comprising one Priority 1 species (*Brachyscome* sp. Wanna Munna Flats (S. van Leeuwen 4662)) and two Priority 2 species (*Aristida calycina* var. *calycina* and *Aristida lazaridis*). These taxa were found only in the far south-west of the survey area in the vicinity of the intersection of the proposed access/haul roads with the Great Northern Highway.

Five species of introduced flora were recorded in the survey area: *Bidens bipinnata* (Bipinnate Beggartick), *Cenchrus ciliaris* (Buffel Grass), *Chloris virgata* (Feathertop Rhodes Grass), *Malvastrum americanum* (Spiked Malvastrum), and *Portulaca oleracea* (Purslane).

None of these taxa were listed as Declared Plants by the WA Department of Agriculture and Food pursuant to section 37 of the *Agricultural and Related Resources Protection Act 1976* (Western Australia). None of these taxa were listed as Weeds of National Significance by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPaC 2012).

Vegetation mapping was conducted by statistical analysis using the software PATN combined with field observations of vegetation boundaries and visual classification of aerial photography. The most widespread vegetation type was *Eucalyptus gamophylla* woodland over hummock grassland which was estimated to cover approximately 46% of the survey area.

Six main vegetation communities were recognised and mapped following field observations and statistical analysis of the field data.

No Threatened or Priority Ecological Communities listed by the DEC were recorded.

1. INTRODUCTION

1.1. PROJECT BACKGROUND

Process Minerals International (PMI) proposes to develop a small iron ore mine with associated haul roads and infrastructure at Lamb Creek. The Lamb Creek project area is located approximately 130 kilometres (km) north of Newman in the East Pilbara Region of Western Australia, and is accessed via the Great Northern Highway.

An overview of the tenements in which the project is located is presented in Table 1. The project is currently in the design phase; hence alternative locations for elements such as the accommodation facility appear in several tenements.

Table 1 Tenements in which the project area is located

Tenement	**Project Elements** (as per April 2012)	**Size**
M47/1468	Mining area	1201 ha
L47/635	Bore field, accommodation facility, pipeline, power line, taking water.	82 ha
L47/636	Bore field, accommodation facility, pipeline, power line, taking water.	64 ha
L47/637	Bore field, pipeline, power line, road, taking water.	149 ha
L47/638	Bore field, pipeline, power line, road, taking water.	30 ha
L47/639	Bore field, pipeline, power line, road, taking water.	276 ha
L47/640	Bore field, pipeline, power line, road, taking water.	156 ha
L47/641	Bore field, pipeline, power line, road, truck parking bay, taking water.	42 ha
E47/1238	Exploration licence including M47/1468	44 blocks
E47/1239	Pending: Currently held by Rio Tinto	64 blocks
Source: Tengraph and Mineral Titles Online (Department of Mines and Petroleum 2012)		

1.2. SCOPE AND OBJECTIVES OF THE SURVEY

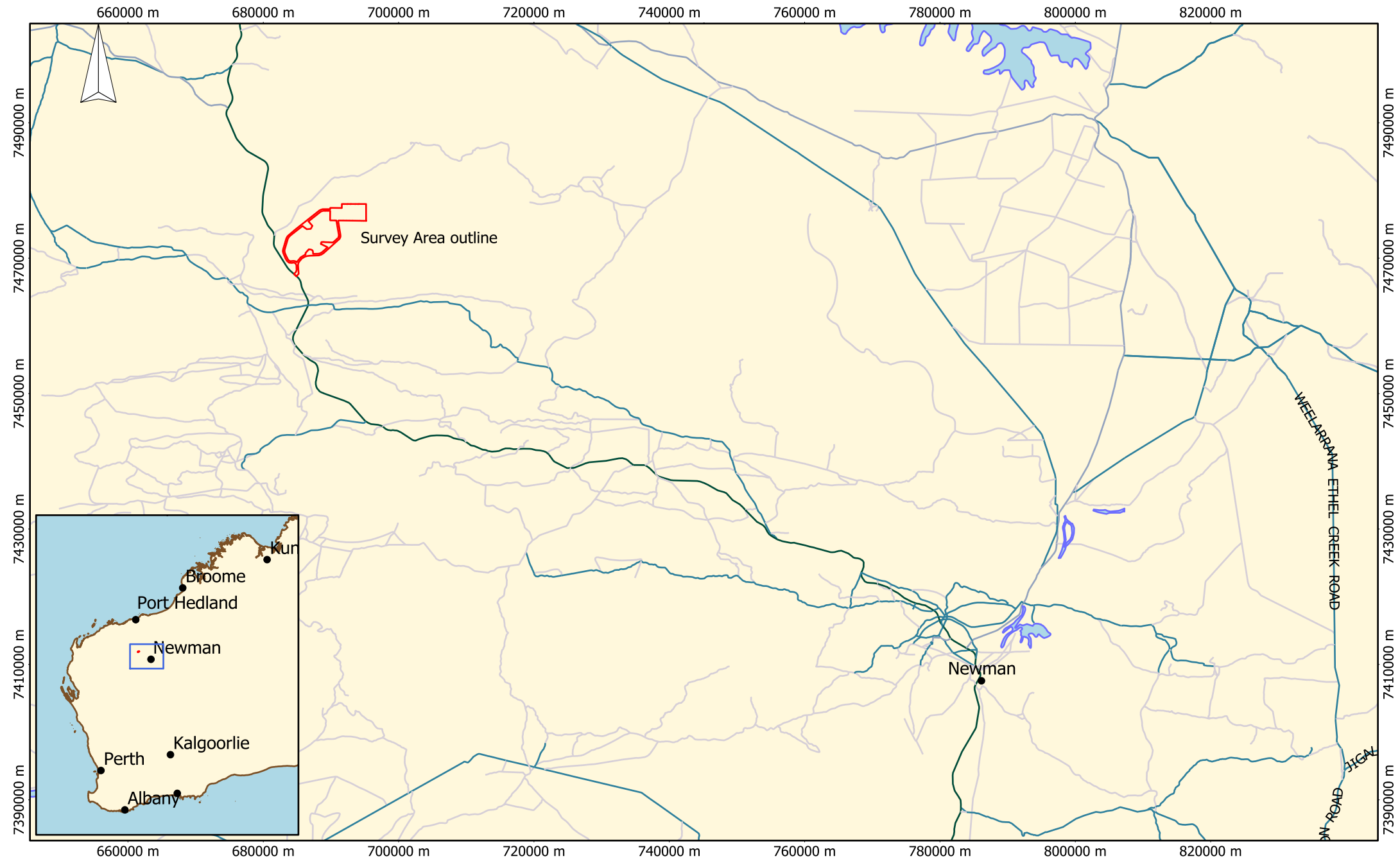
As part of the environmental approvals process, Rapallo conducted a single phase Level 2 flora and vegetation survey of the proposed Lamb Creek iron ore mine, two alternative haul road routes (120 metre buffer either side) and three alternative accommodation village sites. For the purpose of this report this area will hereafter be referred to as the "survey area" (Figure 1). The area surveyed comprised approximately 20 km^2, although the actual project footprint will be smaller.

The aims of the survey were to:

- characterise the flora and vegetation within the survey area;
- identify and map the vegetation communities;
- identify and map all Threatened and Priority Flora Species.

This information will be used to assist with environmental assessment of the project and, and to guide environmental management plans.

The flora and vegetation survey was designed according to Environmental Protection Authority (EPA) *Guidance Statement No. 51: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia* (2004). This guidance indicates that a project in the Pilbara region with an impact greater than 50 ha requires a Level 2 flora and vegetation survey.



Rapallo

Original Size: A4 Scale: 1:700,000
Datum: MGA94
0 30 km

Process Minerals International

Figure 1

Location of the Survey Area

1.3. LEGISLATION AND SURVEY GUIDANCE

1.3.1. COMMONWEALTH LEGISLATION AND CONSERVATION CATEGORIES

Native flora and ecological communities are protected at a federal level under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, defined as matters of national environmental significance. Under the EPBC Act, actions that have, or are likely to have, a significant impact on a matter of national environmental significance need to be referred to the Australian Government Minister for Sustainability, Environment, Water, Population and Communities (SEWPaC) for assessment and approval.

The EPBC Act protects Australia's native species and ecological communities by providing for identification and listing of threatened species and ecological communities. The conservation status of native species and communities is assessed by the Commonwealth Threatened Species Scientific Committee criteria outlined in the *EPBC Act 1999* and the *Environment Protection and Biodiversity Conservation Regulations 2000*.

The following categories of threatened flora are recognised: Extinct (EX), Critically Endangered (CR), Endangered (EN) and Vulnerable (VU).

Ecological communities are unique and naturally occurring groups of plants and animals. Their presence can be determined by factors such as soil type, position in the landscape, climate and water availability. The following categories of Threatened Ecological Communities are recognised: Critically Endangered (CR), Endangered (EN), and Vulnerable (VU).

1.3.2. WESTERN AUSTRALIAN LEGISLATION AND CONSERVATION CATEGORIES

At a state level, native flora and vegetation communities are protected under the *Wildlife Conservation Act 1950*, the *Western Australian Environmental Protection Act 1986* and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*.

Threatened and Priority Flora

All native vegetation in Western Australia is protected under the *Environmental Protection Act 1986* and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. Under the Act and Regulations, clearing of native vegetation is prohibited unless a clearing permit is granted or the clearing is for a purpose defined under Regulation 5 as an exempt activity.

Flora that are threatened, rare or otherwise in need of protection, are protected under the *Wildlife Conservation Act 1950*. Threatened (Declared Rare) Flora species are listed under Schedule 1. Extinct flora are listed under Schedule 2. The species listed under Schedules 1 and 2 are published in the WA Government Gazette *Wildlife Conservation (Rare Flora) Notices*, the most recent dated 17 February 2012 (Western Australian Government 2012).

Threatened (Declared Rare) Flora listed on Schedule 1 are further ranked by the Department of Environment and Conservation (DEC) according to their level of threat using IUCN Red List criteria. The following categories of threatened flora are recognised: Critically Endangered (CR), Endangered (EN) and Vulnerable (VU).

The DEC also recognises Priority Flora, comprising taxa that have not yet been adequately surveyed to be listed as Threatened, but for which the DEC believes there is cause for concern. Priority flora listings can be found on the FloraBase website (Western Australian Herbarium 2012). Priority flora species recognised as having conservation significance and are given consideration when developments are

proposed within their distributions and known habitats. There are 5 levels of Priority flora: Priorities 1, 2 or 3 (not yet adequately surveyed), Priority 4 (rare, near threatened or in need of monitoring), and Priority 5 (conservation dependent) (Appendix 1).

Environmentally Sensitive Areas

Environmentally sensitive areas (ESAs) are protected under the *Environmental Protection (Clearing of Native Vegetation) Regulation 2004* and are listed for their environmental values at state or national levels. ESAs in Western Australia are listed in the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*. (Western Australian Government 2005). These include:

- Declared World Heritage property sites
- Bush Forever sites
- Defined wetlands and riparian vegetation within 50 metres of the wetland
- Area of vegetation within 50 metres of Declared Rare Flora
- Areas covered by Threatened Ecological Communities

Exemptions offered for clearing under Regulation 5 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* do not apply within an ESA.

Threatened and Priority Ecological Communities

An Ecological Community is defined by the DEC as a naturally occurring biological assemblage that occurs in a particular type of habitat. In Western Australia there is currently no legislation covering the conservation of Threatened Ecological Communities (TEC). However, TEC are indirectly protected under the *Environmental Protection Act 1986* and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* through protection of individual flora species. Under the Regulations TEC are defined as Environmentally Sensitive Areas, and therefore the exemptions from requiring a clearing permit do not apply in a TEC.

The DEC (2010) defines a Threatened Ecological Community as one that fits into one of the following categories: Presumed Totally Destroyed (PD), Critically Endangered (CR), Endangered (EN) and Vulnerable (VU).

Ecological communities that do not meet TEC criteria are listed on the Priority Ecological Community (PEC) list. Priorities 1, 2 and 3 are communities that are possibly threatened but not yet adequately surveyed. Priority 4 comprised communities that are in need of monitoring, and Priority 5 are communities that are conservation dependent (DEC 2010, 2012b).

1.3.3. National and Western Australian Weed Strategies

Invasive weeds are a serious threat to Australia's natural environment and can have major economic and social impacts, causing damage to natural landscapes, agricultural lands, waterways and coastal areas. A weed can either be an exotic (introduced) species, or a native species that colonises and ecosystem where it does not naturally occur (Commonwealth of Australia 2012a).

Federal Weeds of National Interest

The Federal government departments responsible for weed issues are SEWPaC and the Department of Agriculture, Fisheries and Forestry (DAFF). Weeds of national interest are published on one of several lists, with the nature of weeds and the national actions required determining on which list a species appears. The Federal lists are:

- Weeds of National Significance (WONS) – Published in the *Australian Weeds Strategy* (Commonwealth of Australia 2007) these 20 weeds are considered to be Australia's most significant environmental weeds;
- The National Environmental Alert List – 28 plant species in the early stages of establishment, which have the potential to become a significant threat to biodiversity if they are not managed;
- Sleeper weeds – Exotic plants that currently have established small populations but which have the potential to spread widely and affect agricultural or natural environments;
- Species targeted for national eradication under the Natural Resource Management Ministerial Council's National Cost-sharing Eradication Programme;
- Species targeted for biological control.

Western Australian Declared and Environmental Weeds

In addition to the weeds of national interest, state and territory governments have their own lists of noxious weeds. In Western Australia, the principal legislation pertaining to weeds is the *Agriculture and Related Resources Protection Act 1976* (ARRPA).

The Department of Agriculture and Food has published a list of *Declared Plants* under the ARRPA (DAFWA 2011). There are five categories of declared plants defined under the ARRPA with the following management actions and aims associated with them:

Priority 1 – Prohibiting movement of plants and/or their seeds through the prevention of trade, sale or movement of plants into the State or that area of the State;

Priority 2 – Eradication of plants from the State or that area of the State;

Priority 3 – Controlling infestations by reducing area and/or density of infestation from the State or that area of the State;

Priority 4 – Preventing infestations spreading beyond existing boundaries of infestation; and

Priority 5 – Infestations must be controlled on public land or land under the control of a local government.

The DEC (previously Department of Conservation and Land Management, CALM) has published the *Environmental Weed Strategy for Western* Australia (CALM 1999). The strategy itself is still considered relevant but the *List of Environmental Weed Species of Actual and Potential Significance in WA* (Appendix 3 to the Strategy) is now out-dated (DEC 2012a).

More recently the DEC published a series of lists of Environmental Weeds in each of the DEC regions, based on workshops held between 2008 and 2010. These lists do not assign a single "priority" classification to each weed, but instead outline the relative threat in each region based on a number of criteria including their distribution, ecological impact and rate of dispersal. The DEC points out that at present these lists should be used as a guide only (DEC 2012a).

At the time of writing, FloraBase (WA Herbarium 2012) lists 1,358 taxa that may be considered weed species of actual or potential significance in Western Australia, of which 107 in the Pilbara region. These figures are subject to change as a result of ongoing changes to taxon nomenclature.

1.3.4. ENVIRONMENTAL PROTECTION AUTHORITY GUIDANCE

The Western Australian Environment Protection Authority (EPA) has produced a series of position statements and guidance statements to aid in assessing the environmental impacts of developments in Western Australia.

The following statements outline the minimum expectations of the EPA in regards to consideration of terrestrial flora and vegetation communities in an environmental impact assessment.

- *EPA Position Statement No. 2: Clearing of Native Vegetation, with Particular Reference to the Agricultural Area* (EPA 2000);
- *EPA Position Statement No. 3: Terrestrial Biological Surveys as an Element of Biodiversity Protection* (EPA 2002);
- *EPA Guidance Statement No. 51: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia* (EPA 2004).

Combined, these guidance and position statements provide general recommendations for consideration for planning environmental surveys, including the level of survey required, design and intensity factors, survey limitations and reporting criteria.

2. EXISTING ENVIRONMENT

2.1. BIOGEOGRAPHY

The survey area lies within the Hamersley (PIL3) subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) region (SEWPaC 2012a), covering the southern section of the Pilbara Craton (Kendrick 2002). The Hamersley subregion is a mountainous area of Proterozoic sedimentary ranges and plateaux, dissected by gorges of basalt, shale and dolerite (Kendrick 2002).

2.1.1. LAND SYSTEMS

The survey area traverses five different land systems within the Hamersley subregion, as described by Van Vreeswyk *et al*. (2004). These are:

- **Boolgeeda** – Stony lower slopes and stony plains and narrow drainage floors and channels, supporting hard and soft spinifex grasslands and mulga shrublands., level stony plains and narrow sub-parallel drainage floors, relief up to 20 m. Often occurs below hill systems such as Newman and Rocklea.
- **McKay** – Hills, ridges, plateaux remnants and minor breakaways of sedimentary and meta sedimentary rocks supporting hard spinifex grasslands; relief up to 100 m.
- **Newman** – Rugged high mountains, ridges and plateaux with near vertical escarpments of jaspilite, chert and shale, supporting hard spinifex grasslands; relief up to 400 m.
- **Platform** – Stony upper plains, dissected slopes and drainage floors, supporting hard spinifex grasslands. Erosional surfaces formed by partial dissection of the old tertiary surface. The gently inclined upper plains have extensive marginal dissection zones with gently inclined to steep slopes. Floors incised up to 30m with steep stable marginal slopes becoming wider downslope.
- **Wannamunna** – Hardpan plains and internal drainage tracts supporting mulga shrubland and woodlands, and occasionally eucalypt woodlands). Depositional surfaces, level hardpan wash plains subject to overland sheet flow. Broad internal drainage flats receiving run-on from adjacent hardpan surfaces; rare channelled tracts but moistly no organised through drainage; relief up to 5m.

The approximate area of each land system within the Pilbara region and within the survey area is presented in Table 2.

Table 2 Land systems of the survey area

Land System	Total area in Pilbara (km^2)	Area within survey area (km^2)	Percentage of total within survey area
Boolgeeda	7,748	11.58	0.15 %
McKay	4,202	0.44	0.01 %
Newman	14,580	2.77	0.02 %
Platform	1,570	1.98	0.12 %
Wannamunna	577	0.27	0.04 %

2.1.2. GEOLOGY

The survey area is located in the south-west corner of the Roy Hill 1:250,000 Geological Survey Sheet (SF50-12: Thorne & Tyler 1997). The geology of the survey area is generally defined by the assemblage of prehnite, pumpellyite, epidote, actinolite. Basement rocks comprise the early Proterozoic Brockman

Iron Formation and Weeli Wolli Formation. The Brockman Iron Formation consists of banded iron formation (BIF) and shale, while the Weeli Wolli formation consists of BIF separated by shale and siltstone bands, with younger dolerite sills that intersect the sedimentary sequence.

Regionally, the fresh basement rocks are typically overlain by weathered basement rocks which occur as lateritic and basal gravel and/or conglomerate deposits. These weathered deposits underlie early Tertiary Channel Iron Deposits (CID), which are the dominant economic-grade iron deposits in the region. The CID is typically overlain by younger alluvial and colluvial gravels and sediments (Thorne & Tyler 1997).

The survey geology comprises the following geological units (Thorne & Tyler 1997).

- **Brockman Iron Formation** (PLHB): banded iron-formation, chert, and pelite;
- **Quaternary Alluvium** (Qa): unconsolidated silt, sand, and gravel; in drainage channels and on adjacent floodplains;
- **Quaternary Alluvium and Colluvium** (Qw): red-brown sandy and clayey soil; on low slopes and sheetwash areas; and
- **Cainozoic Colluvium** (Czc): partly consolidated quartz and rock fragments in silt and sand matricx; old valley-fill deposits.

2.1.3. SOILS AND LANDFORMS

The survey area is located within the Fortescue botanical district of the Pilbara region (Beard 1990). This region is mountainous, with soils ranging from shallow, stony sandy loams along slopes, to cracking clays, stripped hardpans and calcareous loams along active waterways (Beard 1990).

The survey area is typical of the eastern Pilbara with rocky hills, small gorges, mostly seasonal watercourses and gravelly loam valleys. It is typified by hard red alkaline soils on plains, pediments and alluvial areas, while shallow, skeletal soils are common on ranges that rise to 1,250 m (Beard 1990). The southern part of eastern Pilbara region is characterised by earthy loams underlain by red-brown hardpan (Beard 1975; 1990).

The survey area has two distinct soil and landform assemblages. The majority of the potential haul road alignment and the edges of the mine tenement are characterised as landform unit Fa13. The central part of the mine tenement and small portion of the potential haul road alignment is characterised as landform unit Fb3. These are defined as follows (CSIRO Australia 2006–):

- **Fa13 –** Ranges of banded jaspilite and chert along with shales, dolomites, and iron ore formations with some areas of ferruginous duricrust as well as occasional narrow winding valley plains and steeply dissected pediments. This unit is largely associated with the Hamersley and Ophthalmia Ranges. The soils are frequently stony and shallow and there are extensive areas without soil cover: chief soils are shallow stony earthy loams (Um5.51) along with some (Uc5.11) soils on the steeper slopes. Associated are (Dr2.33, Dr2.32) soils on the limited areas of dissected pediments, while (Um5.52) and (Uf6.71) soils occur on the valley plains; and
- **Fb3** – High-level valley plains set in extensive areas of unit Fa13. There are extensive areas of pisolitic limonite deposits: principal soils are deep earthy loams (Um5.52) along with small areas of (Gn2.12) soils.

2.1.4. HYDROLOGY

Regional stream flow in the Pilbara is ephemeral, related to intense rainfall from with cyclonic activity or localised thunderstorms. Stream flow decays rapidly once rainfall has ceased. The drainage system upstream of the Fortescue Marsh has negligible base flow with stream flow and water table recharge following rainfall events (Van Vreeswyk *et al*. 2004).

The proposed mining area (tenement M47/1468) contains four minor non-perennial (type 2) watercourses. The southern proposed haul route option (L47/638, L47/639, L47/641) and two prospective accommodation areas (L47/635, L47/636) are crossed by eight minor non-perennial watercourses. Seven non-perennial watercourses cross the northern proposed haul road option (L47/637, L47/640) and the northern prospective accommodation area (E47/1329). No major or perennial drainage lines occur within or directly adjacent to the survey area (Commonwealth of Australia 2012b).

2.2. REGIONAL VEGETATION

The survey area is located in the Fortescue botanical district of the Pilbara region (Beard 1990), which forms part of the Eremaean Province. The Pilbara region receives a slightly higher than average rainfall than most of the Eremaean Province, due to the prevalence of cyclones off the coast, but this is not enough to modify the essentially desert appearance of the plant cover (Beard 1990).

The Fortescue district consists predominantly of tree and shrub steppe communities with *Eucalyptus* trees, *Acacia* shrubs and spinifex grasses including *Triodia pungens* and *T. wiseana* (Beard 1975). Mulga (*Acacia aneura*) occurs in valleys and short-grass plains may be present on alluvial soils (Beard 1990).

Vegetation of the Hamersley (PIL3) IBRA subregion is generally low Mulga woodland over bunch grasses on fine textured soils in the valleys with snappy gums (*Eucalyptus leucophloia*) over *Triodia brizoides* on skeletal soils of the ranges (Kendrick 2002). The mountain tops and gorges of the Hamersley subregion provide refugia for humidophile and/or fire intolerant flora, and support a diversity of range-restricted species (Kendrick 2002).

Beard (1975) mapped the area of the flora survey as Hamersley 82: hummock-grass (*Triodia wiseana*) steppe with irregularly scattered *Eucalyptus brevifolia* trees; and Hamersley 18: Low woodland of *Acacia aneura*.

Table 3 Beard (1975) vegetation areas of the Lamb Creek survey area

Beard (1970) vegetation type	Total area in WA (km^2)*	Area within survey area (km^2)	Percentage of total within survey area*
Hamersley 82	246,591.1	8.67	0.0035 %
Hamersley 18	29,209.1	12.01	0.0411 %

*Note: areas of vegetation types are taken from Shepherd *et al.* (2001). This document is now over ten years old, and significant vegetation clearing has taken place in the Pilbara region in the time since its publication. Area values given should be considered optimistic estimates rather than actual areas.

2.3. CLIMATE

The Pilbara region of Western Australia experiences an arid tropical climate with most rain falling during the hot summers between January and March (Beard 1990). Rainfall occurs in sporadic heavy rainfall events that occur during or immediately following cyclones. Cyclones develop off the north-west coast and often cross the coastline between Karratha and Port Hedland and move inland over the Fortescue Valley system towards Newman.

The closest Bureau of Meteorology (BOM) weather station to the survey area is at Newman Airport (station number 007176), located 130 km south-east of the survey area. This weather station has been recording rainfall data since 1971 and temperature data since 1996.

Data recorded at Newman Airport (Figure 2) shows a mean annual rainfall of 313.2 millimetres (mm). Mean monthly rainfall is highest in February at 77.3 mm, and lowest in September at 4.5 mm. The hottest month is January with a mean maximum temperature of 39.2°C and a mean minimum temperature of 23.9°C. The annual wind records from 9am and 3pm show a dominant easterly throughout the day, with the strongest winds recorded in the morning of up to 30 km/hour (BOM 2012).

Evaporation rates are not recorded at the Newman Airport Weather Station. However, evaporation in the Central Pilbara Region is estimated to be between 2000 mm and 3500 mm per annum, which is approximately ten times greater than annual rainfall (Gardiner 2003). This disparity maintains a typically arid landscape, with the exception of areas located in proximity to river systems and shallow groundwater resources.

The flora and vegetation survey of the survey area took place from 27 March to 1 April 2012. Rainfall in the three months preceding the survey was higher than average for the region, with a total of 307.8 mm recorded for the months of January to March 2012 combined, of which 239.4 was recorded in January 2012. Temperatures during the survey were generally warm during the day, ranging from 33.8 °C to 36.8 °C during the day, and mild at night, ranging from 22.1 °C to 25.2 °C (BOM 2012).

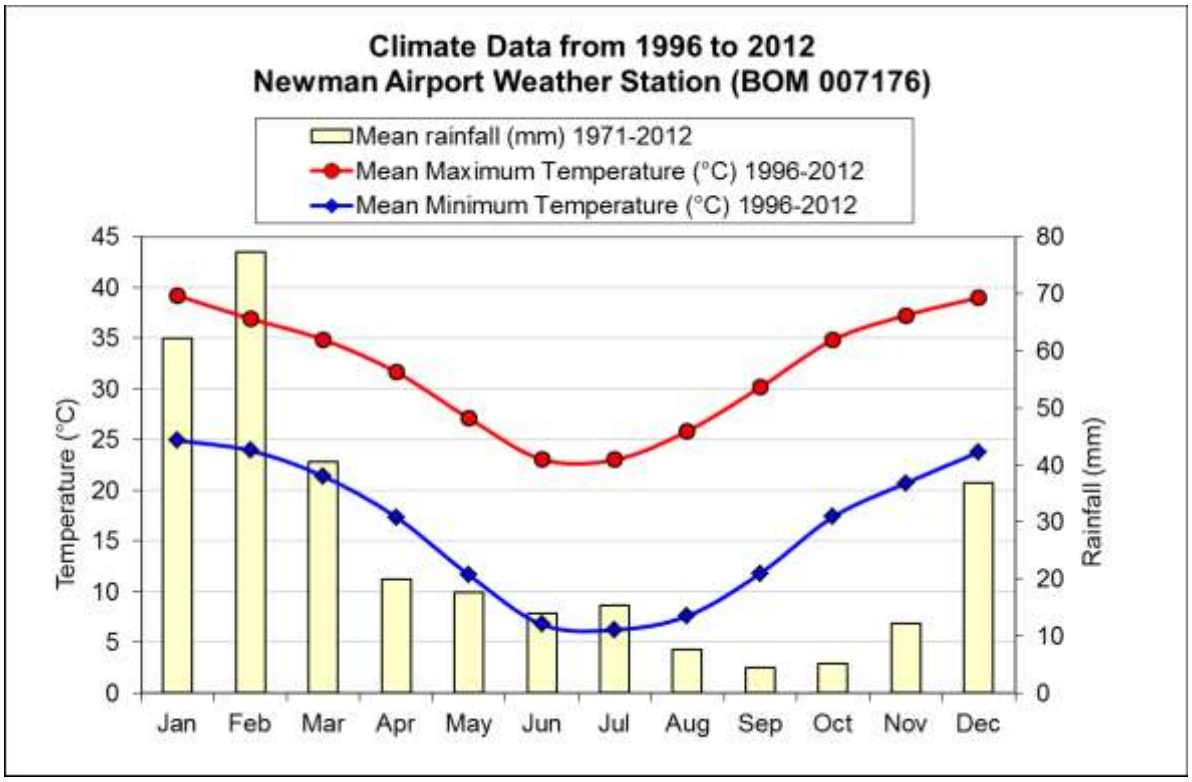


Figure 2 Newman Airport Weather Station – Average temperatures and rainfall

2.4. RESERVES AND ENVIRONMENTALLY SENSITIVE AREAS

Environmentally Sensitive Areas

The survey area is not situated within an ESA as defined under the Environmental Protection (Environmentally Sensitive Areas) Notice 2005 (Western Australian Government 2005).

There are no ESAs within 5 km of the survey area. The nearest Nationally Important Wetland is the Fortescue Marshes, located 52 km north of the survey area (SEWPaC 2012c).

Conservation Reserves

The survey area does not occur within a conservation reserve. The nearest nature reserves to the survey area (within a 100 km radius) are listed below (SEWPaC 2012c).

- Karijini National Park (DEC) – 26 km west of the survey area;
- Mungaroona Range National Park (DEC) – 52 km north of the survey area.

Threatened and Priority Ecological Communities

The project area is not located within a known TEC or PEC. The nearest known PEC is the Coolibah-Lignum Flats vegetation community, with the edge of the buffer zone located 6 km south of the survey area (DEC Threatened and Priority Communities database, search reference 35-0212EC).

The Coolibah-Lignum Flats vegetation complex is described as: Woodland or forest of *Eucalyptus victrix* (coolibah) over thicket of *Muehlenbeckia florulenta* (lignum) on red clays in run-on zones. Associated species include *Eriachne benthamii*, *Themeda triandra*, *Aristida latifolia*, *Eulalia aurea* and *Acacia aneura* (DEC 2012b). A series of sub-types have been identified:

- Coolibah and mulga (*Acacia aneura*) woodland over lignum and tussock grasses on clay plains (Coondewanna Flats and Wanna Munna Flats) – Priority 3
- Coolibah woodlands over lignum (*Muehlenbeckia florulenta*) over swamp wandiree; Lake Robinson is the only known occurrence – Priority 1
- Coolibah woodland over lignum and silky browntop (*Eulalia aurea*); two occurrences known on Mt Bruce Flats – Priority 3

3. METHODS

A Level 2 flora and vegetation survey was completed in the survey area, comprising a desktop search and a single-phase comprehensive field survey. Throughout this report taxonomy and taxonomic nomenclature follows the Western Australian Herbarium FloraBase website (Western Australian Herbarium 2012).

3.1. DESKTOP SEARCH

A desktop search was completed in preparation for the field survey, in order to provide a local context for the survey results, and to identify flora species and vegetation communities of conservation significance in the vicinity of the project area. The desktop search included a database search and a review of publically accessible literature and relevant survey reports within 100 km of the project area.

The database search included a combined search of the DEC Threatened (Declared Rare) and Priority Flora database, the WA Herbarium Specimen database, and the DEC Threatened and Priority Flora List (DEC reference number 38-0212FL); the NatureMap online search tool (DEC 2012); and the Protected Matters online search tool (SEWPaC 2012c) (Table 4).

Following completion of the field survey and taxonomic identifications, a follow-up database search was requested from the DEC (search reference number 04-0512FL) to obtain full details of all populations of the Priority species recorded during the survey in order to calculate the potential conservation impact of the project on these species (Table 4).

Table 4 Database Searches

Database Name	Latitude	Longitude	Search Area
DEC Threatened and Priority Flora database WA Herbarium database DEC Threatened and Priority Flora Species List	Search area based on shapefile of project area		40 km buffer around shapefile boundary
NatureMap	22°50’18” S	118°50’17” E	40 km buffer around coordinates
SEWPaC Protected Matters	22°53’28” S 22°50’28” S 22°47’44” S 22°50’20” S	118°48’09” E 118°47’16” E 118°58’05” E 118°51’54” E	10 km buffer around coordinates
DEC Species Specific search	Search carried out by species, not location		

Published literature and reports reviewed for the desktop search are listed in Table 5.

Table 5 Reports Reviewed for Desktop Study

Report Title	Distance from project area
Astron (2010a). *West Pilbara Iron Ore Project Reconciliation of Vegetation Descriptions and Associated Vegetation Mapping*. Unpublished report for API Management Pty Ltd.	25–30 km north-west
Astron (2010b). *Area C to Yandi flora and vegetation survey*. Unpublished report for BHP Billiton.	14 km north to 15 km east
Astron (2012) *Iron Valley Project Flora and Vegetation Survey*. Unpublished report for URS Australia Pty Ltd on behalf of Iron Ore Holdings Ltd.	48 km east north-east

Report Title	Distance from project area
Biota (2004). *Vegetation and flora survey of the proposed FMG stage A rail corridor*. Unpublished report for Fortescue Metals Group.	40 km east to 100 km north (only sites <100 km included in review)
Biota (2010). *Vegetation and flora surveys of the Oxbow and Junction South West deposits near Yandicoogina*. Unpublished report for Rio Tinto Pty Ltd.	35 km east
ENV (2008). *Rapid Growth Project 5: Jimblebar Junction to Yandi Junction Railway Reserve, Flora and Vegetation Assessment Report*. Unpublished report for BHP Billiton.	15 km north to 150 km south-east (only sites <100 km included)
Mattiske (2005). *Flora and vegetation on the Cloudbreak and White King leases*. Unpublished report prepared for Fortescue Metals Group Ltd.	85 km north-east
Mattiske (2008a). *Flora and Vegetation Survey of Exploration Tenement E47/1237 Phil's Creek Project area*. Unpublished report for URS Australia.	35 km east
Mattiske (2008b). *Flora and vegetation of the Hope Downs 4 mine infrastructure corridor*. Unpublished for Pilbara Iron.	30 km south-east
Rapallo (2012). *Level 2 flora and vegetation survey of Phil's Creek Haul Road*. Unpublished report for Process Minerals International.	30–45 km north-east

3.2. FIELD SURVEY

A single-phase Level 2 flora and vegetation survey was completed in the survey area from 27 March to 1 April 2012. The timing of the survey in autumn, following a period of significant rainfall or the region (section 2.3) is considered an appropriate time for conducting flora surveys in the Pilbara bioregion (EPA 2004). This is the time when the majority of plant species are flowering, fruiting and have foliage that allows identification, and provides the best opportunities for recording ephemeral or cryptic species.

The survey was completed by a team of three suitably qualified and experienced botanists. Geographic information system (GIS) data and aerial photography were used to demark the project area and to identify potential areas of interest. Survey areas were accessed by helicopter and were surveyed on foot.

The survey activities included:

- Flora quadrat surveys;
- Vegetation mapping;
- Opportunistic flora collections.

All specimens collected in the field were identified at the Western Australian Herbarium by Rapallo botanists, assisted by expert taxonomists where required (Table 7). Taxonomic identifications were completed using specialist texts, floral identification keys and comparisons with reference specimens held at the Western Australian Herbarium.

Specimens of conservation significant species, species found outside their normal range and other species of interest were lodged with the Western Australian Herbarium.

3.2.1. FLORA QUADRATS

Quadrat surveys involved a detailed and comprehensive search of a 50 by 50 m quadrat. Within each quadrat all flora taxa were recorded and specimens were collected of each species or subspecies when they were first encountered during the survey. Hence, specimens were collected for all taxa recorded in

the first quadrat, while specimen collection from subsequent quadrats only comprised taxa that had not been collected from previous quadrats unless considered possible to be different taxa. All species were thus collected at least once.

The following data were recorded for each quadrat:

- Location coordinates and elevation (on Garmin GPS units (MGA50, GDA94) and datasheet);
- Botanist name and Date – The name of the botanist involved in sampling the quadrat and the survey date;
- Species – all vascular plant species present, including introduced species were recorded;
- Percentage Foliar Cover – the percentage cover was estimated for each species within the quadrat;
- Height – the maximum height of each taxon was recorded;
- Soil and geology description including soil colour and type, and rock percentage cover, type, and size;
- Terrain and topography description;
- Vegetation condition - assessed in accordance to the Vegetation Condition Classification of Keighery 1994 – Appendix II);
- Vegetation Description - vegetation was described according to Aplin's (1979) modification of the vegetation classification system of Specht (1970) and the National Vegetation Invenotry System, Level 5 (Department of Environment and Heritage 2003 (Appendix V);
- Digital photographs of the quadrats were taken from different directions;

A total 46 of flora quadrats were established during the survey, with sites located in each of the five land systems within the project area. The number of sites (quadrats) per land system are listed in (Table 6) below and mapped in **Error! Reference source not found.**.

Table 6 Survey site established in each land system in the Lamb Creek survey area

Land system	Number of sites	Site names
Boolgeeda	14	LCF10, LCF11, LCF12, LCF14, LCF15, LCF21, LCF24, LCF26, LCF27, LCF35, LCF39, LCF40, LCF41, LCF42, LCF52
McKay	18	LCF05, LCF06, LCF16, LCF17, LCF18, LCF19, LCF20, LCF22, LCF23, LCF25, LCF28, LCF29, LCF30, LCF31, LCF32, LCF36, LCF37, LCF38
Newman	3	LCF01, LCF02, LCF43, LCF46
Platform	5	LCF03, LCF04, LCF07, LCF08, LCF09, LCF45
Wannamunna	2	LCF33, LCF34, LCF51

3.2.2. VEGETATION MAPPING

The boundaries of vegetation communities were established by ground-truthing the imagery of aerial photographs. Transition boundaries of vegetation communities were recorded manually on an aerial photograph of the project area, and waypointed with a GPS. Vegetation classification was carried out using the statistical analysis program PATN (Belbin 1989). Digital maps of vegetation communities were produced by Rapallo in a geographic information system (GIS) program using the results of the PATN analysis as a guide, with field-collected data serving to clarify and interpret the PATN results where required.

3.2.3. OPPORTUNISTIC FLORA COLLECTIONS

Opportunistic flora collections were made while traversing the project area between survey quadrats and during vegetation mapping. Opportunistic collections provide a valuable complement to the other collections and survey data, as they may be used to improve the botanical knowledge of the area.

Specimens were collected of all species that had not been recorded during the quadrat surveys. For each opportunistic collection, the following data were recorded: GPS location, density or numbers at location, growth form, and height of the plant. Digital photographs were taken where necessary for identification purposes and whenever a species was thought to be a conservation significant taxon.

3.3. STATISTICAL ANALYSIS

3.3.1. PATN ANALYSES

Survey sites were grouped into clusters of similar vegetation communities, based on the presence and density of the taxa recorded, by using the software program PATN v3.12 (Belbin 1989).

Analysis was done using Bray and Curtis association, a flexible UPGMA classification with a beta of -0.1, and seven final groups. Ordination was done using the default settings.

Kruskal-Wallis statistics were used to identify the taxa that were producing the most statistical noise; these taxa were then removed from the analysis. This process was repeated until the ordination stress values produced by the analysis were considered sufficiently low (ideally below 0.15). The Kruskal-Wallis values were then used to determine which species contributed most strongly to each vegetation group in order to describe the vegetation types.

3.3.2. ESTIMATES

The software program EstimateS (Windows Version 8.20) (Colwell 2006) was used to estimate survey completeness by generating species accumulation curves, and by calculating predicted total species richness. Analyses were conducted on presence-absence data from flora survey quadrats (46 quadrats, 214 taxa), using the default settings, with the following exceptions:

- Accumulations (runs) were randomised 10,000 times without replacement;
- Upper abundance limit for rare or infrequent species was set to 5;

The species accumulation curve was plotted as the number of species recorded (y-axis) against the number of flora quadrats surveyed (x-axis). Predicted species richness was calculated by taking the average of the estimators Jacknife 1, Jacknife 2 and Bootstrap.

Predicted species richness was compared with observed species richness, comprising all species recorded from quadrats (214 taxa), and with observed species richness comprising total number of species recorded during the survey, including opportunistic records (223 taxa).

3.4. SURVEY PERSONNEL AND LICENSING

The following people were involved with the survey and the preparation of this report:

Table 7 Personnel involved in the survey

Staff	Role	Flora License
Linda Dalgliesh	Botanist for Rapallo Environmental	SL009472
Joshua Gilovitz	Botanist for Rapallo Environmental	SL009605
Marieke Weerheim	Environmental Scientist for Rapallo Environmental	SL009964
Dr Eleanor Bennett	Taxonomist for Bennett Environmental Consulting	n/a
Sharnya Thompson	Consultant Taxonomist	n/a

Collection of specimens for the flora and vegetation survey was licensed under the Western Australian *Wildlife Conservation Act 1950* "Licence to take Flora for Scientific or Other Prescribed Purposes". As part of the license requirements, a copy of this report will be forwarded to the DEC.

3.5. SURVEY LIMITATIONS

The potential limitations of the survey, as outlined in EPA *Guidance Statement No. 51* (2004) are discussed in Table 8.

Table 8 Potential limitations and discussion of their relevance to the survey

Potential Limitation	Discussion
Sources of information and availability of contextual information (i.e. pre-existing background vs. new material)	Government database records were obtained for the area, although some of the species recorded in the field were not present in those data. Multiple similar flora surveys exist for surrounding areas, including one completed by Rapallo.
Scope (i.e. what life forms, etc., were sampled).	All vascular plant species were recorded when found in survey quadrats or encountered while traversing the area on foot.
Proportion of flora collected and identified (based on sampling, timing and intensity).	Statistical analysis shows that 86% of the predicted species richness was recorded during the survey, with a near-asymptotic species accumulation curve (Section 4.2.1). Specimen quality was high: of the 414 specimens collected, 96.4% could be identified to species or infraspecific level.
Completeness and further work which might be needed (e.g. was the relevant area fully surveyed).	The survey area is considered well sampled, with the exception of two areas within the main mining area that were poorly sampled. These areas are considered unlikely to contain different vegetation or species than those that were recorded throughout the rest of the survey area based on helicopter flyovers and satellite photographs.
Mapping reliability.	High quality satellite photographs of the area were available, and various other mapping resources (soils, geology, vegetation) were also available.
Timing, weather, season, cycle.	The survey was carried out in late March - early April, which is considered to be an appropriate time for the area. Rainfall was above average in the three months preceding the survey, and floristic diversity was high.

Potential Limitation	Discussion
Disturbances (fire, flood, accidental human intervention etc.).	The survey area occurs in an active pastoral lease, and some sites were noted as disturbed by cattle, as well as infrastructure associated with the pastoral lease and recent mineral exploration. Evidence of old (>5 years) fire was noted in some areas, however the majority of the survey area was relatively undisturbed and long unburnt.
Intensity (in retrospect, was the intensity adequate).	Statistical analysis demonstrates that survey intensity was adequate floristically; however more intensive sampling of some minor vegetation types may have resulted in more precise mapping.
Resources.	The field staff had adequate resources for the survey including reports of previous botanical surveys of the area, lists and information outlining all Declared Rare and Priority Flora, maps, GPS information supplied by the client, handheld GPS units, cameras, and the necessary equipment for botanical collection.
Experience levels (e.g. degree of expertise in plant identification to taxon level).	Herbarium identification was carried out by a combination of Rapallo staff and experienced external contractors (Eleanor Bennet and Sharnya Thomson). All specimen identifications were verified by a second botanist/taxonomist following initial identification.

4. RESULTS

4.1. DESKTOP SEARCH RESULTS

The combined review of databases, survey reports and published literature yielded a total of 68 taxa of conservation significant flora taxa previously recorded from within 100 km of the survey area. The majority of these (57 taxa) were recorded in the various databases, while an additional 11 taxa were recorded in previous surveys within 100 km of the survey area (Table 9).

Table 9 Number of conservation significant taxa recorded in databases and previous surveys

Conservation Status	Databases (within 40 km)	Survey reports (within 100 km)	Total taxa
Threatened (Declared Rare) Flora	2	1	2
Priority 1	11	2	11
Priority 2	14	3	15
Priority 3	26	12	34
Priority 4	4	5	6
Totals	**57**	**23**	**68**

Two species of Threatened (Declared Rare) flora were recorded within 40 km of the survey area. These were *Lepidium catapycnon* (Hamersley Lepidium) and *Thryptomene wittweri* (Mountain Thryptomene); both taxa are listed under the EPBC Act as Vulnerable, and listed under the Wildlife Conservation Act as Schedule 1 – rare or likely to become extinct.

In addition, 66 taxa listed by the DEC as Priority Flora were recorded in the desktop search; these comprised 11 Priority 1 species, 15 Priority 2 species, 34 Priority 3 species, and six Priority 4 species.

The complete list of conservation significant flora recorded in the desktop search is presented in Table 10. Please note that the DEC Threatened (Declared Rare) and Priority Flora database (TPFL) lists populations, and the WA Herbarium database (WAHerb) lists individual specimens. All other databases and reports listed in Table 10 represent presence or absence of a particular taxon within the search area.

Table 10 Desktop search results – Conservation significant flora taxa recorded within 100 km of the survey area

Taxon name and conservation status	Databases [1]					Survey reports [2]							
	TPFL	TPList	WAHerb	NatureMap	SEWPaC	A1	B1	B2	E	M1	M2	M3	R
Threatened (Declared Rare) Flora													
Lepidium catapycnon	17		1	1	1			1				1	
Thryptomene wittweri	2		4	1									
Priority 1													
Brachyscome sp. Wanna Munna Flats (S. van Leeuwen 4662)	1		2	1									
Brunonia sp. Long hairs (D.E. Symon 2440)			1	1									
Eragrostis sp. Mt Robinson (S. van Leeuwen 4109)	1		1	1									
Eremophila sp. West Angelas (S. van Leeuwen 4068)			1	1									
Eremophila spongiocarpa	1	1	1	1			1			1			
Grevillea sp. Turee (J. Bull & G. Hopkinson ONS JJ 01.01)				1									
Josephina sp. Marandoo (M.E. Trudgen 1554)	2	1	1	1			1						
Rhodanthe ascendens	1	1	1										
Tetratheca fordiana	1	1	1										
Teucrium pilbaranum		1	1	1									
Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684)			6	1									
Priority 2													
Adiantum capillus-veneris		1											
Aristida calycina var. *calycina*		1											
Aristida lazaridis		1											
Cladium procerum		1											
Eremophila forrestii subsp. Pingandy (M.E. Trudgen 2662)	1	1	3	1									
Euphorbia clementii	1			1									
Euphorbia sp. Mt Bruce flats (S. van Leeuwen 3861)		1											

Taxon name and conservation status	Databases [1]					Survey reports [2]							
	TPFL	TPList	WAHerb	NatureMap	SEWPaC	A1	B1	B2	E	M1	M2	M3	R
Indigofera ixocarpa		1											
Isotropis parviflora		1											
Oxalis sp. Pilbara (M.E. Trudgen 12725)		1	3	1									
Paspalidium retiglume							1						
Pilbara trudgenii	3		2	1									
Spartothamnella puberula	1	1	3	1									
Stylidium weeliwolli	1		4									1	
Vigna sp. Central (M.E. Trudgen 1626)		1				1							
Priority 3													
Abutilon trudgenii							1						
Acacia daweana	2	1	1										
Acacia effusa	4	1	2	1									
Acacia glaucocaesia						1							
Acacia subtiliformis	2	1	2	1									
Ampelopteris prolifera		1											
Atriplex flabelliformis		1											
Dampiera anonyma		1											
Dampiera metallorum	9	1	17	1									
Eremophila forrestii subsp. *viridis*												1	
Eremophila magnifica subsp. *velutina*	1		1										
Eriachne sp. Dampier Peninsula (K.F. Kenneally 5946)		1											
Euphorbia inappendiculata											1		
Euphorbia stevenii		1											
Fimbristylis sieberiana	1		1										
Glycine falcata	1	1	1	1									
Goodenia lyrata	3		2	1									

Taxon name and conservation status	Databases [1]					Survey reports [2]							
	TPFL	TPList	WAHerb	NatureMap	SEWPaC	A1	B1	B2	E	M1	M2	M3	R
Goodenia sp. East Pilbara (A.A. Mitchell PRP 727)	4	1	3	1			1						
Indigofera gilesii subsp. *gilesii*	3	1	6	1									
Indigofera sp. Bungaroo Creek (S. van Leeuwen 4301)						1							
Iotasperma sessilifolium		1	1	1									
Nicotiana umbratica		1											
Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479)			2	1									
Olearia mucronata	2	1	1	1									
Owenia acidula						1							
Phyllanthus aridus		1											
Rhagodia sp. Hamersley (M Trudgen 17794)	3		3	1								1	1
Rostellularia adscendens var. *latifolia*			3	1					1	1			
Sida sp. Barlee Range (S. van Leeuwen 1642)			3	1									
Tecticornia medusa			1	1									
Terminalia supranitifolia						1							
Themeda sp. Hamersley Station (M.E. Trudgen 11431)		1	4	1			1			1			
Triodia sp. Mt Ella (M.E. Trudgen 12739)			7	1									
Triodia sp. Robe River (M.E. Trudgen et al. MET 12367)						1							
Priority 4													
Acacia bromilowiana	4	1	10	1		1							
Bulbostylis burbidgeae							1		1				
Eremophila magnifica subsp. *magnifica*			4	1									
Eremophila youngii subsp. *lepidota*										1		1	
Goodenia nuda	3		3	1		1		1	1				
Rhynchosia bungarensis			2	1		1							

Footnotes with Table 9

1) Databases: TPFL = DEC Threatened (Declared Rare) and Priority Flora database
TPList = DEC Threatened and Priority Flora List
WAHerb = Western Australian Herbarium Database
NatureMap = DEC Naturemap online search tool (DEC 2007–)
SEWPaC = Protected Matters online search tool (SEWPaC 2012c)

2) Survey reports: A1 = Astron (2010a)
A2 = Astron (2010b)
B1 = Biota (2004)
B2 = Biota (2010)
E = ENV (2008)
M1 = Mattiske (2005)
M2 = Mattiske (2008a)
M3 = Mattiske (2008b)
R = Rapallo (2012)

4.2. FIELD SURVEY RESULTS

4.2.1. FLORA TAXA RECORDED IN THE SURVEY

Summary Statistics

A total of 414 specimens were collected during the survey. Following taxonomic identification, these were found to represent 230 species or infraspecies. Of all specimens collected, 15 could not be identified to species level due to absence of suitable fruiting or flowering material. Specimens that could not be positively identified to species or subspecies level were only counted in the final species list if they were thought likely to represent a taxon that was not otherwise recorded. The total species list is presented in Appendix III.

The average number of flora taxa per survey quadrat was 25.83. This number is relatively high for surveys in the Pilbara area and was influenced by the presence of many annual / ephemeral species in at the sites, due to the survey being completed within three months following significant rainfall events, and also due to the presence of some extremely species-rich sites that increased the overall average.

Table 11 Summary statistics of taxa recorded in the survey area

Taxonomic level	Number of taxa	Most common taxa (number of species)
Family	42	Poaceae (41), Fabaceae (41), Malvaceae (26)
Genus	110	Acacia (23), Ptilotus (11), Senna (9)
Species	230	-

The average Keighery (1994) vegetation condition was 2.51 (excellent - very good). The most common disturbances observed were grazing by cattle, vehicle tracks and mineral exploration impact, and weeds.

Survey Completeness

The species richness estimators calculated with EstimateS indicate that 81% of the predicted number of flora taxa were recorded during the survey at Lamb Creek. This is reflected in the species accumulation curve, which approached an asymptote as the number of sites increased (Figure 3).

The predicted species richness was 264.9 based on the average of the estimators Jacknife 1, Jacknife 2 and Bootstrap, with observed species richness of 214 representing the number of species recorded from flora quadrats. Opportunistic flora collections made while walking between sites included another 16 species that had not been recorded in the quadrats. Hence, the total number of 230 flora species represents 86.8% of predicted species richness.

These figures suggest that increased survey effort, i.e. more flora quadrats, and/or more transects, may have produced a higher number of species recorded from the survey area. However, the fact that the accumulation curve reached a near-asymptote indicates that a large increase in the number of survey quadrats would have been required to reach a figure about 90% survey completeness. Furthermore, the fact that 93% of all taxa recorded during the survey were collected from the quadrat sites indicates that the sites were well placed within the survey area to sample all available vegetation types.

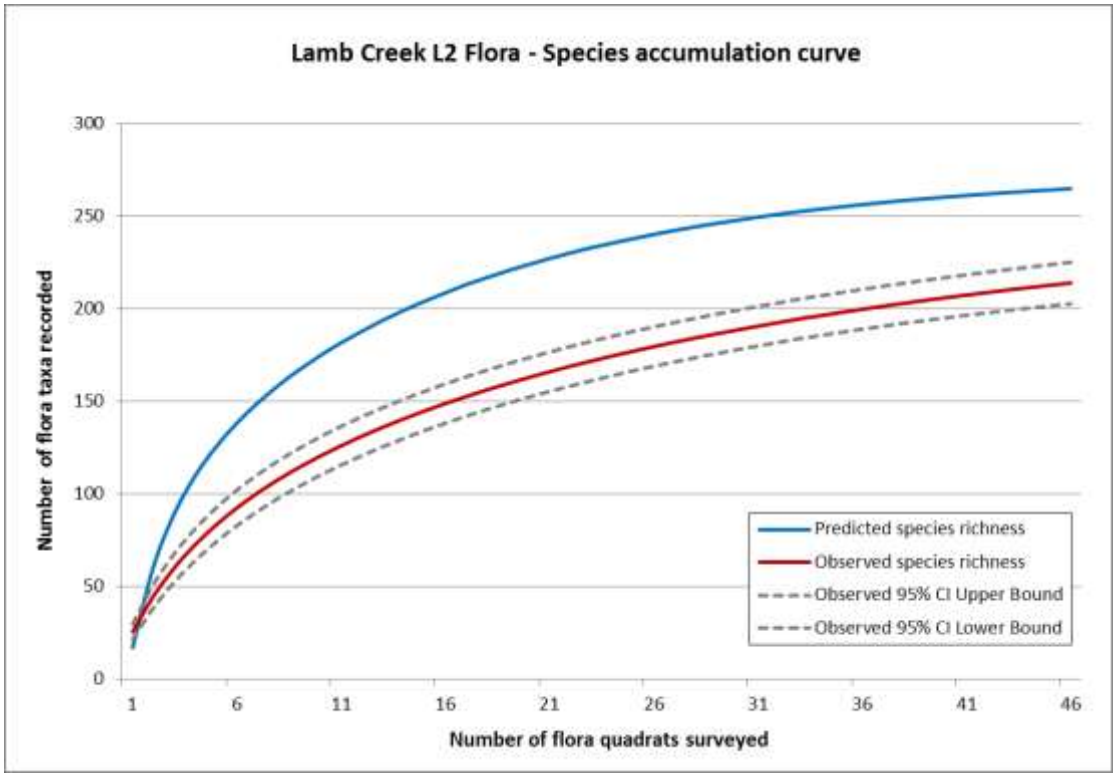


Figure 3 Species accumulation curve for the Lamb Creek L2 flora survey

4.2.2. CONSERVATION SIGNIFICANT TAXA

No species of Threatened Flora (Declared Rare Flora) pursuant to the Western Australian *Wildlife Conservation Act* 1950, and no species listed as Threatened pursuant to the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* were recorded in the survey area.

Three species of Priority Flora listed by DEC were recorded during the survey, comprising one Priority 1 species (*Brachyscome* sp. Wanna Munna Flats (S. van Leeuwen 4662)) and two Priority 2 species (*Aristida calycina* var. *calycina* and *Aristida lazaridis*). The locations of conservation significant flora taxa recorded in the survey area are presented in Figure 4; the coordinates of all these records are listed in Appendix IV.

Brachyscome sp. Wanna Munna Flats (S. van Leeuwen 4662) - Priority 1

This species is a small herb in the Asteraceae (daisy) family, with pink flowers and sharply divided leaves.

Brachyscome sp. Wanna Munna Flats (S. van Leeuwen 4662) was collected at LCF33, LCF51, and LCF34. Single plants or small numbers present at all sites. This species was recorded as occurring in small but consistent numbers throughout the area between these sites, at the far-western extent of the proposed haul road.

The species is known from ten collections in the WA Herbarium from an approximately 330 km wide south east - north west band, with the current survey area situated roughly in the centre. The nearest record is from 2006 and was 20km to the west of the collection made within the survey area. *Brachyscome* sp. Wanna Munna Flats (S. van Leeuwen 4662) is represented by two records in the TPFL database, which are both probably derived from WAHERB specimen records as they share dates and coordinates with WAHERB records.

A specimen of this species will be submitted to the WA Herbarium collection.

Aristida calycina var. *calycina* - Priority 2

Aristida calycina var. *calycina* is described as a loosely tufted perennial grass, 0.3-1.3 m high, with smooth lemma groove. It occurs on red earths, sands, and alluvial soils (Western Australian Herbarium 2012). Widespread throughout NSW and is present in several other Australian states (The Royal Botanic Gardens and Domain Trust 2012).

This species was collected at site LCF31, where only a single plant was recorded. The specimen did not match the description of the species exactly, however was very close to collection S. van Leeuwen PBS0466, and will be assumed to be *A. calycina* var. *calycina* for the purposes of this report.

This taxon is known in Western Australia from a single specimen at the Western Australian Herbarium (Sheet 04867599), and is not recorded in DEC's TPFL database. The existing WA Herbarium record was collected in 1996 and has coordinates placing it approximately 65 km away from our collection.

The specimen collected will be submitted to the Western Australian Herbarium collection.

Aristida lazaridis - Priority 2

Aristida lazaridis is a tufted perennial grass, 0.4-1.5 m high, with green and purple flowers in April, occurring on sand or loam (Western Australian Herbarium 2012).

This species was record at site LCF31, where it was relatively abundant, with a density rated at 5-25%.

Aristida lazaridis is known from only two specimens at the WA Herbarium. One was collected in 2008, approximately 55 km to the east south east of our record, and the second was collected the same distance to the north west in 1996. The species is not recorded in DEC's TPFL database.

A specimen of *Aristida lazaridis* will be submitted to the WA Herbarium collection.

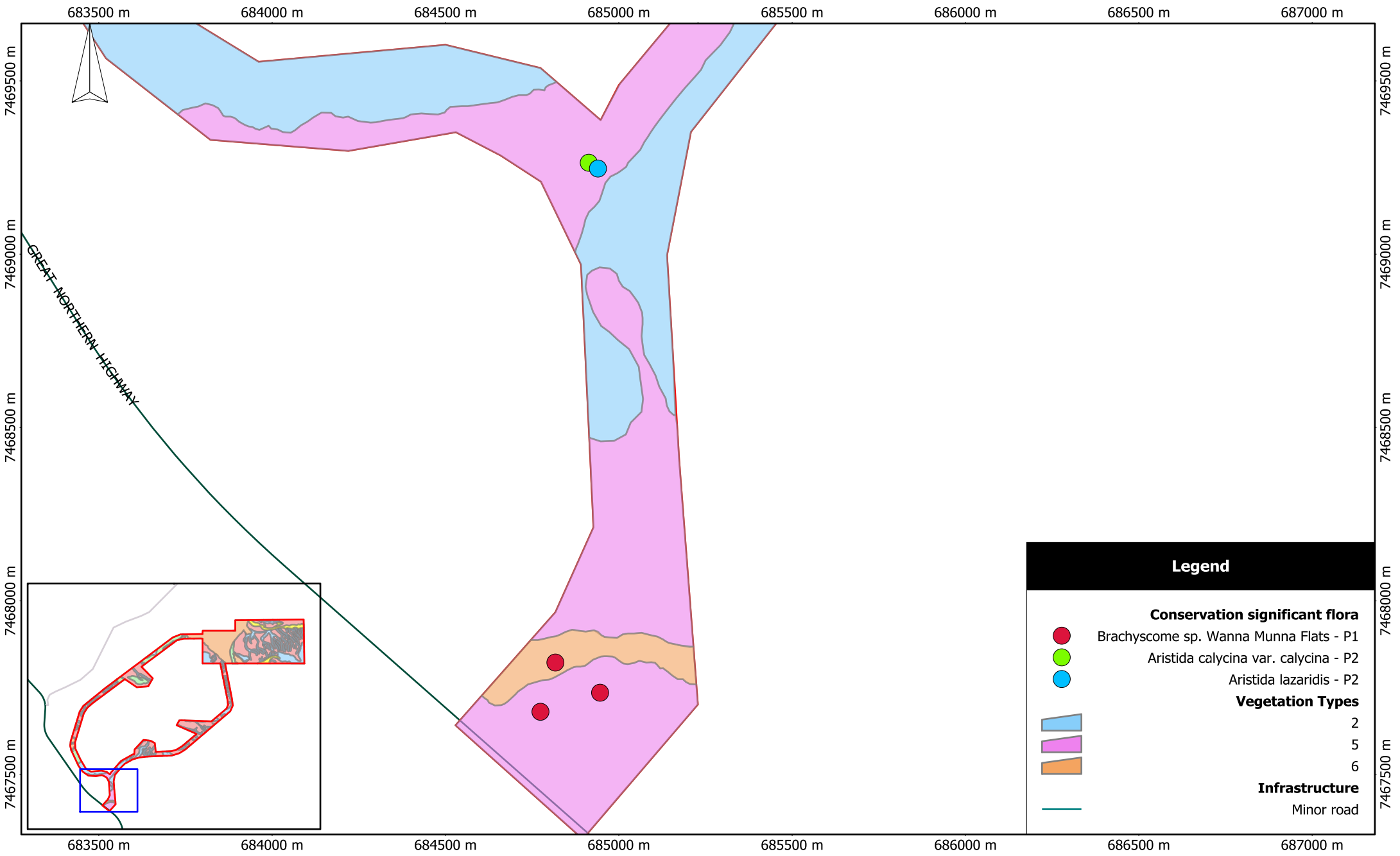


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Figure 4

Conservation significant flora recorded in the survey area

4.2.3. WEEDS

Five species of introduced flora (weeds) were recorded in the survey area: *Bidens bipinnata* (Bipinnate Beggartick), *Cenchrus ciliaris* (Buffel Grass), *Chloris virgata* (Feathertop Rhodes Grass), *Malvastrum americanum* (Spiked Malvastrum), and *Portulaca oleracea* (Purslane).

None of these taxa were listed as Declared Plants by the WA Department of Agriculture and Food pursuant to section 37 of the *Agricultural and Related Resources Protection Act 1976* (Western Australia). None of these taxa were listed as Weeds of National Significance by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPaC 2012).

Five weed species were recorded at nine locations in the Lamb Creek survey area (Figure 5, Figure 6). Weed species were more abundant at locations where evidence of cattle was noted. The site that contained the most weed species was LCF31, where four weed species were found.

Bidens bipinnata (Bipinnate Beggartick)

Bidens bipinnata is an erect annual herb, from 0.1-0.9 m high, with yellow flowers from March to September. It occurs on alluvium, clay, loam over sandstone, and limestone, along rivers and creeks, in coastal areas, and on rocky hillsides. It is widespread throughout the Pilbara and also occurs in other north-western WA regions (Western Australian Herbarium 2012).

Bidens bipinnata was the most commonly recorded weed species, found at nine sites in the survey area: LCF12, LCF15, LCF18, LCF20, LCF23, LCF31, LCF34, LCF37, LCF46.

Cenchrus ciliaris (Buffel Grass)

Cenchrus ciliaris is a tufted perennial grass to 1.5m in height, with purple seed-heads from February to October (Western Australian Herbarium 2012). The seeds of this weed are spread by wind, water, stock and machinery (Thorp and Wilson 1998-2012). Buffel Grass has become a major environmental weed of northern Australia, displacing native species, and carrying fire into areas where fire was not normally part of the ecosystem (Thorp and Wilson 1998-2012, Hussey *et al* 2007).

This species was observed at a single site, LCF23, in the current project.

Chloris virgata (Feathertop Rhodes Grass)

Chloris virgata is an annua grass, usually from 0.23-0.45 m high, with green-purple flowers from April to May or in September. It usually occurs on sand dunes. It occurs in many areas of WA and is common in the Pilbara region (Western Australian Herbarium 2012).

Chloris virgata was observed at a single site, LCF31, in the current project.

Malvastrum americanum (Spiked Malvastrum)

Malvastrum americanum is an erect perennial herb or shrub, from 0.5-1.3 m high. It has yellow-orange flowers in April to July. It occurs on orange, red, or yellow sands, gritty alluvial sand, black or brown clay, alluvial cracking clays, limestone, and calcrete, on stony ridges and hillsides, floodplains, and along drainage lines. It is widespread and common within the Pilbara and other north-western regions of WA (Western Australian Herbarium 2012).

Malvastrum americanum was recorded at site LCF31 in the survey area.

Portulaca oleracea (Purslane)

Portulaca oleracea is a succulent, prostrate to decumbent annual herb to 0.2 m high. It has yellow flowers from April to May, and occurs on clay loam and sand, often in disturbed sites. It has been recorded extensively in the Pilbara, and also occurs in many other regions of WA (WA Herbarium 2012).

In the survey area, *Portulaca oleracea* was recorded at sites LCF31 and LCF34.

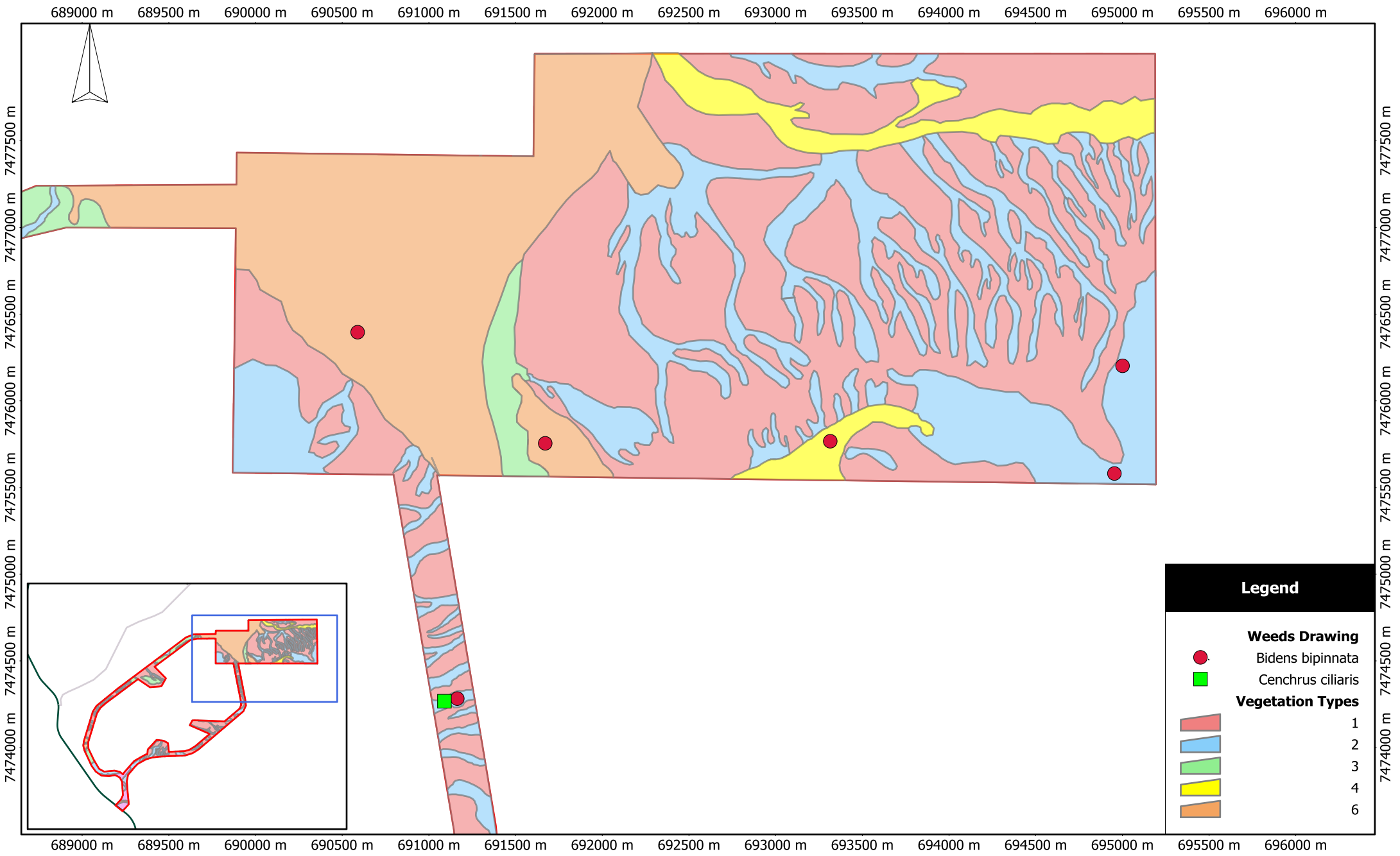

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Figure 5

Introduced flora species recorded in the survey area (1 of 2)

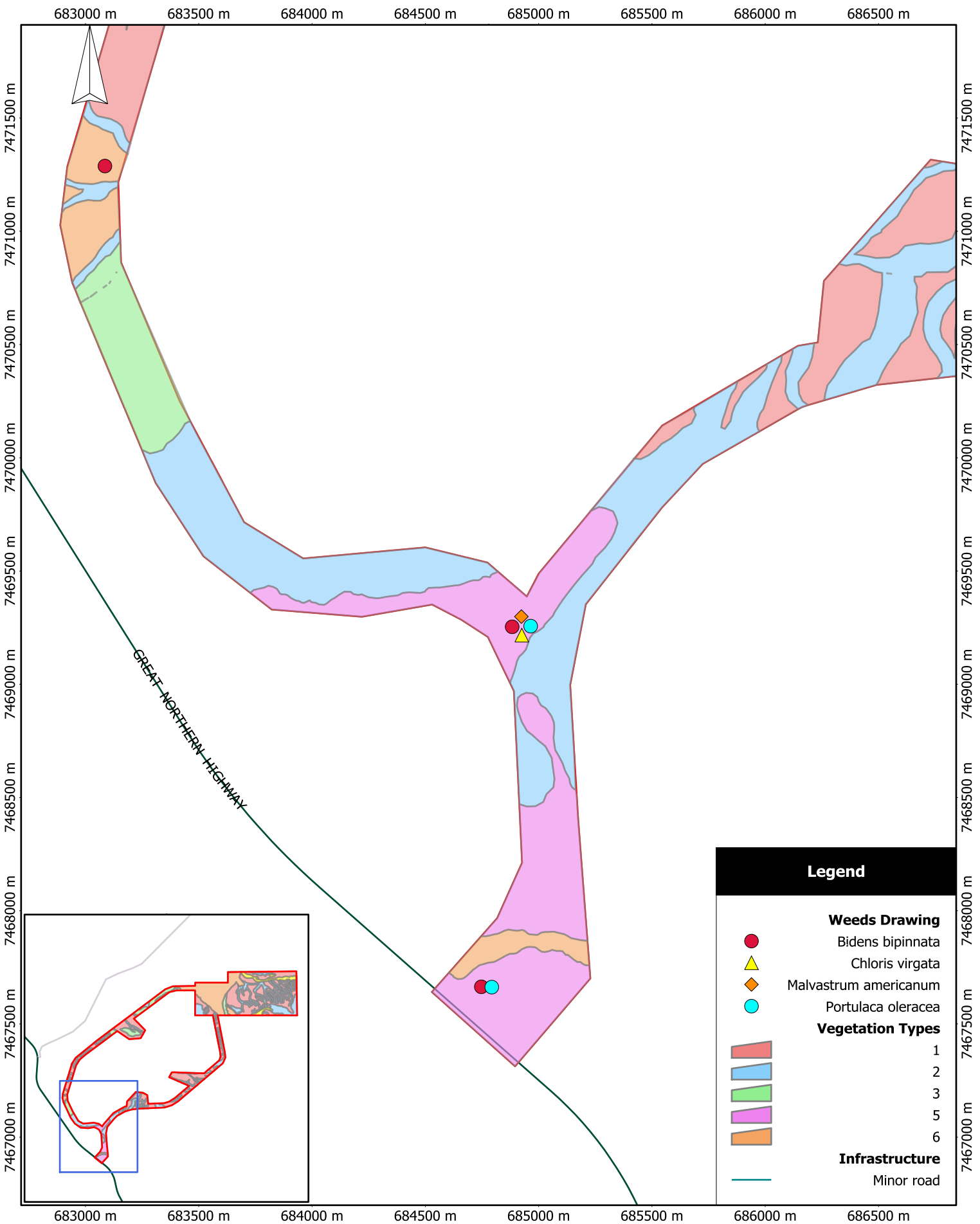

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Figure 6

Introduced flora species recorded in the survey area (2 of 2)

4.2.4. VEGETATION COMMUNITIES IN THE SURVEY AREA

Six vegetation communities were identified in the survey area. PATN analysis results were largely consistent with field mapping of vegetation communities, although they were partially manually adjusted to produce the final integrated results.

None of the vegetation communities in the survey area represented a TEC or PEC. The Coolibah-Lignum Flats vegetation complex PEC includes some species recorded in the survey, including 'mulga' (*Acacia aptaneura*, previously considered part of the *A. aneura* complex), however mulga was not found in association with *Eucalyptus victrix*, or with the species assemblage described in the PEC. *Eucalyptus victrix* was thought to be recorded at a single site, however due to lack of fruit was not able to be identified positively, and at that site it was not associated with any of the other species described in the Coolibah-Lignum Flats vegetation complex PEC.

PATN Dendrogram

Following analysis and evaluation, 110 species were selected for inclusion in the PATN analysis. This produced a dendrogram of seven vegetation types, with a stress value of 0.1686 (Figure 7). The quadrats assigned to one group, which consisted of two sites (LF12 and LCF32), were manually reassigned to other groups based on field observations, to produce six final groups.

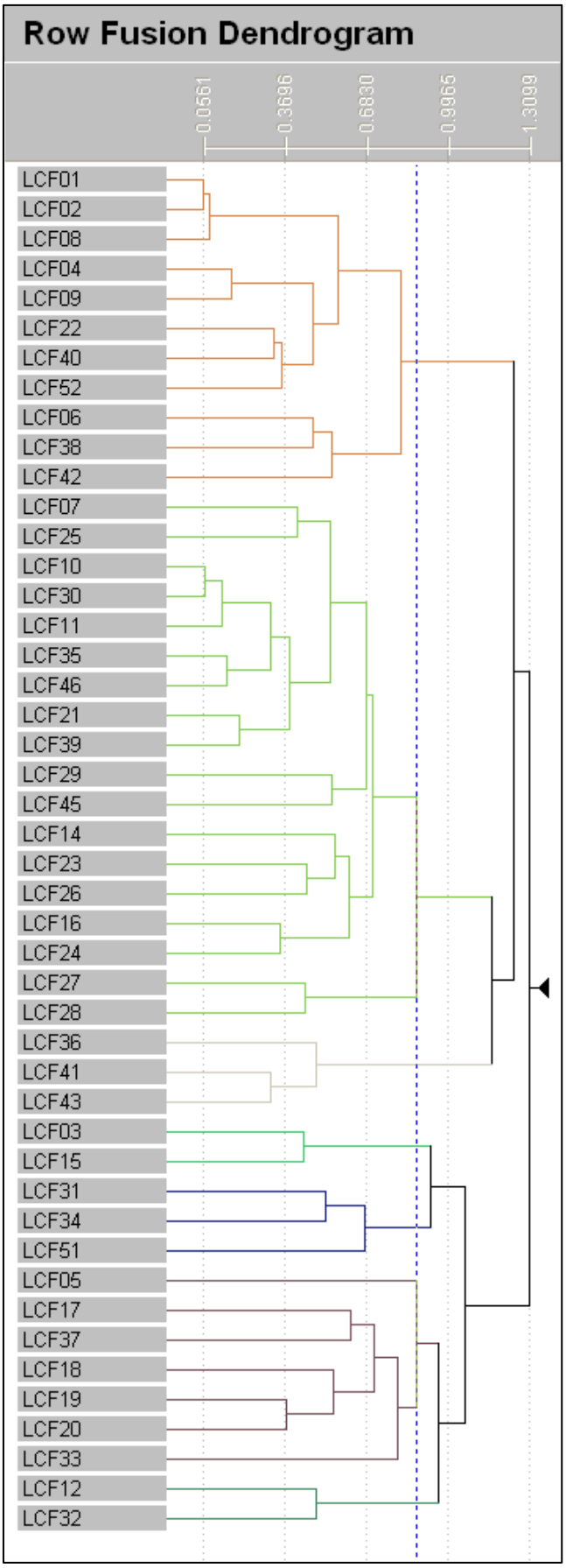

Figure 7 PATN dendrogram of analysis of survey quadrats

Vegetation Mapping

Based on field observations and PATN analysis, six main vegetation communities were recorded. The vegetation type occurring most widely across the survey area was *Eucalyptus gamophylla* woodland over hummock grassland (Table 1).

Table 1 Total and percentage area of each vegetation type recorded in the Lamb Creek survey area

Vegetation community	Total area (km^2) within survey area	Percentage of survey area
1. *Eucalyptus gamophylla* woodland over hummock grassland	9.57	46 %
2. *Eucalyptus leucophloia* subsp. *leucophloia* woodland over mixed shrubs over *Triodia wiseana* grassland	5.25	25 %
3. *Acacia* shrubland over hummock grassland	1.30	6 %
4. *Acacia tumida* var. *pilbarensis* scrub in creeklines	0.64	3 %
5. Wannamunna Mulga grove	0.66	3 %
6. *Acacia aptaneura* over hummock grassland	3.26	16 %
Totals	20.68	**100** %

The vegetation communities of the survey area are mapped in Figures 8, 9, 10, 11, 12 and 13 and described in detail in Table 13 below.

Table 13 Description of vegetation communities

Vegetation Community	Plate	Land System	Substrate	Description	Quadrats
1. *Eucalyptus gamophylla* woodland over hummock grassland	1	Boolgeeda, McKay, Newman, Platform	Clay loams with BIF and ironstone pebbles and gravel on open plains and gentle rises	*Eucalyptus gamophylla* low open woodland over *Acacia elachantha* or *Acacia hilliana*, *Senna glutinosa* subsp. *pruinosa* open shrubland over *Triodia brizoides*, *Triodia wiseana* hummock grassland.	LCF01, LCF02, LCF04, LCF06, LCF08, LCF09, LCF22, LCF38, LCF40, LCF42, LCF52
2. *Eucalyptus leucophloia* subsp. *leucophloia* woodland over mixed shrubs over *Triodia wiseana* grassland	2	Boolgeeda, Platform	Clays and clay loams with BIF and ironstone pebbles, cobbles, and sheetrock in gorges and rocky creeklines and on hillsides and breakaways	*Eucalyptus leucophloia* subsp. *leucophloia*, *Eucalyptus gamophylla* low open woodland over mixed species (typically *Gossypium robinsonii*, *Acacia hilliana*, *Grevillea wickhamii*, *Keraudrenia nephrosperma*) scattered shrubs over *Triodia wiseana* hummock grassland.	LCF07, LCF10, LCF11, LCF12, LCF14, LCF16, LCF21, LCF23, LCF24, LCF25, LCF26, LCF27, LCF28, LCF29, LCF30, LCF35, LCF39, LCF45

Vegetation Community	Plate	Land System	Substrate	Description	Quadrats
3. *Acacia* shrubland over hummock grassland	3	Boolgeeda, Newman	Sandy clay with ironstone gravel and pebbles on gentle slopes at bases of hills	*Acacia bivenosa* or *Acacia adsurgens* open shrubland over *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) , *Triodia wiseana* hummock grassland.	LCF36, LCF41, LCF43
4. *Acacia tumida* var. *pilbarensis* scrub in creeklines	4	Boolgeeda, Platform	Clay loam and sandy clay with laterite pebbles in drainage lines	*Acacia tumida* var. *pilbarensis* tall open scrub over *Themeda triandra* tussock grassland and *Triodia wiseana* open hummock grassland.	LCF03, LCF15
5. Wannamunna Mulga grove	5	Boolgeeda, Wannamunna	Sandy clay and clay on flat plains	*Acacia aptaneura* low woodland over *Themeda triandra*, *Cymbopogon ambiguus*, *Chrysopogon fallax* open tussock grassland.	LCF31, LCF32, LCF34, LCF51
6. *Acacia aptaneura* over hummock grassland	6	Boolgeeda, Wannamunna	Broad open drainage system through stony plains with clay soils	*Acacia aptaneura* and/or *Corymbia deserticola* low woodland over *Acacia elechantha* and mixed *Eremophila* species over *Triodia wiseana* very open hummock grassland	LCF17, LCF18, LCF19, LCF20, LCF33, LCF37

Type 1: *Eucalyptus gamophylla* woodland over hummock grassland

A widespread vegetation type within the survey area, and especially within the main mining tenement and western haul road areas of the project, occurring on open plains and gentle rises.

This vegetation type had a mean Keighery health rating of 2.667 (excellent-very good) with the main disturbance causes being grazing (cattle), vehicle tracks, and erosion.

No weed species or Priority flora species were observed in this vegetation type.

Plate 1 ***Eucalyptus gamophylla*** **woodland over hummock grassland vegetation type (site LCF09)**

Type 2: *Eucalyptus leucophloia* subsp. *leucophloia* woodland over *Triodia wiseana* hummock grassland

The most widespread vegetation type within the survey area occurring on rocky ridges, hillsides, rocky minor drainage lines, and gorges.

This vegetation type had a mean Keighery health rating of 2 (excellent) with the main disturbance causes being grazing (cattle) and weeds.

The weed species *Bidens bipinnata* and *Cenchrus ciliaris* were observed at three sites in this vegetation type. No Priority flora species were observed in this vegetation type.

Plate 2 ***Eucalyptus leucophloia* subsp. *leucophloia* woodland vegetation type (site LCF24)**

Type 3: *Acacia* shrubland over hummock grassland

This is a minor vegetation type within the survey area. It occurs at three sites along the western haul road section of the survey area and on rocky gentle slopes at the base of hills.

This vegetation type had a mean Keighery health rating of 1.667 (pristine - excellent) with the main disturbance causes being grazing (cattle) and vehicle tracks.

No weed species or priority flora species were observed in this vegetation type.

Plate 3 ***Acacia*** **shrubland over hummock grassland vegetation type (site LCF36)**

Type 4: *Acacia* shrubland over hummock grassland

A minor vegetation type within the survey area, occurring at only two sites in medium-sized creek lines.

This vegetation type had a mean Keighery health rating of 3 (very good) with the main disturbance causes being grazing (cattle) and weeds.

The weed species *Bidens bipinnata* was found at one site in this vegetation type. No Priority flora species were observed in this vegetation type.

Plate 4 ***Acacia tumida* var. *pilbarensis* scrub in creeklines vegetation type (site LCF03)**

Type 5: Wannamunna Mulga grove vegetation

This vegetation type occurred primarily in the Wannamunna land system and was recorded at four sites.

This vegetation type had a mean Keighery health rating of 3 (very good) with the main disturbance causes being weeds and grazing (cattle).

The weed species *Bidens bipinnata*, *Chloris virgata*, *Malvastrum americanum*, and *Portulaca oleracea* were found in this vegetation type. Priority flora species including *Aristida calycina* var. *calycina* (Priority 2), *Aristida lazaridis* (Priority 2), and *Brachyscome* sp. Wanna Munna Flats (S. van Leeuwen 4662) (Priority 1) were observed in three sites of this vegetation type.

Plate 5 Wannamunna mulga grove vegetation type (site LCF31)

Type 6: *Acacia aptaneura* over hummock grassland

This vegetation type was recorded at seven sites, throughout the extent of the survey area but particularly in the open plains at the western end of the main mining tenement area.

This vegetation type was the most highly disturbed of all types in the current survey, and had a mean Keighery health rating of 3.57 (very good-good) with the main disturbance causes being grazing (cattle), active mining exploration, and vehicle tracks.

The weed species *Bidens bipinnata* was found at three sites in this vegetation type. The Priority flora species *Brachyscome* sp. Wanna Munna Flats (S. van Leeuwen 4662) (Priority 1) was observed at one site in this vegetation type (LCF33).

Plate 6 ***Acacia aptaneura*** **over hummock grassland (site LCF18)**

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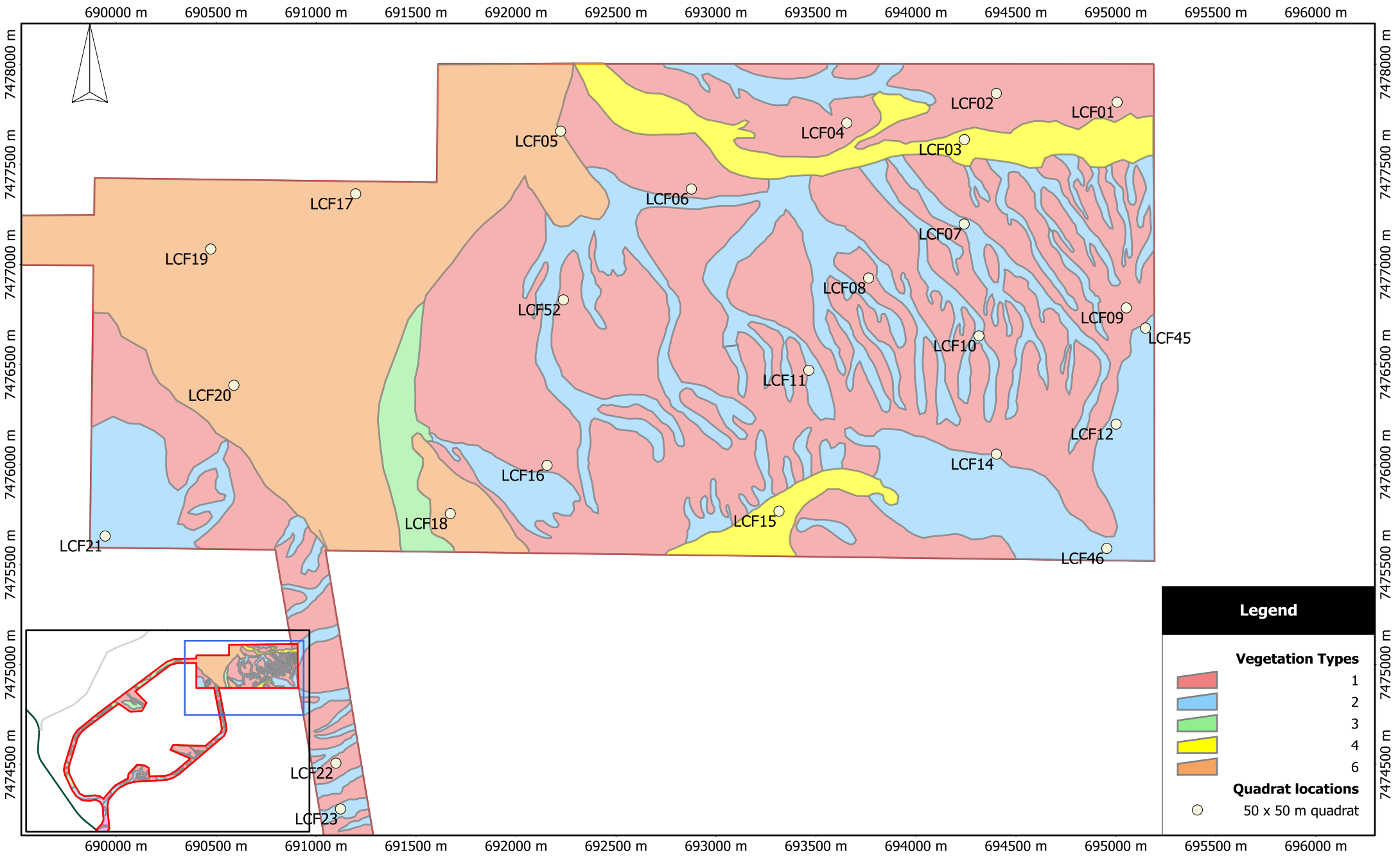

Rapallo

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Figure 8

Vegetation communities mapped in the survey area: Proposed mining area (1 of 6)

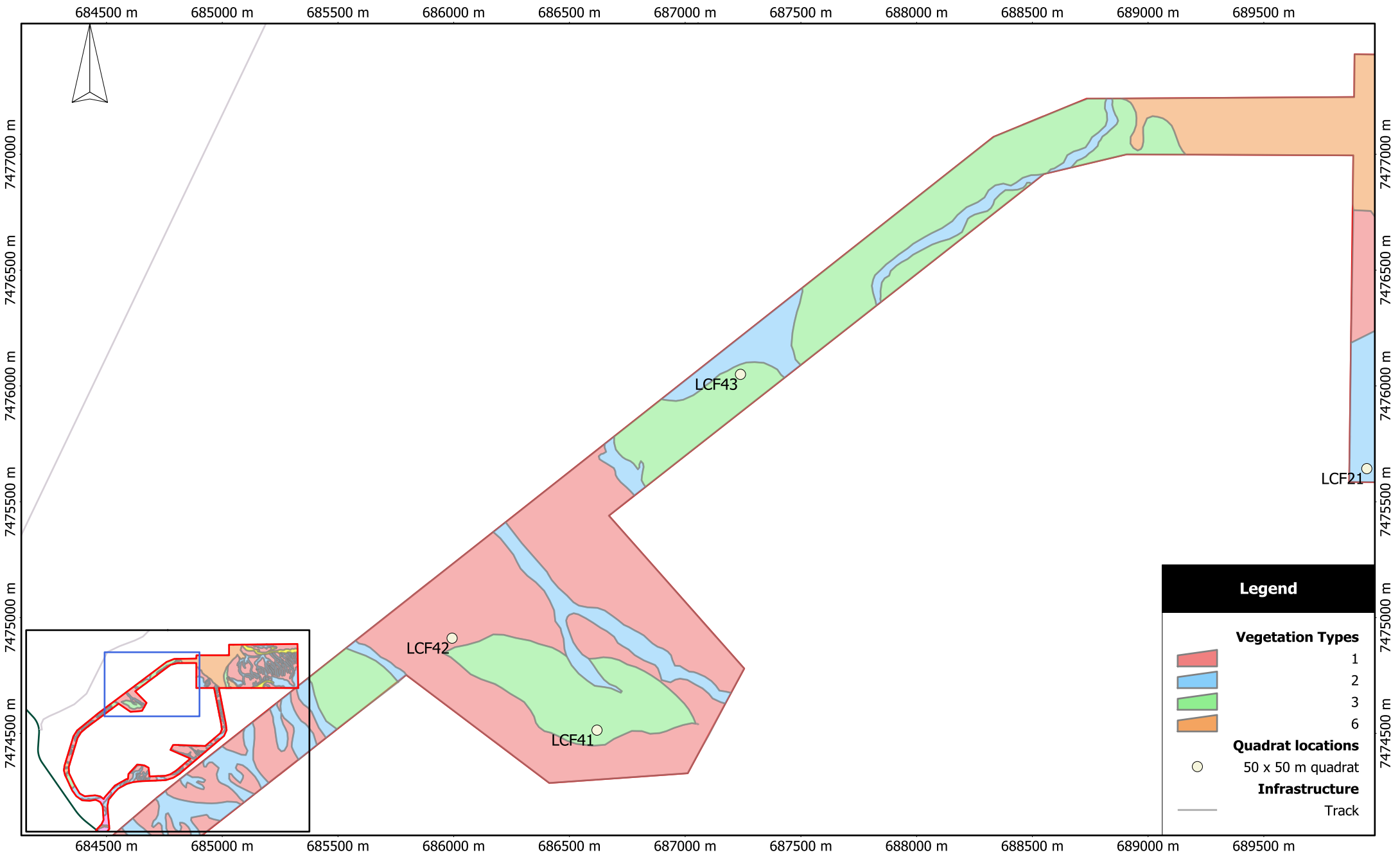

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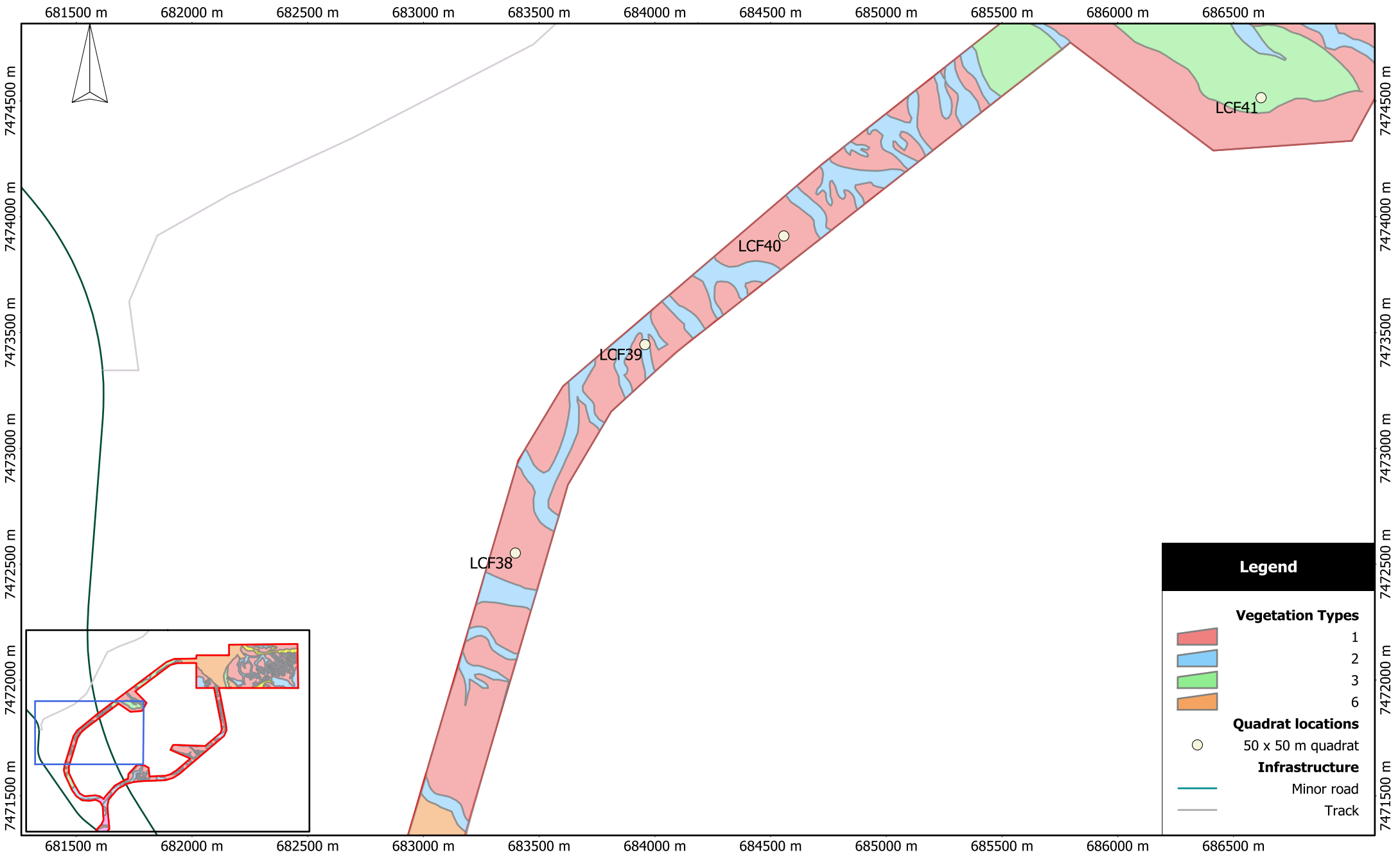
Figure 9

Vegetation communities mapped in the survey area: Northern haul road (2 of 6)



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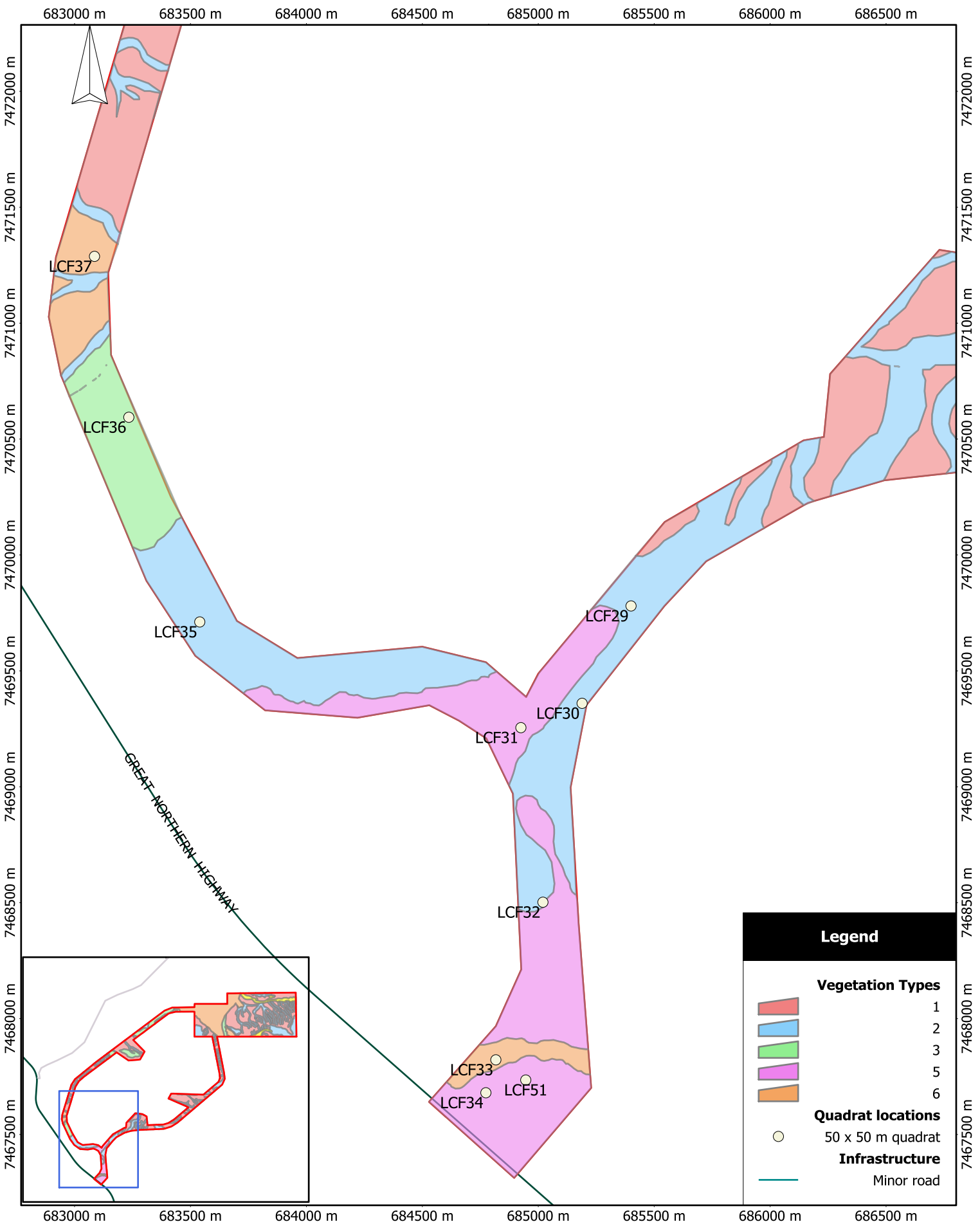
Process Minerals International

Figure 10

Vegetation communities mapped in the survey area: Northern haul road (3 of 6)



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Datum: MGA94

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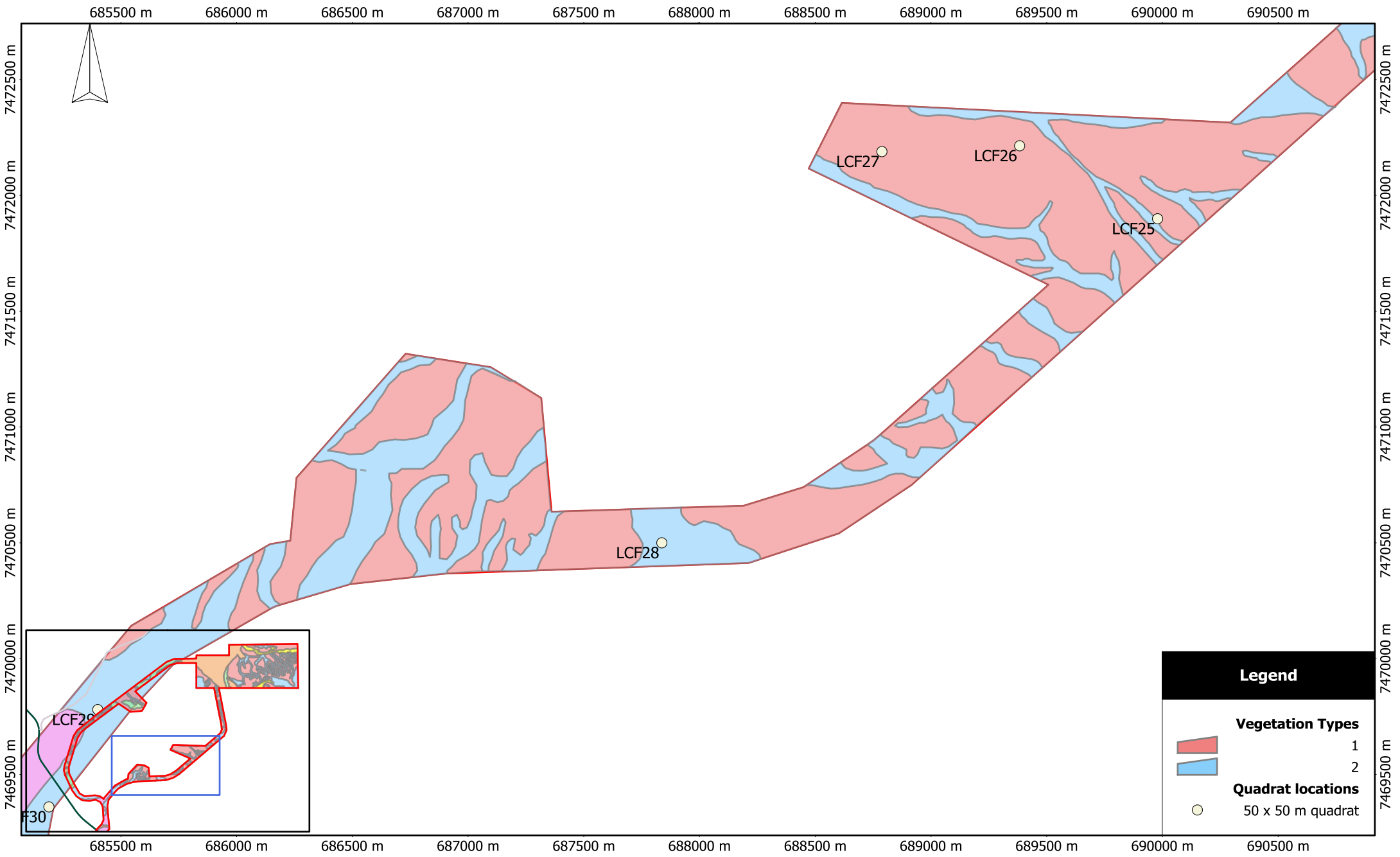
Process Minerals International

Figure 11

Vegetation communities mapped in the survey area: Intersection (4 of 6)



Rapallo

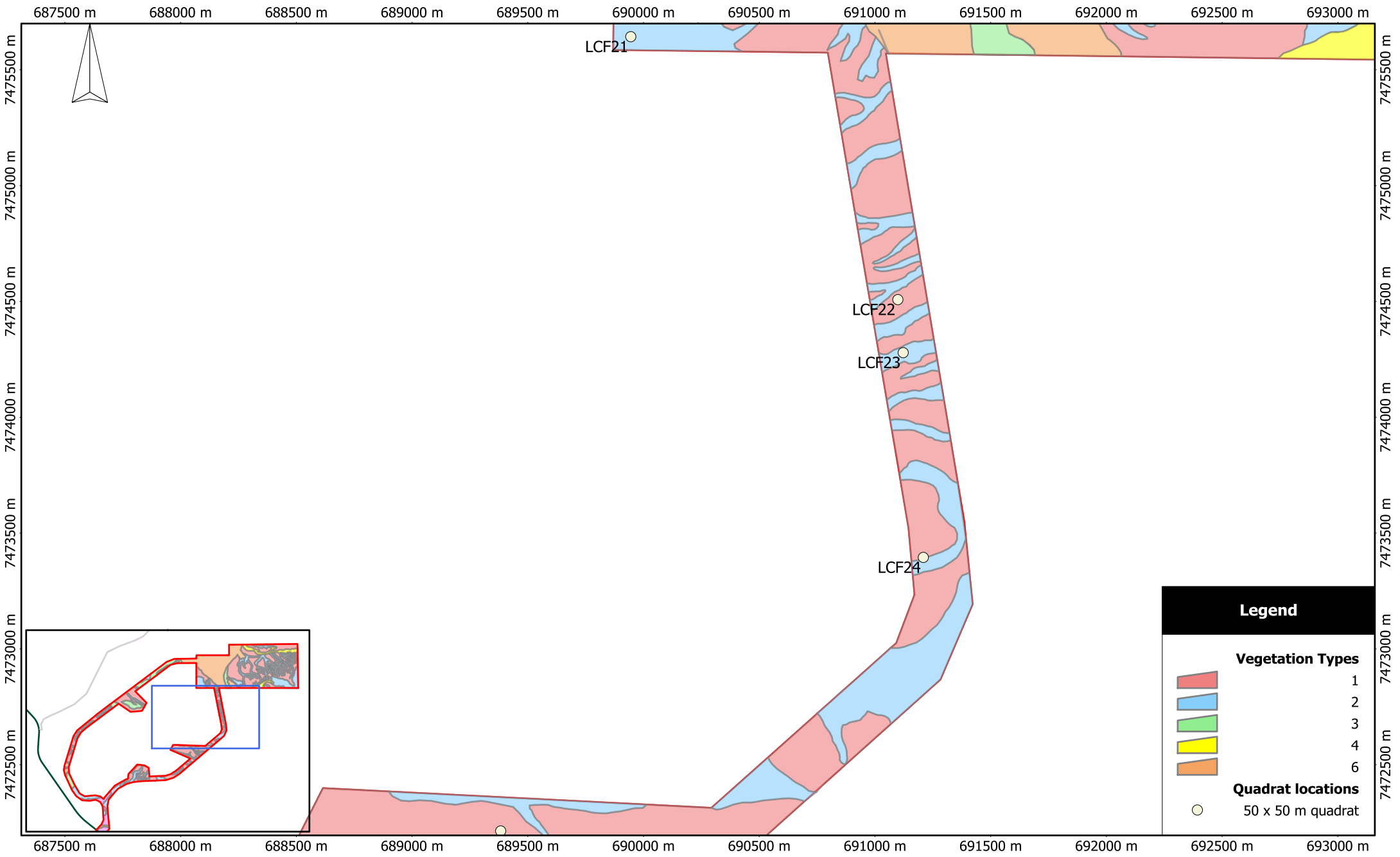
Original Size: A4 Scale: 1:20,000
Datum: MGA94

0 1000 m

Process Minerals International

Figure 12

Vegetation communities mapped in the survey area: Southern haul road (5 of 6)



Rapallo

Original Size: A4 Scale: 1:20,000
Datum: MGA94

0 1000 m

Process Minerals International

Figure 13

Vegetation communities mapped in the survey area: Southern haul road (6 of 6)

5. DISCUSSION AND RECOMMENDATIONS

5.1. SUMMARY OF RESULTS

A total of 230 species, from 110 genera and 42 families, were recorded during the survey of the Lamb Creek area, from 414 specimens collected. Of those, 209 were collected within survey quadrats; the rest were collected opportunistically.

Six main vegetation communities were recognised and mapped following field observations and statistical analysis of the field data.

5.1.1. CONSERVATION SIGNIFICANT SPECIES AND COMMUNITIES

No species of Threatened Flora (Declared Rare Flora) pursuant to the Western Australian *Wildlife Conservation Act* 1950, and no species listed as Threatened pursuant to the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* were recorded in the project area.

Three species of Priority Flora listed by DEC were recorded during the survey, comprising one Priority 1 species (*Brachyscome* sp. Wanna Munna Flats (S. van Leeuwen 4662)) and two Priority 2 species (*Aristida calycina* var. *calycina* and *Aristida lazaridis*).

Brachyscome sp. Wanna Munna Flats (S. van Leeuwen 4662), although listed as a Priority 1 taxon, is actually the most well-known of the three Priority flora species that were recorded in the Lamb Creek survey, having ten collections in the WA Herbarium, spanning across a relatively wide area. The population recorded in the Lamb Creek project appears to be a previously unknown one, as there are no corresponding records in any of the DEC flora databases. Conservation impact on this species of the proposed Lamb Creek project should be able to be minimised by relocation of the proposed access road to intersect with the Great Northern Highway at a more northern location, however further survey should be conducted to determine the extent of this population before any disturbance is undertaken as the occurrence of the species may not be exactly defined by the extent of the land system. Because *B.* sp. Wanna Munna Flats (S. van Leeuwen 4662) was observed to occur in small numbers, evenly spread across a wide area, and due to its ephemeral life cycle, it may be difficult to avoid disturbing the species if the proposed infrastructure cannot be relocated to outside of its known habitat.

Although ranked as lower Priority than *B.* sp. Wanna Munna Flats (S. van Leeuwen 4662), *Aristida calycina* var. *calycina* and *A. lazaridis* (both Priority 2 species) are less well-known in Western Australia. *Aristida calycina* var. *calycina* is only known from a single location in WA, approximately 65 km away from our record, and *A. lazaridis* is only known from two locations. As both of these species were found at the same single site only at Lamb Creek, avoiding conservation impacts entirely should be quite possible if proposed infrastructure is planned appropriately. Further survey should be conducted in the area to determine the full extent of these populations, particularly for *A. lazaridis*, which formed a dominant species in its stratum where it was recorded, and was probably widespread and common throughout the area of similar vegetation surrounding.

No Threatened or Priority Ecological Communities listed by the DEC were recorded.

Kendrick (2002) lists a number of 'ecosystems at risk' in the Hamersley IBRA subregion including some that have brief descriptions similar to vegetation types found in the survey area (for example 'Grove/inter-grove mulga, eastern Hamersley Range' and 'Valley floor Mulga'); however given the sparseness of these descriptions it is not possible to determine if the vegetation complexes recorded in fact match the ones described by Kendrick. These vegetation complexes are not formally listed as TECs or PECs and there is little further information available about them (Jill Pryde, pers. comm.). However, in the time elapsed since publication of the Biodiversity Audit of Western Australia's 53 biogeographical subregions, significant environmental change driven primarily by mining development has occurred in

the Pilbara, and Kendrick's (2002) estimations may now be poor indications of current conservation status. For this reason significant impact on these vegetation types (particularly the *Acacia aptaneura* complexes: vegetation types 5 and 6 in this document) should be avoided where possible.

5.1.2. WEEDS

Five species of introduced flora were recorded in the project area: *Bidens bipinnata* (Bipinnate Beggartick), *Cenchrus ciliaris* (Buffel Grass), *Chloris virgata* (Feathertop Rhodes Grass), *Malvastrum americanum* (Spiked Malvastrum), and *Portulaca oleracea* (Purslane). These species were located in a total of nine sites.

None of these taxa were listed as Declared Plants by the WA Department of Agriculture and Food pursuant to section 37 of the *Agricultural and Related Resources Protection Act 1976* (Western Australia), or as Weeds of National Significance by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPaC 2012).

5.2. POTENTIAL PROJECT IMPACTS

As currently proposed, the project could impact on known habitat of the three Priority flora species observed in the Lamb Creek flora survey. The project also has the potential to impact on the 'at risk' ecological communities 'Grove/inter-grove mulga, eastern Hamersley Range' and 'Valley floor mulga' mentioned in Kendrick (2002). The project would also impact on the Wannamunna land system, a relatively uncommon land system with high conservation and pastoral value.

There is some risk of weed dispersal, particularly from the relatively weed-species rich south-west of the survey area to the relatively undisturbed main mining area.

5.3. RECOMMENDATIONS

1. Further targeted priority flora survey for *Brachyscome* sp. Wanna Munna Flats (S. van Leeuwen 4662), *Aristida calycina* var. *calycina*, and *Aristida lazaridis* should be conducted prior to disturbance to areas of the Wannamunna land system, and the associated nearby *Acacia aptaneura* groves where these taxa where recorded in the current survey.

2. Rapallo recommends avoiding impact on the Wannamunna land system vegetation where most of the Priority species where encountered.

3. If it remains necessary to impact the Wannamunna land system vegetation, consultation with the DEC is recommended before any works are undertaken.

4. A weed management program should be developed to reduce the spread of invasive plants before any further disturbance and/or clearing takes place. This should include washing down any vehicles travelling from weed-infested areas into non-infested areas.

5. Consultation with the DEC is recommended before any disturbance occurs in creek lines near watercourses in the areas of the proposed access roads in order to determine whether these areas are to be considered as wetland vegetation as specified under the *Environmental Protection Act 1986* (Section 51-O).

6. Access roads and other infrastructure should be planned to avoid disturbance to locations recorded to contain Priority Flora species including a minimum 50 m buffer around those locations is recommended. If disturbance cannot be avoided, consultation with the DEC is recommended before any clearing is undertaken

7. During project clearing, topsoil, branches and other vegetation debris should be stockpiled and returned directly to the disturbed areas for rehabilitation operations.

8. Windrows of topsoil, log debris and leaf litter formed during clearing should be retained.

9. Where possible ensure no ground engagements (the grader held blade up) when clearing or re-clearing the existing access tracks.

10. Ensure rapid rehabilitation of cleared areas such as laydown sites, access tracks and grid lines when they are no longer required.

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Appendices

Appendix I: State and Federal Conservation Codes

Conservation Listings under the Environment Protection and Conservation Act 1999 (EPBC Act)

Threatened fauna and flora may be listed in any one of the following categories as defined in Section 179 of the EPBC Act. Section 179 Categories of threatened species

Extinct

(1) A native species is eligible to be included in the extinct category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.

Extinct in the Wild

(2) A native species is eligible to be included in the extinct in the wild category at a particular time if, at that time:

(a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or

(b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

Critically Endangered

(3) A native species is eligible to be included in the critically endangeredcategory at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.

Endangered

(4) A native species is eligible to be included in the endangered category at a particular time if, at that time:

(a) it is not critically endangered; and

(b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

Vulnerable

(5) A native species is eligible to be included in the vulnerable category at a particular time if, at that time:

(a) it is not critically endangered or endangered; and

(b) it is facing a high risk of extinction in the wild in the medium term future, as determined in accordance with the prescribed criteria.

Conservation Dependent

(6) A native species is eligible to be included in the conservation dependent category at a particular time if, at that time:

(a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or

(b) the following subparagraphs are satisfied:

(i) the species is a species of fish;

(ii) the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised;

(iii) the plan of management is in force under a law of the Commonwealth or of a State or Territory;

(iv) cessation of the plan of management would adversely affect the conservation status of the species.

(7) In subsection (6): fish includes all species of bony fish, sharks, rays, crustaceans, molluscs and other marine organisms, but does not include marine mammals or marine reptiles.

Species listed as 'conservation dependent' and 'extinct' are not matters of national environmental significance and therefore do not trigger the EPBC Act.

Categories and definitions of Threatened Flora species under the *Wildlife Conservation Act (1950)* of Western Australia, taken directly from the DEC WA Herbarium website.

Under the *Wildlife Conservation Act(1950)* the Minister for the Environment may declare species of flora to be protected if they are considered to be in danger of extinction, rare or otherwise in need of special protection. Schedules 1 and 2 deal with those that are threatened and those that are presumed extinct, respectively.

T:Threatened Flora (Declared Rare Flora - Extant)

Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such (Schedule 1 under the *Wildlife Conservation Act 1950*).

Threatened Flora (Schedule 1) are further ranked by the Department according to their level of threat using IUCN Red List criteria:

- CR: Critically Endangered – considered to be facing an extremely high risk of extinction in the wild
- EN: Endangered – considered to be facing a very high risk of extinction in the wild
- VU: Vulnerable – considered to be facing a high risk of extinction in the wild.

X:Presumed Extinct Flora (Declared Rare Flora - Extinct)

Taxa which have been adequately searched for and there is no reasonable doubt that the last individual has died, and have been gazetted as such (Schedule 2 under the *Wildlife Conservation Act 1950*).

Species that have not yet been adequately surveyed to be listed under Schedule 1 or 2 are added to the Priority Flora List under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna. Species that are adequately known, are rare but not threatened, or meet criteria for Near Threatened, or that have been recently removed from the threatened list for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring. Conservation Dependent species are placed in Priority 5.

Priority One - Poorly Known Taxa

Species that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, Westrail and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.

Priority Two - Poorly Known Taxa

Species that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.

Priority Three - Poorly Known Taxa

Species that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.

Priority Four – Rare, Near Threatened and other species in need of monitoring

- Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
- Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.
- Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Priority Five – Conservation Dependent species

Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Definitions and criteria for presumed totally destroyed, critically endangered, endangered and vulnerable ecological communities, taken from DEC (2010).

THREATENED ECOLOGICAL COMMUNITIES

A **threatened ecological community** (TEC) is one which is found to fit into one of the following categories; "presumed totally destroyed", "critically endangered", "endangered" or "vulnerable".

Presumed Totally Destroyed (PD)

An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future.

Critically Endangered (CR)

An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.

Endangered (EN)

An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.

Vulnerable (VU)

An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.

PRIORITY ECOLOGICAL COMMUNITIES

Possible threatened ecological communities that do not meet survey criteria or that are not adequately defined are added to the **Priority Ecological Community** List under priorities 1, 2 and 3. These three categories are ranked in order of priority for survey and/or definition of the community, and evaluation of conservation status, so that consideration can be given to their declaration as threatened ecological communities. Ecological communities that are adequately known, and are rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list, are placed in Priority 4. These ecological communities require regular monitoring. Conservation Dependent ecological communities are placed in Priority 5.

Priority One: Poorly-known ecological communities

Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤5 occurrences or a total area of ≤ 100ha). Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.

Priority Two: Poorly-known ecological communities

Communities that are known from few occurrences with a restricted distribution (generally ≤10 occurrences or a total area of ≤200ha). At least some occurrences are not believed to be under immediate threat of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.

Priority Three: Poorly known ecological communities

(i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or:

(ii) communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or;

(iii) communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, and inappropriate fire regimes.

Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them.

Priority Four: Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring.

(i) Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These communities are usually represented on conservation lands.

(ii) Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.

(iii) Ecological communities that have been removed from the list of threatened communities during the past five years.

Priority Five: Conservation Dependent ecological communities

Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

Appendix II: Vegetation condition scale (Keighery 1994)

Vegetation condition scale (Keighery, 1994)

Vegetation Condition	Definition
Pristine (1)	Pristine or nearly so, no obvious signs of disturbance.
Excellent (2)	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
Very Good (3)	Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good (4)	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.
Degraded (5)	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Completely Degraded (6)	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix III: List of Flora Species Recorded during the Survey

Family	LSS	Taxonomic Name
Lauraceae	80	*Cassytha capillaris*
Cyperaceae	156	*Bulbostylis barbata*
		Cyperus cunninghamii subsp. *cunninghamii*
		Eragrostis cumingii
		Eragrostis eriopoda
		Eragrostis pergracilis
		Eragrostis tenellula
		Fimbristylis dichotoma
		Fimbristylis simulans
Poaceae	163	*Amphipogon caricinus* subsp. *caricinus*
		Amphipogon sericeus
		Aristida calycina var. *calycina* **(P2)**
		Aristida contorta
		Aristida holathera
		Aristida inaequiglumis
		Aristida lazaridis **(P2)**
		**Cenchrus ciliaris*
		Chloris pectinata
		**Chloris virgata*
		Chrysopogon fallax
		Cymbopogon ambiguus
		Cymbopogon obtectus
		Dactyloctenium radulans
		Digitaria ctenantha
		Enneapogon caerulescens
		Enneapogon polyphyllus
		Enteropogon ramosus
		Eriachne aristidea
		Eriachne helmsii
		Eriachne obtusa
		Eriachne pulchella subsp. *pulchella*

Family	LSS	Taxonomic Name
		Eulalia aurea
		Iseilema membranaceum
		Paraneurachne muelleri
		Paspalidium basicladum
		Paspalidium rarum
		Paspalidium tabulatum
		Perotis rara
		Schizachyrium fragile
		Sporobolus australasicus
		Themeda triandra
		Tragus australianus
		Triodia sp. Shovelanna Hill (S. van Leeuwen 3835)
		Triodia brizoides
		Triodia wiseana
		Triraphis mollis
		Urochloa holosericea subsp. *velutina*
		Urochloa piligera
Menispermaceae	169	*Tinospora smilacina*
Proteaceae	175	*Grevillea stenobotrya*
		Grevillea wickhamii
		Grevillea wickhamii subsp. *hispidula*
		Hakea lorea
Zygophyllaceae	199	*Tribulopis angustifolia*
		Tribulus astrocarpus
		Tribulus hirsutus
		Tribulus platypterus
Fabaceae	201	*Acacia adoxa* var. *adoxa*
		Acacia adsurgens
		Acacia ancistrocarpa
		Acacia aptaneura
		Acacia arida

Family	LSS	Taxonomic Name
		Acacia bivenosa
		Acacia dictyophleba
		Acacia elachantha
		Acacia hilliana
		Acacia inaequilatera
		Acacia maitlandii
		Acacia marramamba
		Acacia minyura
		Acacia monticola
		Acacia pachyacra
		Acacia pruinocarpa
		Acacia pyrifolia var. *morrisonii*
		Acacia steedmanii subsp. *borealis*
		Acacia synchronicia
		Acacia tenuissima
		Acacia tumida var. *pilbarensis*
		Acacia xiphophylla
		Crotalaria medicaginea
		Gompholobium sp. Pilbara (NF Norris 908)
		Indigofera georgei
		Indigofera monophylla
		Rhynchosia minima
		Senna artemisioides subsp. *filifolia*
		Senna artemisioides subsp. *helmsii*
		Senna artemisioides subsp. *oligophylla*
		Senna artemisioides subsp. *sturtii*
		Senna ferraria
		Senna glutinosa subsp. *glutinosa*
		Senna glutinosa subsp. *pruinosa*
		Senna notabilis
		Senna venusta

Family	LSS	Taxonomic Name
		Tephrosia densa
		Tephrosia supina
Surianaceae	202	*Stylobasium spathulatum*
Polygalaceae	203	*Polygala isingii*
Moraceae	211	*Ficus brachypoda*
Cucurbitaceae	224	*Cucumis maderaspatanus*
Celastraceae	229	*Stackhousia intermedia*
Euphorbiaceae	242	*Euphorbia australis*
		Euphorbia biconvexa
		Euphorbia boophthona
		Euphorbia latrobei subsp. *filiformis*
		Euphorbia tannensis subsp. *eremophila*
Phyllanthaceae	247	*Phyllanthus maderaspatensis*
Violaceae	261	*Hybanthus aurantiacus*
Myrtaceae	281	*Corymbia ?opaca*
		Corymbia deserticola
		Corymbia hamersleyana
		Eucalyptus ?victrix
		Eucalyptus ?xerothermica
		Eucalyptus gamophylla
		Eucalyptus kingsmillii subsp. *kingsmillii*
		Eucalyptus leucophloia subsp. *leucophloia*
Sapindaceae	299	*Dodonaea coriacea*
		Dodonaea viscosa subsp. *mucronata*
Malvaceae	309	*Abutilon dioicum*
		Abutilon indicum
		Abutilon otocarpum
		Corchorus incanus subsp. *lithophilus*
		Corchorus lasiocarpus subsp. *lasiocarpus*
		Gossypium australe
		Gossypium robinsonii

Family	LSS	Taxonomic Name
		Hibiscus burtonii
		Hibiscus coatesii
		Hibiscus sturtii var. *campylochlamys*
		Hibiscus sturtii var. *platychlamys*
		Keraudrenia nephrosperma
		**Malvastrum americanum*
		Rulingia luteiflora
		Sida ?echinocarpa
		Sida ?sp. Spiciform panicles (E. Leyland s.n. 14/8/90)
		Sida ?sp. Supplejack Station (T.S. Henshall 2345)
		Sida arenicola
		Sida fibulifera
		Sida platycalyx
		Sida sp. Golden calyces glabrous (H.N. Foote 32)
		Sida sp. Pilbara (A.A. Mitchell PRP 1543)
		Sida sp. Tiny fruits (AA Mitchell PRP1152)
		Triumfetta maconochieana
Gyrostemonaceae	328	*Codonocarpus cotinifolius*
Capparaceae	330	*Capparis lasiantha*
		Capparis spinosa var. *nummularia*
Brassicaceae	332	*Cleome oxalidea*
		Cleome viscosa
		Lepidium echinatum
		Stenopetalum anfractum
		Stenopetalum pedicellare
Santalaceae	338	*Santalum lanceolatum*
Loranthaceae	339	*Amyema sanguinea* var. *sanguinea*
		Lysiana murrayi
Caryophyllaceae	355	*Polycarpaea corymbosa* var. *corymbosa*
		Polycarpaea holtzei
		Polycarpaea longiflora

Family	LSS	Taxonomic Name
Amaranthaceae	357	*Alternanthera nana*
		Gomphrena canescens subsp. *canescens*
		Gomphrena cunninghamii
		Ptilotus astrolasius
		Ptilotus calostachyus
		Ptilotus clementii
		Ptilotus exaltatus var. *exaltatus*
		Ptilotus fusiformis
		Ptilotus gaudichaudii var. *gaudichaudii*
		Ptilotus helipteroides
		Ptilotus macrocephalus
		Ptilotus obovatus subsp. *obovatus*
		Ptilotus polystachyus
		Ptilotus rotundifolius
Chenopodiaceae	358	*Dysphania glomulifera* subsp. *eremaea*
		Dysphania kalpari
		Dysphania rhadinostachya
		Enchylaena tomentosa
		Maireana villosa
		Rhagodia eremaea
		Salsola australis
		Sclerolaena cornishiana
Aizoaceae	364	*Trianthema glossostigma*
Nyctaginaceae	367	*Boerhavia gardneri*
Portulacaceae	374	*Calandrinia ptychosperma*
		**Portulaca oleracea*
Rubiaceae	409	*Oldenlandia crouchiana*
		Psydrax latifolia
Rubiaceae	409	*Psydrax rigidula*
Apocynaceae	413	*Cynanchum floribundum*
		Rhyncharrhena linearis

Family	LSS	Taxonomic Name
Boraginaceae	415	*Heliotropium tenuifolium*
		Trichodesma zeylanicum var. *zeylanicum*
Convolvulaceae	416	*Bonamia rosea*
		Convolvulus angustissimus subsp. *angustissimus*
		Duperreya commixta
		Evolvulus alsinoides var. *villosicalyx*
		Ipomoea polymorpha
Solanaceae	417	*Nicotiana occidentalis* subsp. *obliqua*
		Solanum ferocissimum
		Solanum lasiophyllum
		Solanum phlomoides
Oleaceae	423	*Jasminum didymum* subsp. *lineare*
Plantaginaceae	427	*Stemodia grossa*
		Stemodia viscosa
Scrophulariaceae	428	*Eremophila forrestii* subsp. *forrestii*
		Eremophila fraseri subsp. *fraseri*
		Eremophila lachnocalyx
		Eremophila longifolia
Lamiaceae	432	*Clerodendrum ?tomentosum*
		Clerodendrum floribundum var. *angustifolium*
		Newcastelia sp. Hamersley Range (S. van Leeuwen 4264)
		Spartothamnella teucriiflora
Goodeniaceae	458	*Dampiera candicans*
		Goodenia forrestii
		Goodenia microptera
		Goodenia muelleriana
		Goodenia prostrata
		Goodenia stobbsiana
		Scaevola browniana subsp. *browniana*
		Scaevola parvifolia subsp. *pilbarae*
Asteraceae	460	**Bidens bipinnata*

Family	LSS	Taxonomic Name
		Brachyscome sp. Wanna Munna Flats (S. van Leeuwen 4662) **(P1)**
		Pterocaulon serrulatum
		Rhodanthe floribunda
Araliaceae	472	*Trachymene oleracea*

Appendix IV: Coordinates of Conservation Significant Taxa recorded in the Project Area

Taxon name	Conservation status	Quadrat	Latitude	Longitude
Brachyscome sp. Wanna Munna Flats (S. van Leeuwen 4662)	P1	LCF33	-22.878188	118.801596
		LCF34	-22.879474	118.801194
		LCF51	-22.878959	118.802863
Aristida calycina var. *calycina*	P2	LCF31	-22.865242	118.802478
Aristida lazaridis	P2			

Appendix V: Vegetation Structural Classes

Vegetation Structural Classes – Specht (1970) as modified by Aplin (1979)

Stratum	Canopy Cover (%)				
	70-100%	30-70%	10-30%	2-10%	<2%
Trees >30m	Tall closed forest	Tall open forest	Tall woodland	Tall open woodland	Scattered tall trees
Trees 10-30m	Closed forest	Open forest	Woodland	Open woodland	Scattered trees
Trees <10m	Low closed forest	Low open forest	Low woodland	Low open woodland	Scattered low trees
Shrubs >2m	Tall closed scrub	Tall open scrub	Tall shrubland	Tall open shrubland	Scattered tall shrubs
Shrubs 1-2 m	Closed heath	Open heath	Shrubland	Open shrubland	Scattered shrubs
Shrubs <1 m	Low closed heath	Low open heath	Low shrubland	Low open shrubland	Scattered low shrubs
Hummock grasses	Closed hummock grassland	Hummock grassland	Open hummock grassland	Very open hummock grassland	Scattered hummock grasses
Grasses Sedges, Herbs	Closed tussock grassland/bunch grassland /sedgeland /herbland	Tussock grassland/ bunch grassland/ sedgeland/ herbland	Open tussock grassland / bunch grassland/ sedgeland / herbland	Very open tussock grassland / bunch grassland / sedgeland / herbland	Scattered tussock grasses / bunch grasses / sedges / herbs

Appendix VI: Flora Quadrat Survey Site Descriptions

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF01							
Botanist	Chid	**Date**	3/27/2012	**Site area**	Quadrat 50 x 50 m		
Location	50K		695006 **mE**	7477811 **mN**	**Elevation** 733 m		
Topography and Geology	Landform: Low plateau / flat hilltop Soil: red brown clay loam. Geology: 95% cover of laterite, ironstone gravel, pebbles.						
Veg Condition	2	**Disturbances**	catte	**Land System**	Newman		
Site Photo							
Vegetation	*Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Acacia hilliana* scattered low shrubs over *Triodia wiseana, Triodia brizoides* hummock grassland.						
Species	*Acacia adoxa* var. *adoxa* *Acacia ancistrocarpa* *Acacia hilliana* *Bulbostylis barbata* *Cassytha capillaris* *Dysphania rhadinostachya* *Eriachne obtusa* *Eucalyptus leucophloia* subsp. *leucophloia* *Goodenia microptera* *Goodenia stobbsiana* *Hakea lorea*			*Keraudrenia nephrosperma* *Polycarpaea holtzei* *Ptilotus calostachyus* *Ptilotus rotundifolius* *Santalum lanceolatum* *Senna glutinosa* subsp. *glutinosa* *Senna glutinosa* subsp. *pruinosa* *Solanum lasiophyllum* *Triodia brizoides* *Triodia wiseana*			

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF02					
Botanist	Linda	**Date**	3/27/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		694402 **mE**	7477855 **mN**	**Elevation** 731 m
Topography and Geology	Landform: Rolling hills Aspect and Slope: variable. Soil: orange brown clay. Geology: 100% cover of BIF, laterite pebbles.				
Veg Condition	2	**Disturbances**	none	**Land System**	Newman
Site Photo					
Vegetation	*Eucalyptus leucophloia* subsp. *leucophloia, Corymbia* deserticola scattered low trees over *Triodia wiseana, Triodia brizoides* hummock grassland.				
Species	*Acacia adoxa* var. *adoxa* *Bulbostylis barbata* *Capparis lasiantha* *Cassytha capillaris* *Corymbia deserticola* *Dysphania rhadinostachya* *Eriachne helmsii* *Eucalyptus leucophloia* subsp. *leucophloia* *Euphorbia australis* *Goodenia microptera* *Goodenia stobbsiana*			*Hakea lorea* *Keraudrenia nephrosperma* *Polycarpaea holtzei* *Ptilotus calostachyus* *Ptilotus rotundifolius* *Senna glutinosa* subsp. *glutinosa* *Senna glutinosa* subsp. *pruinosa* *Solanum lasiophyllum* *Triodia brizoides* *Triodia wiseana*	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF03							
Botanist	Chid	**Date**	3/27/2012	**Site area**	Quadrat 50 x 50 m		
Location	50K		694242 **mE**	7477624 **mN**	**Elevation** 726 m		
Topography and Geology	Landform: Creekline Soil: orange clay loam. Geology: 5% cover of laterite pebbles.						
Veg Condition	3	**Disturbances**	cattle, weeds	**Land System**	Platform		
Site Photo							
Vegetation	*Acacia tumida* var. *pilbarensis* tall closed scrub with *Duperreya commixta* creepers over *Themeda triandra* tussock grassland and *Triodia wiseana* open hummock grassland.						
Species	*Acacia tumida* var. *pilbarensis* *Clerodendrum floribundum* var. *angustifolium* *Corymbia hamersleyana* *Dodonaea viscosa* subsp. *mucronata* *Duperreya commixta* *Eriachne helmsii*			*Eucalyptus leucophloia* subsp. *leucophloia* *Keraudrenia nephrosperma* *Rulingia luteiflora* *Senna glutinosa* subsp. *pruinosa* *Themeda triandra* *Triodia wiseana*			

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF04							
Botanist	Chid	**Date**	3/27/2012	**Site area**	Quadrat 50 x 50 m		
Location	50K		693654 **mE**	7477707 **mN**	**Elevation** 719 m		
Topography and Geology	Landform: Flat low plateau / plain Soil: red brown clay loam. Geology: 95% cover of laterite, ironstone gravel, pebbles.						
Veg Condition	3	**Disturbances**	cattle, tracks nearby, weeds	**Land System**	Platform		
Site Photo							
Vegetation	*Eucalyptus gamophylla* scattered low trees over *Triodia brizoides, Triodia wiseana* hummock grassland.						
Species	*Acacia ancistrocarpa* *Acacia hilliana* *Acacia pruinocarpa* *Acacia tenuissima* *Amphipogon caricinus* subsp. *caricinus* *Aristida contorta* *Aristida holathera* *Bulbostylis barbata* *Dysphania rhadinostachya* *Enneapogon polyphyllus* *Eriachne helmsii* *Eucalyptus gamophylla* *Goodenia microptera*				*Goodenia stobbsiana* *Hakea lorea* *Indigofera monophylla* *Jasminum didymum* subsp. *lineare* *Keraudrenia nephrosperma* *Polycarpaea holtzei* *Ptilotus calostachyus* *Ptilotus obovatus* var. *obovatus* *Schizachyrium fragile* *Senna artemisioides* subsp. *oligophylla* *Solanum lasiophyllum* *Triodia brizoides* *Triodia wiseana*		

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF05					
Botanist	Linda	**Date**	3/28/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		692223 **mE**	7477666 **mN**	**Elevation** 699 m
Topography and Geology	Landform: Flat low plateau / plain Aspect and Slope: flat Soil: red clay. Geology: 90% cover of laterite (colluvial) gravels.				
Veg Condition	3	**Disturbances**	grazing, weeds, signs of old fires	**Land System**	McKay
Site Photo					
Vegetation	*Corymbia deserticola* scattered low trees over *Acacia elachantha* tall open shrubland over *Acacia hilliana, Acacia minyura, Senna artemisioides* subsp. *helmsii* low shrubland over *Eulalia aurea, Cymbopogon ambiguous* open tussock grassland and mixed scattered herbs.				

Species	
Abutilon otocarpum	*Euphorbia biconvexa*
Acacia aptaneura	*Evolvulus alsinoides* var. *villosicalyx*
Acacia elachantha	*Gomphrena canescens* subsp. *canescens*
Acacia elachantha	*Paspalidium rarum*
Acacia minyura	*Perotis rara*
Cassytha capillaris	*Ptilotus obovatus* subsp. *obovatus*
Corymbia deserticola	*Rhynchosia minima*
Cymbopogon ambiguus	*Senna artemisioides* subsp. *helmsii*
Dysphania rhadinostachya	*Senna notabilis*
Eremophila longifolia	*Sporobolus australasicus*
Eulalia aurea	*Triodia wiseana*

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF06					
Botanist	Linda	**Date**	3/28/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		692877 **mE**	7477377 **mN**	**Elevation** 722 m
Topography and Geology	Landform: Flat plain Soil: red clay. Geology: 90% cover of BIF colluvial fragments mostly <1cm, some 2-5%.				
Veg Condition	4	**Disturbances**	fire 1-2 years previous, old clearing, scrap piles, tracks (>3 years ago).	**Land System**	McKay
Site Photo					
Vegetation	*Corymbia deserticola* scattered low trees over *Acacia elachantha* shrubland over *Keraudrenia nephrosperma, Bonamia rosea, Senna artemisioides* subsp. *oligophylla* low open shrubland over *Triodia brizoides* very open hummock grassland.				
Species	*Abutilon dioicum* *Acacia ancistrocarpa* *Acacia elachantha* *Aristida contorta* *Bonamia rosea* *Corymbia deserticola* *Cymbopogon ambiguus* *Eucalyptus leucophloia* subsp. *leucophloia* *Evolvulus alsinoides* var. *villosicalyx* *Goodenia microptera* *Goodenia stobbsiana*		*Indigofera monophylla* *Keraudrenia nephrosperma* *Ptilotus calostachyus* *Senna artemisioides* subsp. *oligophylla* *Senna glutinosa* subsp. *glutinosa* *Senna notabilis* *Sida arenicola* *Sida sp. Pilbara (A.A. Mitchell PRP 1543)* *Trianthema glossostigma* *Triodia brizoides*		

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF07					
Botanist	Linda	**Date**	3/28/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		694241 **mE**	7477202 **mN**	**Elevation** 710 m
Topography and Geology	Landform: Small dissected creekline through gently undulating country Soil: red clay. Geology: 100% cover of BIF cobbles.				
Veg Condition	2	**Disturbances**	none	**Land System**	Platform
Site Photo					
Vegetation	*Eucalyptus gamophylla* low woodland over *Acacia elachantha* tall shrubland over *Triodia wiseana* hummock grassland and *Hybanthus aurantiacus, Crotalaria medicaginea* scattered herbs.				

Species	
Acacia adoxa var. *adoxa*	*Gossypium australe*
Acacia bivenosa	*Hakea lorea*
Acacia elachantha	*Hybanthus aurantiacus*
Bulbostylis barbata	*Indigofera monophylla*
Cassytha capillaris	*Paspalidium basicladum*
Corchorus lasiocarpus subsp. *lasiocarpus*	*Perotis rara*
Crotalaria medicaginea	*Rhynchosia minima*
Cymbopogon ambiguus	*Senna artemisioides* subsp. *oligophylla*
Enneapogon caerulescens	*Tephrosia densa*
Eucalyptus gamophylla	*Triodia wiseana*
Evolvulus alsinoides var. *villosicalyx*	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF08						
Botanist	Linda	**Date**	3/28/2012	**Site area**	Quadrat 50 x 50 m	
Location	50K		693763 **mE**	7476932 **mN**	**Elevation** 730 m	
Topography and Geology	Landform: Gently undulating plains with dissected minor drainage lines Aspect and Slope: W (270°) gentle <5%. Soil: red clay. Geology:90% cover of BIF 2-10 cm.					
Veg Condition	3	**Disturbances**	old tracks, clearing	**Land System**	Platform	
Site Photo						
Vegetation	*Corymbia deserticola* scattered low trees over *Triodia wiseana, Triodia brizoides* hummock grassland.					
Species	*Acacia adoxa* var. *adoxa* *Acacia hilliana* *Acacia elachantha* *Bulbostylis barbata* *Corymbia deserticola* *Dysphania rhadinostachya* *Eremophila longifolia* *Fimbristylis dichotoma* *Fimbristylis simulans* *Goodenia microptera*			*Goodenia stobbsiana* *Hakea lorea* *Ptilotus calostachyus* *Senna artemisioides* subsp. *oligophylla* *Senna glutinosa* subsp. *glutinosa* *Senna glutinosa* subsp. *pruinosa* *Solanum lasiophyllum* *Triodia brizoides* *Triodia wiseana*		

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF09					
Botanist	Chid	**Date**	3/28/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		695052 **mE**	7476783 **mN**	**Elevation** 742 m
Topography and Geology	Landform: Gently sloping plain at foto of ridge. Dissected by deep gorges. Slope: very gentle. Soil: brown clay loam. Geology: 95% cover of ironstone (some BIF), granite pebbles, cobbles.				
Veg Condition	2	**Disturbances**	cattle, fire (old)	**Land System**	Platform
Site Photo					
Vegetation	*Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Acacia hilliana* low open shrubland over *Triodia brizoides, Triodia wiseana* hummock grassland.				
Species	*Acacia hilliana* *Acacia pruinocarpa* *Aristida holathera* *Aristida inaequiglumis* *Bulbostylis barbata* *Eremophila lachnocalyx* *Eucalyptus ?xerothermica* *Eucalyptus gamophylla* *Eucalyptus leucophloia* subsp. *leucophloia* *Fimbristylis dichotoma* *Goodenia microptera*			*Goodenia stobbsiana* *Grevillea wickhamii* *Hakea lorea* *Hibiscus sturtii* var. *campylochlamys* *Polycarpaea holtzei* *Schizachyrium fragile* *Senna artemisioides* subsp. *oligophylla* *Senna glutinosa* subsp. *glutinosa* *Triodia brizoides* *Triodia wiseana*	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF10					
Botanist	Chid	**Date**	3/29/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		694315 **mE**	7476643 **mN**	**Elevation** 733 m
Topography and Geology	Landform: Minor creekline in shallow valley bottom Slope: very gentle. Soil: brown sandy clay. Geology: 95% cover of granite, ironstone from pebbles to boulders.				
Veg Condition	2	**Disturbances**	tracks and drill pads nearby	**Land System**	Boolgeeda
Site Photo					
Vegetation	*Eucalyptus leucophloia* subsp. *leucophloia, Corymbia hamersleyana* scattered low trees over *Gossypium robinsonii* scattered shrubs over *Triodia wiseana* closed hummock grassland.				
Species	*Acacia adsurgens* *Acacia ancistrocarpa* *Acacia inaequilatera* *Corchorus lasiocarpus* subsp. *lasiocarpus* *Corymbia hamersleyana* *Cymbopogon ambiguus* *Enneapogon polyphyllus* *Eriachne helmsii* *Eucalyptus leucophloia* subsp.		*Leucophloia* *Fimbristylis dichotoma* *Gossypium robinsonii* *Hakea lorea* *Polycarpaea holtzei* *Rhynchosia minima* *Senna glutinosa* subsp. *glutinosa* *Senna glutinosa* subsp. *glutinosa* *Triodia wiseana*		

<table>
<tr><th colspan="7">Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF11</th></tr>
<tr><td>Botanist</td><td>Chid</td><td>Date</td><td>3/29/2012</td><td>Site area</td><td colspan="2">Quadrat 50 x 50 m</td></tr>
<tr><td>Location</td><td colspan="2">50K</td><td>693464 mE</td><td>7476471 mN</td><td colspan="2">Elevation 745 m</td></tr>
<tr><td>Topography and Geology</td><td colspan="6">Landform: Sloping valley side leading down to creekline
Aspect and Slope: East moderately inclined to steep.
Soil: red brown clay loam.
Geology: 95% cover of granite, ironstone pebbles, cobbles and boulders.</td></tr>
<tr><td>Veg Condition</td><td>1</td><td colspan="2">Disturbances</td><td>relatively recent fire.</td><td>Land System</td><td>Boolgeeda</td></tr>
<tr><td>Site Photo</td><td colspan="6"> </td></tr>
<tr><td>Vegetation</td><td colspan="6">Eucalyptus leucophloia subsp. leucophloia scattered low trees over Grevillea wickhamii open shrubland over Triodia wiseana hummock grassland.</td></tr>
<tr><td>Species</td><td colspan="3">Corymbia deserticola
Eucalyptus leucophloia subsp. leucophloia
Euphorbia biconvexa
Goodenia stobbsiana
Grevillea wickhamii</td><td colspan="3">Polygala isingii
Ptilotus calostachyus
Schizachyrium fragile
Senna glutinosa subsp. glutinosa
Triodia wiseana</td></tr>
</table>

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF12					
Botanist	Chid	**Date**	3/28/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		695001 **mE**	7476202 **mN**	**Elevation** 789 m
Topography and Geology	Landform: Deep gorge valley bottom Aspect and Slope: North gently inclined. Soil: red brown sandy clay. Geology: 95% cover of granite, BIF pebbles, stones, boulders, sheet.				
Veg Condition	2	**Disturbances**	cattle, weeds	**Land System**	Boolgeeda
Site Photo					
Vegetation	*Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Stylobasium spathulatum, Gossypium robinsonii* tall open shrubland over *Triodia wiseana* hummock grassland.				

Species	
Abutilon dioicum	*Gomphrena cunninghamii*
Abutilon indicum	*Gossypium robinsonii*
Acacia bivenosa	*Grevillea wickhamii*
Acacia inaequilatera	*Hakea lorea*
Acacia maitlandii	*Hibiscus coatesii*
Acacia synchronicia	*Paspalidium tabulatum*
**Bidens bipinnata*	*Pterocaulon serrulatum*
Capparis spinosa var. *nummularia*	*Salsola australis*
Corchorus lasiocarpus subsp. *lasiocarpus*	*Senna venusta*
Cymbopogon ambiguus	*Solanum phlomoides*
Dodonaea viscosa subsp. *mucronata*	*Stylobasium spathulatum*
Duperreya commixta	*Tinospora smilacina*
Eucalyptus leucophloia subsp. *leucophloia*	*Triodia wiseana*
Euphorbia biconvexa	

<table>
<tr><th colspan="6">Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF14</th></tr>
<tr><td>Botanist</td><td>Linda</td><td>Date</td><td>3/28/2012</td><td>Site area</td><td>Quadrat 50 x 50 m</td></tr>
<tr><td>Location</td><td colspan="2">50K</td><td>694402 mE</td><td>7476052 mN</td><td>Elevation 925 m</td></tr>
<tr><td>Topography and Geology</td><td colspan="5">Landform: Ridge top
Aspect and Slope: WSE (240°) gentle on ridge top <8%.
Soil: red clay.
Geology: 95% cover of BIF 5-10 cm.</td></tr>
<tr><td>Veg Condition</td><td>1</td><td>Disturbances</td><td>old fire (>5 years previous)</td><td>Land System</td><td>Boolgeeda</td></tr>
<tr><td>Site Photo</td><td colspan="5"> </td></tr>
<tr><td>Vegetation</td><td colspan="5">Eucalyptus leucophloia subsp. leucophloia, Eucalyptus gamophylla low open woodland over Triodia wiseana hummock grassland.</td></tr>
<tr><td>Species</td><td colspan="2">Eucalyptus gamophylla
Eucalyptus leucophloia subsp. leucophloia
Fimbristylis dichotoma
Goodenia microptera</td><td colspan="3">Goodenia stobbsiana
Senna glutinosa subsp. glutinosa
Solanum lasiophyllum
Triodia wiseana</td></tr>
</table>

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF15						
Botanist	Chid	**Date**	3/29/2012	**Site area**	Quadrat 50 x 50 m	
Location	50K		693315 **mE**	7475767 **mN**	**Elevation** 753 m	
Topography and Geology	Landform: Creekline within broad open drainage system surrounded by hills. Soil: brown sandy clay. Geology: 90% cover of ironstone pebbles, gravel, rocks.					
Veg Condition	3	**Disturbances**	cattle, weeds, clearing nearby (tracks and drill pads)	**Land System**	Boolgeeda	
Site Photo						
Vegetation	*Hakea lorea* scattered low trees over *Acacia tumida* var. *pilbarensis*, *Grevillea wickhamii, Acacia monticola* tall open scrub over *Gossypium robinsonii* and mixed species low open shrubland over *Themeda triandra, Eriachne helmsii* tussock grassland and *Triodia wiseana* open hummock grassland.					
Species	*Abutilon indicum* *Acacia inaequilatera* *Acacia monticola* *Acacia tumida* var. *pilbarensis* **Bidens bipinnata* *Boerhavia gardneri* *Bulbostylis barbata* *Cleome viscosa* *Corchorus incanus* subsp. *lithophilus* *Crotalaria medicaginea* *Cucumis maderaspatanus* *Dodonaea viscosa* subsp. *mucronata* *Dysphania rhadinostachya* *Eriachne helmsii* *Evolvulus alsinoides* var. *villosicalyx* *Gomphrena cunninghamii* *Gossypium robinsonii* *Grevillea wickhamii*			*Hakea lorea* *Hybanthus aurantiacus* *Indigofera monophylla* *Jasminum didymum* subsp. *lineare* *Paspalidium tabulatum* *Phyllanthus maderaspatensis* *Polycarpaea longiflora* *Pterocaulon serrulatum* *Ptilotus obovatus* subsp. *obovatus* *Rhagodia eremaea* *Rhynchosia minima* *Santalum lanceolatum* *Senna venusta* *Stylobasium spathulatum* *Tephrosia densa* *Themeda triandra* *Trichodesma zeylanicum* var. *zeylanicum* *Triodia wiseana*		

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF16					
Botanist	Linda	**Date**	3/29/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		692155 **mE**	7475996 **mN**	**Elevation** 728 m
Topography and Geology	Landform: Gentle undulating country between breakaways Aspect and Slope: 210° gentle (5%). Soil: red clay. Geology:95% cover of BIF 5-30 cm.				
Veg Condition	2	**Disturbances**	none	**Land System**	McKay
Site Photo					
Vegetation	*Eucalyptus leucophloia* subsp. *leucophloia*, *Corymbia hamersleyana* scattered low trees over *Acacia inaequilatera* scattered tall shrubs over *Triodia wiseana, Triodia brizoides* hummock grassland.				
Species	*Acacia adoxa* var. *adoxa* *Acacia hilliana* *Acacia elachantha* *Acacia inaequilatera* *Bulbostylis barbata* *Corymbia hamersleyana* *Dysphania rhadinostachya* *Eucalyptus leucophloia* subsp. *leucophloia* *Fimbristylis dichotoma* *Goodenia microptera*			*Goodenia stobbsiana* *Hakea lorea* *Jasminum didymum* subsp. *lineare* *Polycarpaea corymbosa* var. *corymbosa* *Polycarpaea holtzei* *Ptilotus calostachyus* *Senna artemisioides* subsp. *helmsii* *Senna glutinosa* subsp. *glutinosa* *Solanum lasiophyllum* *Triodia brizoides* *Triodia wiseana*	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF17							
Botanist	Linda	**Date**	3/29/2012	**Site area**	Quadrat 50 x 50 m		
Location	50K		691198 **mE**	7477353 **mN**	**Elevation** 695 m		
Topography and Geology	Landform: Flat plain Soil: red clay. Geology:70% cover of BIF 2-10 cm.						
Veg Condition	3	**Disturbances**	cattle grazing, trampling of vegetation, weeds, nutrification (dung)	**Land System**	McKay		
Site Photo							
Vegetation	*Corymbia ?opaca, Eucalyptus ?xerothermica, Corymbia ?hamersleyana* scattered low trees over *Eremophila longifolia, Eremophila fraseri* subsp. *fraseri* open shrubland over *Acacia hilliana, Senna* spp., *Indigofera monophylla* low open shrubland over *Triodia wiseana* very open hummock grassland						
Species	*Abutilon otocarpum* *Acacia aptaneura* *Acacia inaequilatera* *Acacia pruinocarpa* *Aristida contorta* *Aristida contorta* *Boerhavia gardneri* *Capparis lasiantha* *Cleome viscosa* *Cymbopogon ambiguus* *Dysphania rhadinostachya* *Enneapogon caerulescens* *Eremophila fraseri* subsp. *fraseri* *Eremophila longifolia* *Eucalyptus ?xerothermica* *Euphorbia latrobei* subsp. *filiformis* *Evolvulus alsinoides* var. *villosicalyx*			*Gomphrena canescens* subsp. *canescens* *Hibiscus burtonii* *Indigofera monophylla* *Jasminum didymum* subsp. *lineare* *Perotis rara* **Portulaca oleracea* *Ptilotus obovatus* subsp. *obovatus* *Salsola australis* *Senna artemisioides* subsp. *helmsii* *Senna artemisioides* subsp. *oligophylla* *Senna glutinosa* subsp. *glutinosa* *Senna notabilis* *Sida arenicola* *Solanum lasiophyllum* *Sporobolus australasicus* *Triodia wiseana*			

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF18					
Botanist	Linda	**Date**	3/29/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		691671 **mE**	7475755 **mN**	**Elevation** 721 m
Topography and Geology	Landform: Flat plain Soil: red clay. Geology: 50% cover of BIF 0.5-5 cm.				
Veg Condition	4	**Disturbances**	exploration diggings, grazing, tracks	**Land System**	McKay
Site Photo					
Vegetation	*Acacia aptaneura, Grevillea stenobotrya* low open woodland *Senna artemisioides* subsp. *helmsii, Eremophila fraseri* subsp. *fraseri* open shrubland over mixed species scattered herbs and tussock grasses.				

Species	
Abutilon otocarpum *Acacia aptaneura* *Acacia aptaneura* *Acacia minyura* *Acacia pruinocarpa* *Aristida contorta* **Bidens bipinnata* *Boerhavia gardneri* *Cleome viscosa* *Cucumis maderaspatanus* *Dysphania rhadinostachya* *Eremophila fraseri* subsp. *fraseri* *Euphorbia latrobei* subsp. *filiformis* *Gomphrena canescens* subsp. *canescens* *Goodenia stobbsiana*	*Grevillea stenobotrya* *Hakea lorea* *Jasminum didymum* subsp. *lineare* *Perotis rara* **Portulaca oleracea* *Pterocaulon serrulatum* *Sclerolaena cornishiana* *Senna artemisioides* subsp. *helmsii* *Senna notabilis* *Sida* ?sp. Supplejack Station (T.S. Henshall 2345) *Sida arenicola* *Solanum lasiophyllum* *Tribulus astrocarpus*

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF19					
Botanist	Linda	**Date**	3/29/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		690473 **mE**	7477077 **mN**	**Elevation** 704 m
Topography and Geology	Landform: Flat plain Soil: red clay. Geology: 90% cover of BIF 2-5 cm.				
Veg Condition	3	**Disturbances**	cattle grazing, old tracks, nutrification	**Land System**	McKay
Site Photo					
Vegetation	*Corymbia deserticola* scattered low trees over *Acacia pruinocarpa* scattered tall shrubs over mixed species low scattered shrubs over *Triodia wiseana* very open hummock grassland and mixed species very open herbland.				

Species	
Abutilon otocarpum	*Gomphrena cunninghamii*
Acacia ancistrocarpa	*Goodenia microptera*
Acacia aptaneura	*Jasminum didymum* subsp. *lineare*
Acacia pruinocarpa	*Perotis rara*
Aristida contorta	*Psydrax rigidula*
Boerhavia gardneri	*Pterocaulon serrulatum*
Cleome viscosa	*Ptilotus helipteroides*
Corymbia deserticola	*Ptilotus obovatus* subsp. *obovatus*
Cymbopogon obtectus	*Senna artemisioides* subsp. *helmsii*
Dodonaea viscosa subsp. *mucronata*	*Senna glutinosa* subsp. *glutinosa*
Dysphania rhadinostachya	*Senna notabilis*
Enneapogon caerulescens	*Solanum lasiophyllum*
Eremophila fraseri subsp. *fraseri*	*Sporobolus australasicus*
Euphorbia latrobei subsp. *filiformis*	*Tribulus hirsutus*
Evolvulus alsinoides var. *villosicalyx*	*Triodia wiseana*

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF20					
Botanist	Linda	**Date**	3/29/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		690589 **mE**	7476396 **mN**	**Elevation** 707 m
Topography and Geology	Landform: Flat plain. Soil: red clay. Geology: 10% cover of BIF pebbles and cobbles.				
Veg Condition	4	**Disturbances**	cattle and macropods grazing, tracks, trampled vegetation, nutrification (dung), weeds.	**Land System**	McKay
Site Photo					
Vegetation	*Corymbia deserticola, Acacia aptaneura* scattered low trees over *Dodonaea viscosa* subsp. *mucronata, Senna artemisioides* subsp. *helmsii, Sida* sp. Supplejack Station (T.S. Henshall 2345) open shrubland over *Triodia wiseana* scattered hummock grasses and mixed species very open herbland.				
Species	*Abutilon otocarpum* *Acacia aptaneura* *Acacia synchronicia* *Aristida contorta* **Bidens bipinnata* *Boerhavia gardneri* *Cleome viscosa* *Cleome viscosa* *Corymbia deserticola* *Cucumis maderaspatanus* *Cymbopogon ambiguus* *Dodonaea viscosa* subsp. *mucronata* *Dysphania rhadinostachya* *Eremophila fraseri* subsp. *fraseri*			*Gomphrena cunninghamii* *Jasminum didymum* subsp. *lineare* *Perotis rara* **Portulaca oleracea* *Pterocaulon serrulatum* *Ptilotus helipteroides* *Ptilotus obovatus* subsp. *obovatus* *Senna artemisioides* subsp. *helmsii* *Senna glutinosa* subsp. *glutinosa* *Senna notabilis* *Sida* ?sp. Supplejack Station (T.S. Henshall 2345) *Solanum lasiophyllum* *Stemodia viscosa*	

	Eremophila longifolia *Euphorbia latrobei* subsp. *filiformis* *Evolvulus alsinoides* var. *villosicalyx*	*Tribulus hirsutus* *Triodia wiseana*

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF21					
Botanist	Chid	**Date**	3/29/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		689945 **mE**	7475643 **mN**	**Elevation** 838 m
Topography and Geology	Landform: Slope on side of large hill Aspect and Slope: NNW moderately inclined. Soil: light brown sandy clay. Geology: 95% cover of ironstone pebbles and cobbles, some sheet rock.				
Veg Condition	1	**Disturbances**	none	**Land System**	Boolgeeda
Site Photo					
Vegetation	*Corymbia hamersleyana, Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Grevillea wickhamii* tall open shrubland over *Triodia wiseana* open hummock grassland.				
Species	*Acacia inaequilatera* *Corchorus incanus* subsp. *lithophilus* *Corymbia hamersleyana* *Cymbopogon ambiguus* *Dampiera candicans* *Eriachne helmsii* *Eucalyptus leucophloia* subsp. *leucophloia* *Gossypium robinsonii* *Grevillea wickhamii*		*Hakea lorea* *Indigofera monophylla* *Ptilotus calostachyus* *Scaevola browniana* subsp. *browniana* *Senna artemisioides* subsp. *oligophylla* *Senna glutinosa* subsp. *glutinosa* *Solanum phlomoides* *Triodia wiseana*		

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF22					
Botanist	Chid	**Date**	3/29/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		691099 **mE**	7474508 **mN**	**Elevation** 725 m
Topography and Geology	Landform: Flat plain Soil: orange brown sandy clay. Geology: 90% cover of ironstone pebbles.				
Veg Condition	2	**Disturbances**	cattle, vehicle tracks nearby	**Land System**	McKay
Site Photo					
Vegetation	*Eucalyptus gamophylla* low open woodland over *Acacia elachantha, A. synchronicia, A. xiphophylla* tall scattered shrubs over *Triodia brizoides, Triodia wiseana* open hummock grassland.				

Species	
Acacia adoxa var. *adoxa*	*Indigofera monophylla*
Acacia elachantha	*Ptilotus calostachyus*
Acacia synchronicia	*Ptilotus obovatus* subsp. *obovatus*
Acacia tenuissima	*Ptilotus rotundifolius*
Acacia xiphophylla	*Rhyncharrhena linearis*
Bulbostylis barbata	*Senna artemisioides* subsp. *oligophylla*
Capparis lasiantha	*Senna artemisioides* subsp. *sturtii*
Eucalyptus gamophylla	*Senna glutinosa* subsp. *glutinosa*
Gompholobium sp. Pilbara (NF Norris 908)	*Sida* sp. Pilbara (A.A. Mitchell PRP 1543)
Goodenia microptera	*Triodia brizoides*
Goodenia stobbsiana	*Triodia wiseana*
Grevillea wickhamii	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF23						
Botanist	Chid	**Date**	3/29/2012	**Site area**	Quadrat 50 x 50 m	
Location	50K		691122 **mE**	7474279 **mN**	**Elevation** 728 m	
Topography and Geology	Landform: Broad creekline Slope: flat. Soil: orange brown fine sandy clay. Geology: 30% cover of ironstone pebbles, cobbles.					
Veg Condition	2	**Disturbances**	weeds, cattle	**Land System**	McKay	
Site Photo						
Vegetation	*Corymbia hamersleyana, Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Acacia monticola, Acacia pyrifolia* var. *morrisonii, Rulingia luteiflora* tall open scrub over *Triodia wiseana* very open hummock grassland.					
Species	*Acacia elachantha* *Acacia monticola* *Acacia pyrifolia* var. *morrisonii* *Acacia synchronicia* *Alternanthera nana* **Bidens bipinnata* *Boerhavia gardneri* **Cenchrus ciliaris* *Cleome viscosa* *Clerodendrum ?tomentosum* *Corymbia hamersleyana* *Cymbopogon ambiguus* *Digitaria ctenantha* *Dysphania rhadinostachya* *Enneapogon polyphyllus* *Eragrostis cumingii* *Eragrostis eriopoda* *Eucalyptus gamophylla* *Eucalyptus leucophloia* subsp. *leucophloia*				*Euphorbia tannensis* subsp. *eremophila* *Evolvulus alsinoides* var. *villosicalyx* *Gomphrena cunninghamii* *Gossypium robinsonii* *Grevillea wickhamii* subsp. *hispidula* *Hibiscus burtonii* *Hybanthus aurantiacus* *Indigofera monophylla* *Jasminum didymum* subsp. *lineare* *Paraneurachne muelleri* *Polycarpaea longiflora* *Rhyncharrhena linearis* *Rhynchosia minima* *Rulingia luteiflora* *Senna artemisioides* subsp. *oligophylla* *Tephrosia densa* *Themeda triandra* *Trachymene ?oleracea* *Triodia wiseana*	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF24					
Botanist	Linda	**Date**	3/30/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		691209 **mE**	7473395 **mN**	**Elevation** 733 m
Topography and Geology	Landform: Foothills of breakaway / ridge Aspect and Slope: East 105° moderately inclined. Soil: red clay. Geology: 95% cover of BIF gravels and pebbles.				
Veg Condition	2	**Disturbances**	grazing (cattle)	**Land System**	Boolgeeda
Site Photo					
Vegetation	*Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Acacia hilliana, Senna artemisioides* subsp. *oligophylla , Senna glutinosa* subsp. *glutinosa* open shrubland *over Triodia wiseana, Triodia brizoides* hummock grassland.				
Species	*Acacia adoxa* var. *adoxa* *Acacia hilliana* *Acacia monticola* *Bulbostylis barbata* *Corchorus lasiocarpus* subsp. *lasiocarpus* *Eucalyptus leucophloia* subsp. *leucophloia* *Fimbristylis dichotoma* *Fimbristylis simulans* *Goodenia microptera* *Hakea lorea* *Polycarpaea holtzei*			*Ptilotus calostachyus* *Ptilotus rotundifolius* *Schizachyrium fragile* *Senna artemisioides* subsp. *oligophylla* *Senna glutinosa* subsp. *pruinosa* *Solanum lasiophyllum* *Trachymene oleracea* *Triodia brizoides* *Triodia wiseana* *Triumfetta maconochieana*	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF25					
Botanist	Linda	**Date**	3/30/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		689979 **mE**	7471899 **mN**	**Elevation** 757 m
Topography and Geology	Landform: Plain Soil: red clay. Geology: 80% cover of BIF gravels and pebbles.				
Veg Condition	3	**Disturbances**	grazing, fire approximately 3 years previously	**Land System**	McKay
Site Photo					
Vegetation	*Eucalyptus gamophylla* low woodland over *Keraudrenia nephrosperma* and mixed species low open shrubland over *Triodia wiseana, Triodia brizoides* hummock grassland.				
Species	*Acacia bivenosa* *Acacia elachantha* *Acacia inaequilatera* *Acacia tenuissima* *Aristida contorta* *Cymbopogon ambiguus* *Eucalyptus gamophylla* *Eucalyptus leucophloia* subsp. *leucophloia* *Goodenia stobbsiana* *Hakea lorea* *Indigofera monophylla* *Jasminum didymum* subsp. *lineare*			*Keraudrenia nephrosperma* *Ptilotus calostachyus* *Ptilotus rotundifolius* *Santalum lanceolatum* *Scaevola parvifolia* subsp. *pilbarae* *Senna artemisioides* subsp. *oligophylla* *Senna glutinosa* subsp. *glutinosa* *Senna glutinosa* subsp. *pruinosa* *Sida arenicola* *Solanum lasiophyllum* *Triodia brizoides* *Triodia wiseana*	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF26					
Botanist	Chid	**Date**	3/30/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		689383 **mE**	7472214 **mN**	**Elevation** 785 m
Topography and Geology	Landform: Stony hillside Aspect and Slope: ENE moderately inclined. Soil: orange brown clay loam. Geology: 90% cover of ironstone pebbles, cobbles, sheets.				
Veg Condition	2	**Disturbances**	none	**Land System**	Boolgeeda
Site Photo					
Vegetation	*Eucalyptus leucophloia* subsp. *leucophloia, Corymbia hamersleyana* scattered low trees over *Acacia hilliana* scattered low shrubs over *Triodia wiseana* open hummock grassland.				

Species	
Acacia adoxa var. *adoxa*	*Hakea lorea*
Acacia hilliana	*Hibiscus sturtii* var. *campylochlamys*
Acacia monticola	*Polycarpaea holtzei*
Acacia tenuissima	*Polycarpaea longiflora*
Aristida holathera	*Ptilotus astrolasius*
Bulbostylis barbata	*Ptilotus calostachyus*
Corchorus incanus subsp. *lithophilus*	*Ptilotus clementii*
Corymbia hamersleyana	*Ptilotus rotundifolius*
Dodonaea coriacea	*Scaevola browniana* subsp. *browniana*
Enneapogon polyphyllus	*Schizachyrium fragile*
Eremophila forrestii subsp. *forrestii*	*Senna artemisioides* subsp. *oligophylla*
Eriachne helmsii	*Senna glutinosa* subsp. *glutinosa*
Eriachne pulchella subsp. *pulchella*	*Sida ?echinocarpa*
Eucalyptus leucophloia subsp. *leucophloia*	*Sida* sp. Golden calyces glabrous (H.N. Foote 32)
Fimbristylis dichotoma	*Solanum lasiophyllum*
Gomphrena cunninghamii	*Triodia wiseana*
Goodenia microptera	*Urochloa holosericea* subsp. *velutina*
Goodenia stobbsiana	
Grevillea wickhamii	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF27					
Botanist	Chid	**Date**	3/30/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		688788 **mE**	7472189 **mN**	**Elevation** 828 m
Topography and Geology	Landform: Stony hillside Aspect: NE. Soil: pale brown fine clay. Geology: 95% cover of ironstone pebbles, cobbles.				
Veg Condition	1	**Disturbances**	none	**Land System**	Boolgeeda
Site Photo					
Vegetation	*Eucalyptus leucophloia* subsp. *leucophloia, Corymbia hamersleyana* scattered low trees over *Keraudrenia nephrosperma, Acacia hilliana* low shrubland over *Triodia wiseana* open hummock grassland and *Schizachyrium fragile* very open tussock grassland.				
Species	*Acacia adoxa* var. *adoxa* *Acacia hilliana* *Acacia tenuissima* *Amphipogon sericeus* *Aristida holathera* *Corchorus incanus* subsp. *lithophilus* *Corymbia hamersleyana* *Cymbopogon ambiguus* *Dampiera candicans* *Dodonaea coriacea* *Eriachne helmsii* *Eucalyptus leucophloia* subsp. *leucophloia*		*Goodenia microptera* *Hakea lorea* *Hibiscus sturtii* var. *campylochlamys* *Keraudrenia nephrosperma* *Ptilotus calostachyus* *Schizachyrium fragile* *Senna ferraria* *Sida* sp. Golden calyces glabrous (H.N. Foote 32) *Solanum lasiophyllum* *Triodia wiseana*		

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF28					
Botanist	Linda	**Date**	3/30/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		687837 **mE**	7470500 **mN**	**Elevation** 777 m
Topography and Geology	Landform: Shallow wide drainage line on plain Aspect and Slope: S 200° gently inclined. Soil: red clay. Geology: 30% cover of BIF pebbles.				
Veg Condition	3	**Disturbances**	cattle grazing, erorion	**Land System**	McKay
Site Photo					
Vegetation	*Eucalyptus gamophylla, Corymbia hamersleyana* low woodland over *Acacia tenuissima, Acacia elachantha, Gossypium robinsonii* tall open shrubland over *Keraudrenia nephrosperma, Senna glutinosa* subsp. *pruinosa, Indigofera monophylla* low shrubland over *Triodia wiseana* open hummock grassland.				

Species		
	Acacia adoxa var. *adoxa*	*Gossypium robinsonii*
	Acacia aptaneura	*Hakea lorea*
	Acacia bivenosa	*Indigofera monophylla*
	Acacia elachantha	*Jasminum didymum* subsp. *lineare*
	Acacia elachantha	*Keraudrenia nephrosperma*
	Acacia steedmanii subsp. *borealis*	*Psydrax rigidula*
	Acacia tenuissima	*Ptilotus calostachyus*
	Aristida contorta	*Santalum lanceolatum*
	Corymbia deserticola	*Scaevola parvifolia* subsp. *pilbarae*
	Corymbia ?hamersleyana	*Senna artemisioides* subsp. *oligophylla*
	Cymbopogon obtectus	*Senna glutinosa* subsp. *pruinosa*
	Dodonaea viscosa subsp. *mucronata*	*Solanum lasiophyllum*
	Eucalyptus gamophylla	*Trachymene oleracea*
	Evolvulus alsinoides var. *villosicalyx*	*Triodia wiseana*
	Goodenia stobbsiana	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF29					
Botanist	Linda	**Date**	3/30/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		685400 **mE**	7469780 **mN**	**Elevation** 754 m
Topography and Geology	Landform: Flat plain with large dissected drainage line in valley between two breakaways Soil: red clay. Geology: 30% cover of BIF gravels, pebbles and cobbles.				
Veg Condition	3	**Disturbances**	grazing, erosion, weeds	**Land System**	McKay
Site Photo					
Vegetation	*Corymbia hamersleyana* scattered low trees over *Gossypium robinsonii, Acacia elachantha* tall open shrubland over *Triodia wiseana* hummock grassland and *Eulalia aurea, Eragrostis eriopoda* very open tussock grassland.				
Species	*Acacia elachantha* *Acacia maitlandii* *Alternanthera nana* *Aristida contorta* *Boerhavia gardneri* *Cleome viscosa* *Corymbia ?hamersleyana* *Cymbopogon ambiguus* *Dysphania rhadinostachya* *Eragrostis eriopoda* *Eucalyptus gamophylla* *Eulalia aurea* *Euphorbia biconvexa* *Evolvulus alsinoides* var. *villosicalyx* *Gomphrena canescens* subsp. *canescens* *Gomphrena cunninghamii* *Goodenia forrestii*			*Gossypium robinsonii* *Hybanthus aurantiacus* *Jasminum didymum* subsp. *lineare* *Keraudrenia nephrosperma* *Perotis rara* *Pterocaulon serrulatum* *Rhynchosia minima* *Rulingia luteiflora* *Rulingia luteiflora* *Santalum lanceolatum* *Scaevola parvifolia* subsp. *pilbarae* *Senna artemisioides* subsp. *oligophylla* *Tephrosia densa* *Tribulus hirsutus* *Triodia wiseana* *Triumfetta ?maconochieana*	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF30					
Botanist	Chid	**Date**	3/30/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		685189 **mE**	7469360 **mN**	**Elevation** 761 m
Topography and Geology	Landform: Stony hillside with rocky ledges and breakaways Aspect and Slope: NW moderately inclined. Soil: red brown sandy clay. Geology: 90% cover of pebbles, sheets, ledges.				
Veg Condition	0	**Disturbances**	?	**Land System**	McKay
Site Photo					
Vegetation	*Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Gossypium robinsonii* scattered shrubs over *Triodia wiseana* hummock grassland and *Cymbopogon ambiguus* scattered tussock grasses.				

Species	
Acacia dictyophleba	*Goodenia muelleriana*
Acacia inaequilatera	*Goodenia stobbsiana*
Aristida holathera	*Gossypium robinsonii*
Boerhavia gardneri	*Hakea lorea*
Bulbostylis barbata	*Paraneurachne muelleri*
Corchorus incanus subsp. *lithophilus*	*Polycarpaea holtzei*
Corymbia deserticola	*Ptilotus obovatus* subsp. *obovatus*
Corymbia hamersleyana	*Ptilotus rotundifolius*
Cucumis maderaspatanus	*Rhyncharrhena linearis*
Cymbopogon ambiguus	*Rhynchosia minima*
Eremophila forrestii subsp. *forrestii*	*Schizachyrium fragile*
Eriachne helmsii	*Senna glutinosa* subsp. *glutinosa*
Eriachne pulchella subsp. *pulchella*	*Sida ?echinocarpa*
Eucalyptus leucophloia subsp. *leucophloia*	*Themeda triandra*
Euphorbia biconvexa	*Triodia wiseana*
	Triumfetta maconochieana

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF31							
Botanist	Chid	**Date**	3/30/2012	**Site area**	Quadrat 50 x 50 m		
Location	50K		684925 **mE**	7469255 **mN**	**Elevation** 746 m		
Topography and Geology	Landform: Flat plain, open drainage area Soil: red sandy clay. Geology: 30% cover of ironstone gravel, pebbles.						
Veg Condition	3	**Disturbances**	weeds, cattle	**Land System**	McKay		
Site Photo							
Vegetation	*Acacia aptaneura* low open woodland over *Themeda triandra, Aristida lazaridis, Dactyloctenium radulans* open tussock grassland with *Nicotiana occidentalis* subsp. *obliqua, Salsola australis* open herbland.						
Species	*Bidens bipinnata* *Chloris virgata* **Malvastrum americanum* **Portulaca oleracea* *Abutilon otocarpum* *Acacia aptaneura* *Acacia pruinocarpa* *Aristida calycina* var. *calycina* *Aristida holathera* *Aristida lazaridis* *Boerhavia gardneri* *Capparis lasiantha* *Chrysopogon fallax* *Cleome viscosa* *Convolvulus angustissimus* subsp. *angustissimus* *Cucumis maderaspatanus* *Dactyloctenium radulans* *Dysphania rhadinostachya* *Enchylaena tomentosa* *Enneapogon polyphyllus* *Eremophila longifolia* *Euphorbia biconvexa*				*Evolvulus alsinoides* var. *villosicalyx* *Goodenia forrestii* *Hakea lorea* *Ipomoea polymorpha* *Iseilema membranaceum* *Nicotiana occidentalis* subsp. *obliqua* *Paspalidium rarum* *Pterocaulon serrulatum* *Ptilotus helipteroides* *Ptilotus macrocephalus* *Ptilotus obovatus* subsp. *obovatus* *Rhagodia eremaea* *Salsola australis* *Senna glutinosa* subsp. *pruinosa* *Sida* ?sp. Spiciform panicles (E. Leyland s.n. 14/8/90) *Sida fibulifera* *Tephrosia supina* *Themeda triandra* *Tragus australianus* *Triraphis mollis* *Urochloa piligera*		

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF32					
Botanist	Linda	**Date**	3/30/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		685020 **mE**	7468502 **mN**	**Elevation** 737 m
Topography and Geology	Landform: Open flat plain Soil: red clay. Geology: 50% cover of BIF gravels and pebbles.				
Veg Condition	4	**Disturbances**	weeds, grazing, tracks	**Land System**	McKay
Site Photo					
Vegetation	*Acacia aptaneura* scattered low trees over *Cymbopogon ambiguus, Aristida contorta* closed tussock grassland and mixed species very open herbland.				

Species	
Abutilon otocarpum	*Evolvulus alsinoides* var. *villosicalyx*
Acacia aptaneura	*Gomphrena cunninghamii*
Acacia pruinocarpa	*Ipomoea polymorpha*
Aristida contorta	*Jasminum didymum* subsp. *lineare*
Aristida contorta	*Maireana villosa*
Boerhavia gardneri	*Perotis rara*
Cleome oxalidea	**Portulaca oleracea*
Cleome viscosa	*Pterocaulon serrulatum*
Cymbopogon ambiguus	*Ptilotus exaltatus* var. *exaltatus*
Cymbopogon obtectus	*Ptilotus helipteroides*
Dactyloctenium radulans	*Senna glutinosa* subsp. *glutinosa*
Dactyloctenium radulans	*Senna glutinosa* subsp. *pruinosa*
Dysphania rhadinostachya	*Senna notabilis*
Enneapogon caerulescens	*Sida arenicola*
Eremophila longifolia	*Solanum lasiophyllum*
Eulalia aurea	*Tephrosia supina*
Euphorbia biconvexa	*Triodia wiseana*
Euphorbia latrobei subsp. *filiformis*	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF33					
Botanist	Linda	**Date**	3/31/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		684817 **mE**	7467822 **mN**	**Elevation** 725 m
Topography and Geology	Landform: Flat open plain Soil: red clay. Geology: 20% cover of BIF gravels and pebbles.				
Veg Condition	5	**Disturbances**	weeds, grazing, erosion, trampling of vegetation	**Land System**	Wannamunna
Site Photo					
Vegetation	*Acacia dictyophleba, Acacia pachyacra* scattered shrubs over *Dysphania kalpari, Goodenia prostrata, Boerhavia gardneri* herbland with *Aristida contorta, Perotis rara* very open tussock grassland.				

Species	
Abutilon otocarpum *Acacia aptaneura* *Acacia dictyophleba* *Acacia pachyacra* *Aristida contorta* *Boerhavia gardneri* *Brachyscome* sp. Wanna Munna Flats (S. van Leeuwen 4662) *Cleome oxalidea* *Cleome viscosa* *Codonocarpus cotinifolius* *Dysphania kalpari* *Euphorbia biconvexa* *Evolvulus alsinoides* var. *villosicalyx* *Goodenia prostrata*	*Lepidium echinatum* *Paspalidium rarum* *Perotis rara* *Polycarpaea corymbosa* var. *corymbosa* **Portulaca oleracea* *Pterocaulon serrulatum* *Ptilotus exaltatus* var. *exaltatus* *Ptilotus helipteroides* *Ptilotus polystachyus* *Sclerolaena cornishiana* *Sida platycalyx* *Solanum lasiophyllum* *Tribulus hirsutus* *Triodia ?brizoides* *Triodia wiseana*

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF34					
Botanist	Chid	**Date**	3/31/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		684774 **mE**	7467680 **mN**	**Elevation** 725 m
Topography and Geology	Landform: Floodplain Slope: level. Soil: orange brown clay. Geology: no rock outcrop or coarse fragments.				
Veg Condition	2	**Disturbances**	weeds, cattle, roads nearby	**Land System**	Wannamunna
Site Photo					
Vegetation	*Acacia aptaneura* low open forest over *Eremophila longifolia* scattered shrubs over *Themeda triandra, Perotis rara* tussock grassland and mixed species very open herbland.				

Species	
Acacia aptaneura	*Evolvulus alsinoides* var. *villosicalyx*
Alternanthera nana	*Fimbristylis dichotoma*
Aristida contorta	*Goodenia prostrata*
Bidens bipinnata	*Indigofera georgei*
Boerhavia gardneri	*Lepidium echinatum*
Brachyscome sp. Wanna Munna Flats (S. van Leeuwen 4662)	*Lysiana murrayi*
	Nicotiana occidentalis subsp. *obliqua*
Calandrinia ptychosperma	*Perotis rara*
Chrysopogon fallax	**Portulaca oleracea*
Cleome viscosa	*Pterocaulon serrulatum*
Cucumis maderaspatanus	*Ptilotus clementii*
Dactyloctenium radulans	*Ptilotus gaudichaudii* var. *gaudichaudii*
Dysphania glomulifera subsp. *eremaea*	*Ptilotus obovatus* subsp. *obovatus*
Dysphania rhadinostachya	*Rhyncharrhena linearis*
Enchylaena tomentosa	*Sida* sp. Tiny fruits (AA Mitchell PRP1152)
Enteropogon ramosus	*Solanum ferocissimum*
Eragrostis cumingii	*Spartothamnella teucriiflora*
Eragrostis pergracilis	*Stenopetalum anfractum*
Eragrostis tenellula	*Stenopetalum pedicellare*
Eremophila longifolia	*Themeda triandra*

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF35					
Botanist	Linda	**Date**	3/31/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		683540 **mE**	7469711 **mN**	**Elevation** 738 m
Topography and Geology	Landform: Undulating plain around base of breakaway Aspect and Slope: 235° gently inclined. Soil: red clay. Geology: 80% cover of BIF pebbles and cobbles.				
Veg Condition	3	**Disturbances**	grazing	**Land System**	Boolgeeda
Site Photo					
Vegetation	*Eucalyptus leucophloia* subsp. *leucophloia, Eucalyptus gamophylla* scattered low trees over *Acacia bivenosa, Acacia elachantha* open shrubland over *Triodia wiseana* open hummock grassland.				

Species	
Acacia bivenosa	*Indigofera monophylla*
Acacia elachantha	*Jasminum didymum* subsp. *lineare*
Acacia pruinocarpa	*Perotis rara*
Aristida contorta	*Ptilotus calostachyus*
Cleome viscosa	*Ptilotus exaltatus* var. *exaltatus*
Cucumis maderaspatanus	*Ptilotus polystachyus*
Cymbopogon ambiguus	*Ptilotus rotundifolius*
Cymbopogon obtectus	*Schizachyrium fragile*
Eucalyptus gamophylla	*Senna artemisioides* subsp. *oligophylla*
Eucalyptus leucophloia subsp. *leucophloia*	*Senna glutinosa* subsp. *pruinosa*
Goodenia stobbsiana	*Solanum lasiophyllum*
Hakea lorea	*Triodia wiseana*

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF36						
Botanist	Chid	**Date**	3/31/2012	**Site area**	Quadrat 50 x 50 m	
Location	50K		683234 **mE**	7470594 **mN**	**Elevation** 749 m	
Topography and Geology	Landform: Gentle slope at base of hill Aspect and Slope: WSW gently inclined. Soil: orange fine sandy clay. Geology: 95% cover of ironstone pebbles and cobbles.					
Veg Condition	2	**Disturbances**	cattle, tracks nearby	**Land System**	McKay	
Site Photo						
Vegetation	*Keraudrenia nephrosperma, Acacia adsurgens, Acacia bivenosa* open shrubland over *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835), *Triodia wiseana* hummock grassland.					
Species	*Acacia adoxa* var. *adoxa* *Acacia adsurgens* *Acacia bivenosa* *Acacia dictyophleba* *Acacia maitlandii* *Bulbostylis barbata* *Cymbopogon ambiguus* *Eucalyptus leucophloia* subsp. *leucophloia*			*Hakea lorea* *Keraudrenia nephrosperma* *Ptilotus rotundifolius* *Schizachyrium fragile* *Senna artemisioides* subsp. *oligophylla* *Senna glutinosa* subsp. *glutinosa* *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) *Triodia wiseana*		

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF37					
Botanist	Chid	**Date**	3/31/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		683086 **mE**	7471288 **mN**	**Elevation** 747 m
Topography and Geology	Landform: Flat plain Slope: very gently linclined. Soil: red fine sandy clay. Geology: ironstone pebbles and cobbles.				
Veg Condition	3	**Disturbances**	weeds, cattle	**Land System**	McKay
Site Photo					
Vegetation	*Acacia aptaneura, Acacia inaequilatera* scattered low trees over *Eremophila longifolia*, *Senna artemisioides* subsp. *oligophylla* open shrubland over *Triodia wiseana* scattered hummock grasses and *Aristida inaequiglumis, Perotis rara* scattered tussock grasses.				
Species	*Abutilon otocarpum* *Acacia aptaneura* *Acacia inaequilatera* *Acacia marramamba* *Aristida contorta* *Aristida inaequiglumis* *Bidens bipinnata* *Cleome viscosa* *Corymbia deserticola* *Dysphania rhadinostachya* *Enneapogon polyphyllus* *Eragrostis cumingii* *Eremophila forrestii* subsp. *forrestii* *Eremophila longifolia* *Eriachne helmsii* *Evolvulus alsinoides* var. *villosicalyx* *Gomphrena canescens* subsp. *canescens* *Goodenia microptera*			*Gossypium australe* *Heliotropium tenuifolium* *Hibiscus sturtii* var. *platychlamys* *Perotis rara* *Psydrax latifolia* *Pterocaulon serrulatum* *Ptilotus helipteroides* *Ptilotus obovatus* subsp. *obovatus* *Rhyncharrhena linearis* *Senna artemisioides* subsp. *helmsii* *Senna artemisioides* subsp. *oligophylla* *Sida* ?sp. Spiciform panicles (E. Leyland s.n. 14/8/90) *Solanum phlomoides* *Sporobolus australasicus* *Tribulopis angustifolia* *Triodia wiseana*	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF38						
Botanist	Linda	**Date**	3/31/2012	**Site area**	Quadrat 50 x 50 m	
Location	50K		683397 **mE**	7472548 **mN**	**Elevation** 741 m	
Topography and Geology	Landform: Flat open plain in-between rollin hills Soil: dark red clay. Geology: 40% cover of BIF, pisolite gravels up to 2 cm.					
Veg Condition	3	**Disturbances**	grazing, erosion	**Land System**	McKay	
Site Photo						
Vegetation	*Eucalyptus gamophylla* low open woodland over *Acacia ancistrocarpa, Acacia elachantha* tall open shrubland over mixed species open tussock grassland and *Triodia brizoides* very open hummock grassland.					

Species	
Acacia ancistrocarpa	*Keraudrenia nephrosperma*
Acacia elachantha	*Paraneurachne muelleri*
Aristida contorta	*Polycarpaea holtzei*
Cymbopogon obtectus	*Ptilotus calostachyus*
Dysphania rhadinostachya	*Ptilotus rotundifolius*
Eragrostis pergracilis	*Scaevola parvifolia* subsp. *pilbarae*
Eucalyptus gamophylla	*Schizachyrium fragile*
Eulalia aurea	*Senna artemisioides* subsp. *oligophylla*
Euphorbia biconvexa	*Senna glutinosa* subsp. *pruinosa*
Evolvulus alsinoides var. *villosicalyx*	*Senna notabilis*
Goodenia microptera	*Sida* sp. Pilbara (A.A. Mitchell PRP 1543)
Goodenia stobbsiana	*Solanum lasiophyllum*
Hibiscus coatesii	*Triodia ?brizoides*
Jasminum didymum subsp. *lineare*	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF39					
Botanist	Chid	**Date**	4/1/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		683957 **mE**	7473448 **mN**	**Elevation** 732 m
Topography and Geology	Landform: Narrow creekline on gentle slope at base of hill Aspect and Slope: NW gently inclined. Soil: red brown clay. Geology: 95% cover of ironstone, laterite gravel, pebbles, cobbles.				
Veg Condition	2	**Disturbances**	weeds, cattle	**Land System**	Boolgeeda
Site Photo					
Vegetation	*Corymbia hamersleyana* scattered low trees over *Grevillea wickhamii, Acacia inaequilatera* tall open shrubland over *Triodia wiseana, Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) hummock grassland.				
Species	*Acacia inaequilatera* *Acacia monticola* *Aristida holathera* *Clerodendrum ?tomentosum* *Corymbia hamersleyana* *Cymbopogon ambiguus* *Enneapogon polyphyllus* *Eragrostis eriopoda* *Eriachne helmsii* *Fimbristylis simulans* *Gompholobium sp. Pilbara (NF Norris 908)* *Gossypium robinsonii*			*Grevillea wickhamii* *Hybanthus aurantiacus* *Jasminum didymum* subsp. *lineare* *Keraudrenia nephrosperma* *Senna glutinosa* subsp. *glutinosa* *Senna venusta* *Solanum lasiophyllum* *Themeda triandra* *Triodia sp. Shovelanna Hill (S. van Leeuwen 3835)* *Triodia wiseana* *Urochloa piligera*	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF40					
Botanist	Chid	**Date**	4/1/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		684557 **mE**	7473917 **mN**	**Elevation** 728 m
Topography and Geology	Landform: Gently undulating plain at foot of breakaway, some small flat drainage lines Aspect and Slope: 280° gently inclined Soil: red clay. Geology:95% cover of BIF, chert, quartz pebbles and cobbles.				
Veg Condition	0	**Disturbances**	grazing, erosion, weeds	**Land System**	Boolgeeda
Site Photo					
Vegetation	*Eucalyptus leucophloia* subsp. *leucophloia, Eucalyptus gamophylla* scattered low trees over *Acacia elachantha, Acacia inaequilatera, Santalum lanceolatum* tall open shrubland over *Triodia brizoides, Triodia wiseana* hummock grassland.				

Species	
Acacia elachantha	*Polycarpaea holtzei*
Acacia inaequilatera	*Ptilotus calostachyus*
Aristida contorta	*Ptilotus obovatus* subsp. *obovatus*
Cleome viscosa	*Ptilotus rotundifolius*
Corymbia deserticola	*Santalum lanceolatum*
Eucalyptus gamophylla	*Schizachyrium fragile*
Eucalyptus leucophloia subsp. *leucophloia*	*Senna artemisioides* subsp. *oligophylla*
Fimbristylis simulans	*Senna glutinosa* subsp. *pruinosa*
Goodenia microptera	*Solanum lasiophyllum*
Lepidium echinatum	*Triodia ?brizoides*
Polycarpaea corymbosa var. *corymbosa*	*Triodia wiseana*

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF41					
Botanist	Chid	**Date**	4/1/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		686619 **mE**	7474514 **mN**	**Elevation** 745 m
Topography and Geology	Landform: Gentle slope at foot of hill, minor drainage lines dissecting. Aspect and Slope: N gently to moderately inclined. Soil: red orange sandy clay. Geology: 95% cover of ironstone gravel, pebbles.				
Veg Condition	2	**Disturbances**	weeds	**Land System**	Boolgeeda
Site Photo					
Vegetation	*Acacia inaequilatera, Grevillea wickhamii* tall open shrubland over *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835), *Triodia wiseana* hummock grassland.				
Species	*Acacia adoxa* var. *adoxa* *Acacia adsurgens* *Acacia bivenosa* *Acacia dictyophleba* *Acacia elachantha* *Acacia inaequilatera* *Acacia tenuissima* *Acacia xiphophylla* *Aristida holathera* *Aristida inaequiglumis* *Bulbostylis barbata* *Corchorus incanus* subsp. *lithophilus* *Dampiera candicans* *Eriachne aristidea* *Eucalyptus leucophloia* subsp. *leucophloia*			*Gossypium robinsonii* *Grevillea wickhamii* *Hakea lorea* *Hibiscus sturtii* var. *campylochlamys* *Indigofera monophylla* *Paraneurachne muelleri* *Polycarpaea longiflora* *Ptilotus astrolasius* *Ptilotus calostachyus* *Scaevola parvifolia* subsp. *pilbarae* *Schizachyrium fragile* *Senna glutinosa* subsp. *glutinosa* *Senna glutinosa* subsp. *pruinosa* *Sida ?echinocarpa* *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) *Triodia wiseana*	
Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF42					

Botanist	Linda	**Date**	4/1/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		685993 **mE**	7474911 **mN**	**Elevation** 712 m
Topography and Geology	Landform: Very gently undulating plain with dissected drainage lines and sheet flow. Aspect and Slope: 265° (W) gently inclined. Soil: red clay. Geology: 95% cover of BIF, chert, quartz gravels, pebbles and cobbles.				
Veg Condition	3	**Disturbances**	grazing, erosion	**Land System**	Boolgeeda
Site Photo					
Vegetation	*Corymbia ?hamersleyana, Eucalyptus gamophylla* scattered low trees over *Acacia elachantha, Grevillea wickhamii, Gossypium robinsonii* tall open shrubland over *Triodia brizoides, Triodia wiseana* open hummock grassland.				

Species	
Acacia aptaneura	*Keraudrenia nephrosperma*
Acacia elachantha	*Paraneurachne muelleri*
Acacia tenuissima	*Polycarpaea holtzei*
Aristida contorta	*Ptilotus astrolasius*
Corymbia ?hamersleyana	*Ptilotus calostachyus*
Cymbopogon ambiguus	*Ptilotus exaltatus* var. *exaltatus*
Cymbopogon obtectus	*Ptilotus rotundifolius*
Dodonaea viscosa subsp. *mucronata*	*Rhynchosia minima*
Eucalyptus gamophylla	*Scaevola parvifolia* subsp. *pilbarae*
Fimbristylis simulans	*Schizachyrium fragile*
Gossypium robinsonii	*Senna artemisioides* subsp. *oligophylla*
Grevillea wickhamii	*Senna glutinosa* subsp. *pruinosa*
Hibiscus sturtii var. *campylochlamys*	*Sida arenicola*
Hybanthus aurantiacus	*Solanum lasiophyllum*
Indigofera monophylla	*Tephrosia densa*
Jasminum didymum subsp. *lineare*	*Triodia ?brizoides*
	Triodia wiseana

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF43					
Botanist	Chid	**Date**	4/1/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		687239 **mE**	7476050 **mN**	**Elevation** 724 m
Topography and Geology	Landform: Gentle slope at base of hill Aspect and Slope: NW gently inclined. Soil: red sandy clay. Geology: 95% cover of ironstone gravel, pebbles.				
Veg Condition	1	**Disturbances**	none	**Land System**	Newman
Site Photo					
Vegetation	*Corymbia deserticola* scattered low trees over *Acacia elachantha, Keraudrenia nephrosperma* low open shrubland over *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) open hummock grassland.				

Species	
Acacia adsurgens *Acacia ancistrocarpa* *Acacia elachantha* *Acacia hilliana* *Amphipogon caricinus* subsp. *caricinus* *Aristida holathera* *Bulbostylis barbata* *Corymbia deserticola* *Cymbopogon ambiguus* *Eriachne helmsii* *Goodenia microptera* *Goodenia stobbsiana* *Heliotropium tenuifolium* *Hibiscus sturtii* var. *campylochlamys*	*Hybanthus aurantiacus* *Indigofera monophylla* *Keraudrenia nephrosperma* *Oldenlandia crouchiana* *Polycarpaea holtzei* *Ptilotus astrolasius* *Ptilotus calostachyus* *Ptilotus rotundifolius* *Schizachyrium fragile* *Senna artemisioides* subsp. *oligophylla* *Solanum lasiophyllum* *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835)

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF45					
Botanist	Chid	**Date**	3/28/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		695148 **mE**	7476682 **mN**	**Elevation** 745 m
Topography and Geology	Landform: Creekline in gorge Aspect and Slope: N-S gully very gently inclined. Soil: dark orange-brown sandy clay. Geology: 95% cover of granite, BIF pebbles, stones, outcrops.				
Veg Condition	2	**Disturbances**	cattle	**Land System**	tba
Site Photo					
Vegetation	*Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Gossypium robinsonii, Acacia tumida* var. *pilbarensis* tall open shrubland over *Triodia wiseana* hummock grassland and *Cymbopogon ambiguus, Eriachne helmsii, Themeda triandra* very open tussock grassland.				

Species	
Abutilon indicum	*Paspalidium tabulatum*
Acacia bivenosa	*Phyllanthus maderaspatensis*
Acacia monticola	*Pterocaulon serrulatum*
Acacia tumida var. *pilbarensis*	*Ptilotus obovatus* subsp. *obovatus*
Clerodendrum ?tomentosum	*Rhynchosia minima*
Corchorus lasiocarpus subsp. *lasiocarpus*	*Senna glutinosa* subsp. *glutinosa*
Cucumis maderaspatanus	*Stemodia grossa*
Cymbopogon ambiguus	*Stemodia viscosa*
Eremophila lachnocalyx	*Stylobasium spathulatum*
Eriachne helmsii	*Themeda triandra*
Eucalyptus leucophloia subsp. *leucophloia*	*Trichodesma zeylanicum* var. *zeylanicum*
Euphorbia biconvexa	*Triodia wiseana*
Gossypium robinsonii	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF46					
Botanist	Chid	**Date**	3/28/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		694954 **mE**	7475581 **mN**	**Elevation** 1009 m
Topography and Geology	Landform: slope near top of very large ridge Aspect and Slope: North facing, gently to moderately inclined. Soil: brown clay. Geology: 95% cover of BIF, ironstone pebbles, cobbles, sheets.				
Veg Condition	2	**Disturbances**	weeds	**Land System**	tba
Site Photo					
Vegetation	*Eucalyptus leucophloia* subsp. *leucophloia, Eucalyptus* gamophylla low open woodland over *Triodia wiseana* hummock grassland.				
Species	*Acacia pruinocarpa* *Acacia tenuissima* *Bidens bipinnata* *Capparis spinosa* var. *nummularia* *Codonocarpus cotinifolius* *Corchorus lasiocarpus* subsp. *lasiocarpus* *Cymbopogon ambiguus* *Cynanchum floribundum* *Dodonaea viscosa* subsp. *mucronata* *Eriachne helmsii*			*Eucalyptus gamophylla* *Eucalyptus leucophloia* subsp. *leucophloia* *Newcastelia* sp. Hamersley Range (S. van Leeuwen 4264) *Polycarpaea holtzei* *Ptilotus obovatus* subsp. *obovatus* *Scaevola browniana* subsp. *browniana* *Solanum phlomoides* *Triodia wiseana*	

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF51					
Botanist	Linda	**Date**	3/31/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		684946 **mE**	7467735 **mN**	**Elevation** 726 m
Topography and Geology	Landform: Flat plain Soil: red clay. Geology: no rock outcrop or coarse fragments				
Veg Condition	3	**Disturbances**	weeds, grazing	**Land System**	tba
Site Photo					
Vegetation	*Acacia aptaneura, Hakea lorea* low open woodland over *Goodenia prostrata, Dysphania kalpari, Sclerolaena cornishiana* very open herbland and *Cymbopogon ambiguus, Aristida contorta, Perotis rara* tussock grassland.				
Species	*Acacia aptaneura* *Acacia dictyophleba* *Alternanthera nana* *Aristida contorta* *Boerhavia gardneri* *Brachyscome* sp. Wanna Munna Flats (S. van Leeuwen 4662) *Bulbostylis barbata* *Cleome viscosa* *Cymbopogon ambiguus* *Dactyloctenium radulans* *Dysphania kalpari* *Eragrostis pergracilis* *Euphorbia biconvexa* *Evolvulus alsinoides* var. *villosicalyx* *Goodenia prostrata*			*Hakea lorea* *Paspalidium rarum* *Perotis rara* **Portulaca oleracea* *Pterocaulon serrulatum* *Ptilotus gaudichaudii* var. *gaudichaudii* *Ptilotus helipteroides* *Ptilotus obovatus* subsp. *obovatus* *Ptilotus polystachyus* *Ptilotus polystachyus* *Rhodanthe floribunda* *Sclerolaena cornishiana* *Solanum lasiophyllum* *Tribulus hirsutus*		

Lamb Creek Level 2 Flora and Vegetation Survey - Site LCF52					
Botanist	Linda	**Date**	4/1/2012	**Site area**	Quadrat 50 x 50 m
Location	50K		692237 **mE**	7476823 **mN**	**Elevation** 699 m
Topography and Geology	Landform: Flat plain Soil: red clay. Geology: 30% cover of BIF gravels, pebbles and cobbles.				
Veg Condition		**Disturbances**		**Land System**	tba
Site Photo					
Vegetation	*Acacia elachantha, Acacia inaequilatera, Grevillea wickhamii* scattered shrubs over *Triodia brizoides* open hummock grassland.				

Species

Abutilon dioicum
Abutilon otocarpum
Acacia ancistrocarpa
Acacia aptaneura
Acacia elachantha
Acacia inaequilatera
Alternanthera nana
Aristida contorta
Boerhavia gardneri
Dysphania rhadinostachya
Eremophila longifolia
Evolvulus alsinoides var. *villosicalyx*
Goodenia stobbsiana
Grevillea wickhamii
Hakea lorea
Hybanthus aurantiacus
Indigofera monophylla
Oldenlandia crouchiana
Paraneurachne muelleri
**Portulaca oleracea*
Ptilotus calostachyus
Ptilotus helipteroides
Ptilotus obovatus subsp. *obovatus*
Schizachyrium fragile
Senna artemisioides subsp. *oligophylla*
Senna glutinosa subsp. *glutinosa*
Senna notabilis
Sida ?sp. Supplejack Station (T.S. Henshall 2345)
Sida arenicola
Tragus australianus
Trianthema glossostigma
Triodia ?brizoides
Triodia wiseana

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APPENDIX D
TERRESTRIAL FAUNA SURVEY REPORTS

Report No. J020348

Detailed vertebrate fauna survey of the Lamb Creek project

Prepared for: Mineral Resources Limited
Date: 24 January 2022

Rapallo Environmental is a Western Australian consultancy with a strong reputation for technical excellence, client-focus and innovation. We build long-term alliances through outstanding delivery on a range of services to the resource sector, government and associated industries.

ENVIRONMENTAL | ENGINEERING | CONSTRUCTION & OPERATIONS *NDT & Inspections* | MINING | RESOURCE MANAGEMENT

Report No. J020348
Detailed vertebrate fauna survey of the Lamb Creek project
Prepared for Mineral Resources Limited
24 January 2022

Revision	Date	Prepared	Reviewed	Approved
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Draft Report – V1	19/11/2020	Marieke Weerheim	Kate George	Kate George
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Executive summary

The Lamb Creek Iron Ore Project comprises a proposed mining area and an associated haul road, located approximately 130 kilometres north-west of Newman in the Pilbara region of Western Australia.

This report documents the findings of a desktop assessment and two field surveys (April 2020 and February 2021), that were conducted to identify the occurrence of vertebrate fauna species, and their supporting habitats, within the survey area.

Survey Area

The survey area was 1645 hectares (ha) in size. It comprised retention licence R47/19 the proposed haul road corridor within miscellaneous licence L47/736 and an alternative haul road section named 'intersection version B'.

An earlier survey of the Lamb Creek project was completed by Rapallo in 2012. That survey covered the same retention licence (R47/19), as well as two haul road options: a northern and a southern route. The 2012 northern route overlaps with 44% of the current haul road corridor. The 2012 southern route has been discounted as an option.

The Lamb Creek project area has been updated and expanded since the survey was completed. The current project area (as per December 2021) comprises retention licence R47/19 (pending conversion into mining lease M47/1592) and miscellaneous licences L47/736, L47/974, and L47/1008. Together these tenements cover an area of 2199 hectares. There is significant overlap between the tenements (Figure 1.1) hence this number is not cumulative. The fauna survey covered 1644 hectares (75%) of the current project area.

A proposed disturbance footprint (footprint V1) was provided by MRL prior to the survey in March 2020. This footprint formed the basis for site selection and survey planning. Footprint V1 has been superseded by footprint V3, which was provided by MRL in December 2021 after all fieldwork had been completed. Footprint V3 extends by 24 hectares (4% of footprint) outside of the survey area, most of which comprising the southern end of the proposed haul road.

Desktop

The region has had considerable survey effort over the last 20 years predominantly due to vertebrate fauna surveys completed within, or partly within, the boundary of the Mining Area C (MAC) Development Envelope. The MAC Development Envelope is approximately 10 kilometres south of the Lamb Creek retention licence (R4719). Mining Area C contains the same land systems as the Lamb Creek survey area and has similar habitats.

Lamb Creek was surveyed for vertebrate fauna in 2012, over a survey area that partially overlaps with the current project area. The detailed survey effort consisted of ten trap sites with a total trap effort of 2982 trap nights (pitfalls, Elliots and funnel traps). Cameras and cages were deployed for 182 camera nights and 300 cage trap nights respectively within gorges and the faces of rocky escapements. Other activities included spotlighting, habitat assessment, foraging , systematic bird survey and bat survey.

The desktop study identified 301 species of terrestrial vertebrate fauna recorded within 50 kilometres of the survey area. These included 157 birds, 46 mammals, 91 reptiles, and 7 amphibians. Not all species are likely to occur in the survey area due to the large search extent of the desktop assessment.

Additionally, many species tend to be patchily distributed even where appropriate habitats are present, and many species of birds can occur as regular migrants, occasional visitors or vagrants.

Discounting species listed as marine, the fauna desktop study identified 29 taxa of conservation significant fauna of which twelve were assessed as possible, likely, or confirmed to occur on the survey area. The remaining seventeen species identified by the desktop assessment were considered unlikely to highly unlikely occur in the survey area based on the absence of suitable habitat for the species and/or the survey area occurring well outside the known distribution of the species.

Field Survey

A detailed vertebrate fauna survey was completed by Rapallo over a period of 15 days from 16 to 28 April 2020, with supplementary field work occurring between 16 and 23 February 2021.

Survey work completed in 2020 included: ground truthing the 2012 broad fauna habitat mapping, systematic trapping, systematic bird surveys, foraging, opportunistic records, and deployment of SM4 recorders for night parrot and bats.

Survey effort consisted of 10 trap sites with a total trap effort of 3080 trap nights (pitfalls, Elliots and funnel traps). Cameras were deployed for 279 camera nights within the gorge, gully, breakaway habitat that occurs within the higher elevation areas of the retention licence and ranges adjacent to the proposed haul road corridor.

The survey area has experienced several fires over the past decade. Trap site locations were selected to cover the major (preliminary) habitats of the survey area and where possible trap sites were positioned in pockets of unburnt habitat within the burn mosaic.

Field survey activities for short range endemic invertebrates (SRE) included collection of invertebrate by-catch from pitfall traps, habitat assessment, foraging, and leaf litter sifting. SRE is reported in a standalone report (Rapallo 2022).

Supplementary survey work completed in 2021 included: fauna habitat assessment in order to update the 2012 habitat mapping, and a wet season deployment of SM4 recorders at caves in which ghost bat occurrence, or evidence of occurrence, was recorded in 2012 and 2020.

The field survey recorded 128 species of vertebrate fauna, including 63 bird species, 20 mammal species, 44 reptile species, and one frog. Combined with the 2012 fauna survey results, the total number of vertebrate fauna recorded from the Lamb Creek project area to date is 185 species.

Five species of vertebrate fauna listed as conservation significant under either the Western Australian *Biodiversity Conservation Act 2016* (BC Act) and/or the federal *Environment Protection and Biodiversity Conservation Act 1950* (EPBC Act) or ranked as a priority species by the Department of Biodiversity Conversation and Attractions (DBCA) have been recorded from or proximal to the Lamb Creek project area to date. These are listed below:

- Northern quoll (*Dasyurus hallucatus*) listed Endangered under both the EPBC Act and BC Act – Confirmed, recorded in 2012.
- Ghost bat (*Macroderma gigas*) listed Vulnerable under both the EPBC Act and the BC Act – Confirmed, recorded in 2012, 2020 and 2021.
- Western pebble-mound mouse (*Pseudomys chapmani*) DBCA Priority 4 – Confirmed, mounds recorded throughout the Lamb Creek survey area in 2012 and 2020.

- Fork-tailed Swift (*Apus pacificus*) listed migratory and marine under the EPBC Act – Confirmed, recorded in 2012.
- Pilbara olive python (*Liasis olivaceus barroni*) listed Vulnerable under both the EPBC Act and the BC Act – Confirmed, recorded in 2012.

A further three species of conservation significance were considered likely to occur within the survey area. These were peregrine falcon (*Falco peregrinus* – listed Other Specially Protected Fauna under the BC Act), Gane's blind snake (*Anilios ganei* –DBCA Priority 1), and Pilbara barking gecko (*Underwoodisaurus seorsus* – DBCA Priority 2).

Four species of conservation significance were regarded as possible to occur within the survey area. These were night parrot (*Pezoporus occidentalis* – listed Critically Endangered under the BC Act and Endangered under the EPBC Act), grey falcon (*Falco hypoleucos* – listed Vulnerable under both the EPBC Act and the BC Act), letter-winged kite (*Elanus scriptus* – DBCA Priority 1), and the short-tailed mouse (*Leggadina lakedownensis* – DBCA Priority 4).

Night parrot was not detected via acoustic recorder in 2020. Much of the spinifex across the survey area has been frequently burnt and habitats of the survey area do not include mosaics with samphire and chenopod shrublands, salt lake margin, or paleochannel.

The remaining seventeen species identified by the desktop assessment were considered unlikely to occur within the survey area.

Habitat

Habitat mapping was updated from the 2012 vertebrate fauna habitat assessments utilising aerial imagery, vegetation, topographical, land system and drainage mapping, and habitat data collected in February 2021. Seven broad fauna habitat types were identified within the survey area. These were, in decreasing order of extent; Stony plain, Hillcrest/hillslope, Mulga/corymbia plain, Minor drainage, Tussock grassland plain, Medium drainage and Gorge, gully and rocky breakaway. Additionally, a small portion of the survey area comprised cleared areas.

Within the survey area, the Gorge, gully, and rocky breakaway habitat was considered to be of high significance for vertebrate fauna as this habitat supports species of conservation significance (including nationally listed threatened species) or contains core habitats for such species. Five habitats were ranked as of moderate significance (Hillcrest/hillslope, Mulga/corymbia plain, Minor drainage, Tussock grassland plain, Medium drainage) and the remaining habitat (Stony plain) was ranked as low significance, as it is widespread in the surrounding region and species of conservation significance are exclusively dependent on this habitat.

Habitat Features

To date, no permanent or semi-permanent pools have been recorded from the Lamb Creek project area, despite extensive use of helicopters in 2012, 2020 and 2021 for baseline flora and fauna surveys.

There are five known caves on or proximal to the survey area in which ghost bat occurrence, or evidence of occurrence, has been recorded. These caves were surveyed as part of detailed fauna work, or sampled opportunistically during an SRE survey. To date, no targeted surveys or detailed cave/roost assessments have been completed at the Lamb Creek project.

Cave 1 is provisionally assigned as a Category 2 roost while Caves 2 and 3 are provisionally Category 3. Caves 4 and 5 are known Category 3 and 2 roosts, respectively, and occur nearby to a number of other

caves, shelters and overhangs identified in the desktop. Caves that are confirmed as Category 2 and groupings of caves that surround them are critical Ghost bat habitat.

Cave 1 and Cave 3 are located in the retention licence (R47/19) within respectively 325 meters and 600 meters from the proposed December 2021 disturbance footprint (footprint V3). Caves 4 and 5 are within approximately 200 meters of the disturbance footprint (haul road) in L47/713.

1 Introduction

1.1 Project overview

Mineral Resources Limited (MRL) is actively exploring the Pilbara region. The Lamb Creek project comprises a proposed mining and exploration area and an associated haul road alignment. The project is located approximately 130 kilometres north-west of Newman in the Pilbara region of Western Australia.

Rapallo Environmental (Rapallo) was commissioned by MRL to complete a single-phase detailed (Level 2) vertebrate fauna survey of the Lamb Creek project. The field survey was completed in April 2020, with supplementary data collected in February 2021. The size and extent of the survey area is outlined in section 1.3 below.

The project area as well as the proposed footprint have undergone several changes since the fauna survey was completed. The current Lamb Creek project area (as per December 2021) comprises retention licence R47/19 (pending conversion into mining lease M47/1592) and miscellaneous licences L47/736, L47/974, and L47/1008. Together these tenements cover an area of 2199 hectares. There is significant overlap between the tenements (Figure 1.1) hence this number is not cumulative.

1.2 Scope and objectives

The scope of the detailed vertebrate fauna survey was to:

- Complete a desktop study in order to understand the regional fauna assemblage and habitats, and to identify conservation significant vertebrate fauna which may occur in the survey area.
- Review previous 2012 survey results against the most recent desktop information, and verify current taxonomy and conservation status of relevant fauna and ecological communities.
- Complete a detailed (Level 2) fauna survey over the survey area to identify the fauna assemblage of the survey area.
- Refine previous 2012 fauna habitat mapping of the survey area and to extend fauna habitat mapping into the areas not covered by the 2012 fauna survey.

1.3 Survey area and project history

A detailed fauna survey was completed in April 2020, with supplementary data collected in April 2021. The survey area was 1645 hectares in size, comprising retention licence R47/19 (1200 hectares), miscellaneous licence L47/736 (388 hectares), and an alternative area for the haul road to intersect with the Great Northern Highway, referred to as intersection version B (58 hectares). The survey area is mapped in Figure 1.2.

An earlier detailed fauna survey was completed in March-April 2012 (Rapallo 2012a) over an area that partially overlaps with the current survey area. The 2012 survey area is also outlined in Figure 1.2. Two fires have burnt across the project area in 2015 and 2017 (NAFI 2021), which have altered vegetation composition and structure (Rapallo 2021a). One of the aims of the current fauna survey (section 1.2) was to ground-truth and refine the 2012 fauna habitat mapping.

The project area has changed since the survey was completed, with tenements L47/974, L47/1008 and M47/1592 added in December 2021, expanding the project area. Hence, the fauna survey covered 1220 hectares (75%) of the current project area, with 555 hectares (25%) unsurveyed (Figure 1.2).

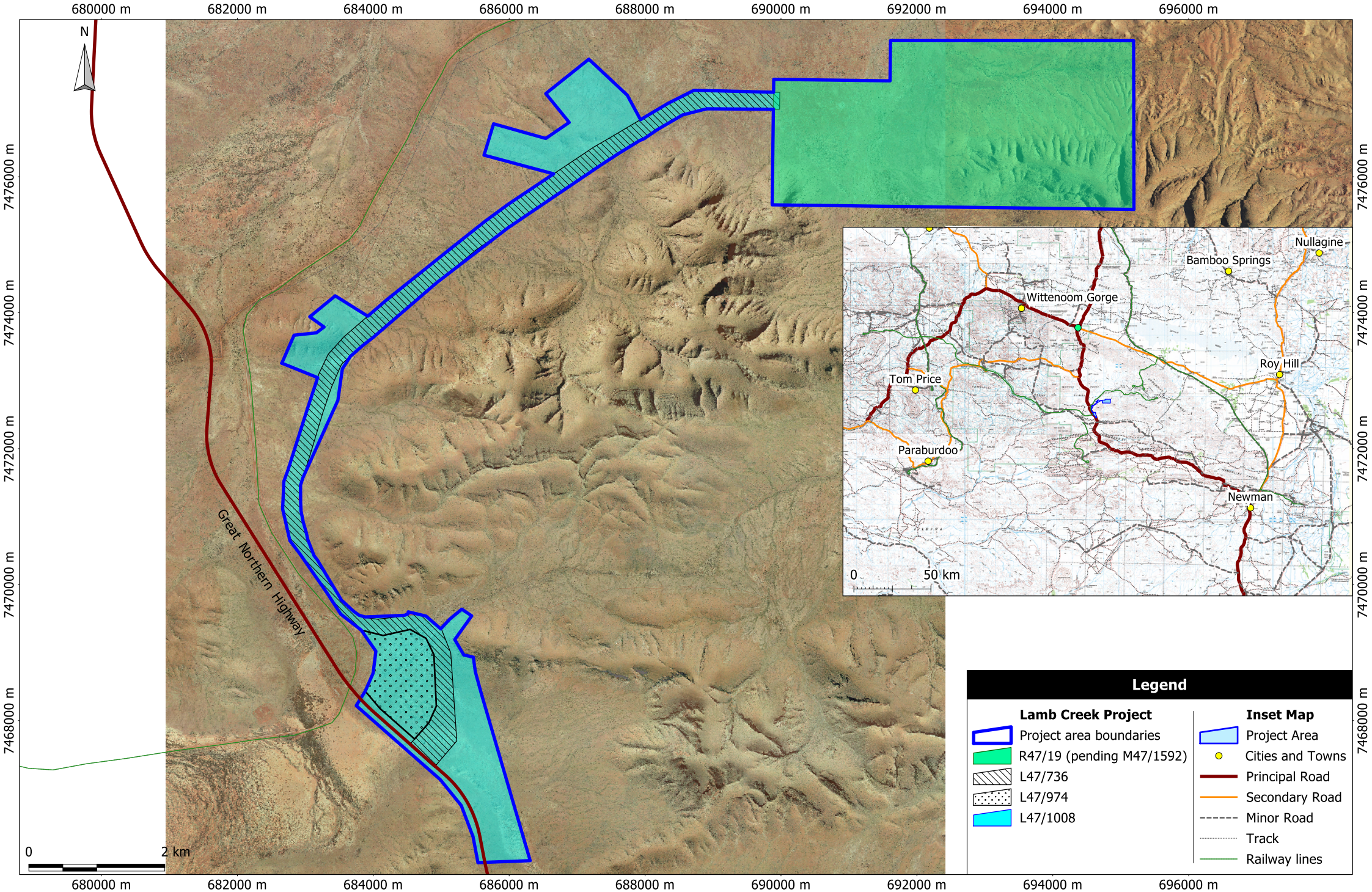
A proposed disturbance footprint (footprint V1) was provided by MRL in March 2020, and this footprint formed the basis for survey planning and site selection. Two new footprints were provided since the surveys were completed. The current footprint V3 (657 hectares) extends outside the survey area by 24 hectares (4% of total footprint), with most of the unsurveyed area comprising the southern section of the proposed haul road (Figure 1.2).

1.4 Definitions

To aid interpretation of this report and associated mapping, Table 1.1 provides explanation of the various components of the Lamb Creek project and associated survey areas, as mapped in Figure 1.1.

Table 1.1 Project and survey area definitions

Component	Description
Project area	Project area as per December 2021, comprising tenements R47/19 (pending M47/1592), L47/736, L47/974, and L47/1008. The project area has a total size of 2199 hectares. There is significant overlap between the tenements, so this number is not cumulative.
Survey area	Area covered by the detailed fauna survey in 2020, comprising R47/19, L47/736 and intersection version B, with a combined area of 1645 hectares.
Resource area	General description of R47/19 (pending M47/1592) in which the proposed mine pit and associated infrastructure will be located, as well as the northernmost section of the proposed haul road.
Haul road corridor	General description of the area in L47/736 in which most of the proposed haul road will be located.
Great Northern Highway intersection (GNHI)	General name given to the area where the proposed haul road intersects the Great Northern Highway.
Footprint V1	Proposed disturbance footprint provided by MRL in March 2020 which formed the basis for survey planning and site selection.
Footprint V2	Revised disturbance footprint provided by MRL in July 2021, which has now been superseded by footprint V3.
Footprint V3	Revised disturbance footprint provided by MRL in December 2021 and used to describe localities of recorded target species and potential impacts.
Adjacent to footprint V3	Within 100 metres of the December 2021 disturbance footprint (footprint V3).
Targeted survey	The combined surveys of April 2020 and May 2021.
Intersection version B	An alternative haul road section of 58 hectares, located adjacent to the Great Northern Highway. It currently falls within L47/974 which was not yet defined at the time of the survey.
Lamb Creek 2012 survey area	Area covered by the 2012 detailed (Level 2) fauna survey completed over the Lamb Creek project area as it was defined then. It incorporated the current R47/19 and two potential haul road corridors: a northern and a southern route. The southern route has since been discounted as an option, and the northern route has been partially realigned and overlaps with parts of the current haul road corridor in L47/736.



Rapallo environmental

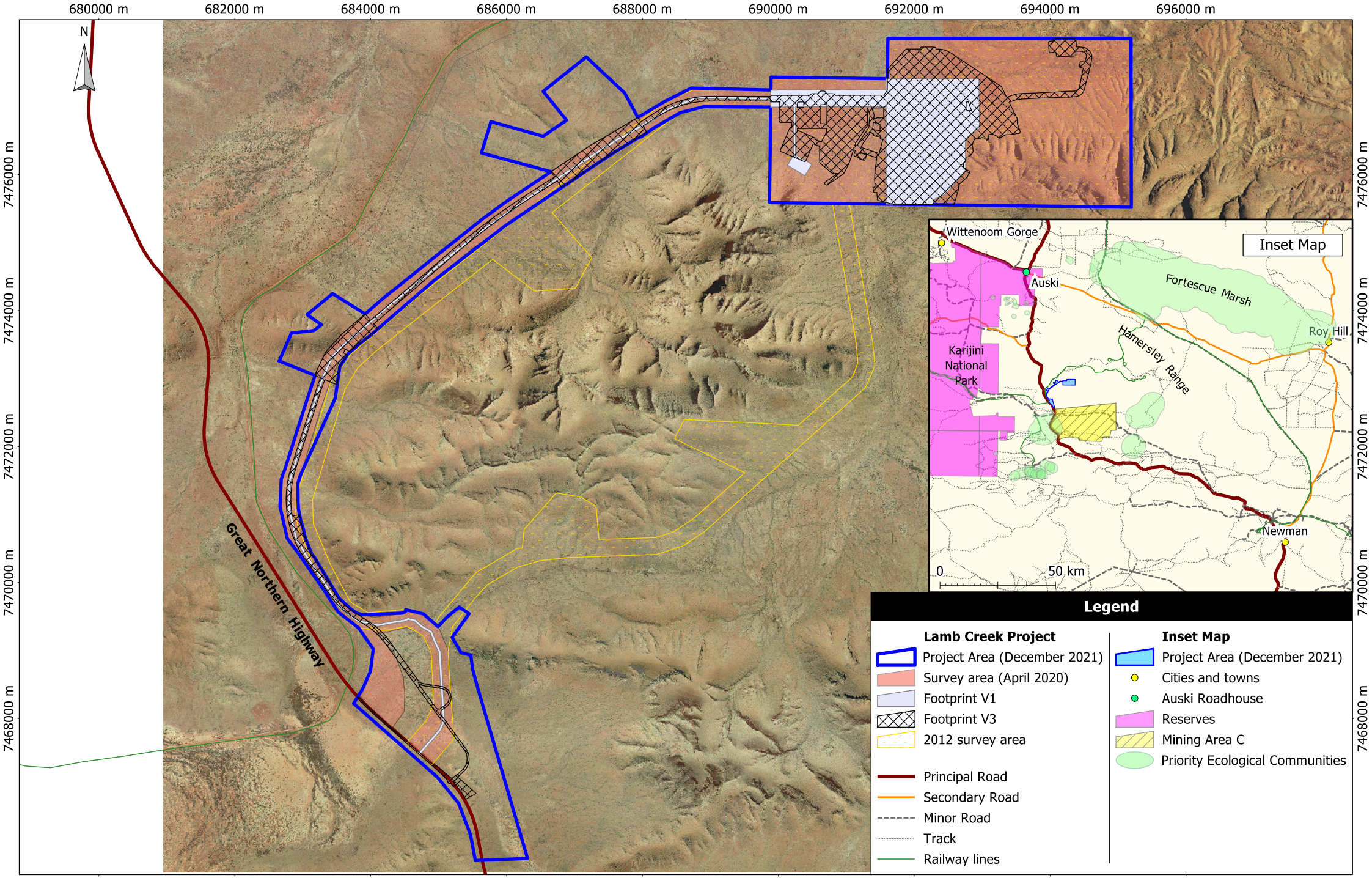
Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Detailed Vertebrate Fauna Survey

Original Size: A4 Scale: 1:70,000
Datum: MGA94 Zone 50
0 2 km

Figure 1.1

Tenements of the Lamb Creek Iron Ore project area as per December 2021



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Detailed Vertebrate Fauna Survey

Original Size: A4 Scale: 1:70,000
Datum: MGA94 Zone 50
0 2000 m

Figure 1.2

Location of the Lamb Creek project and delineation of the survey area

2 Regional context

2.1 Climate and weather

The Lamb Creek project is situated in the Hamersley subregion (PIL03) of the Pilbara IBRA region, which is part of the Eremaean province (Beard 1990). The climate of the Hamersley IBRA subregion (PIL03) is described as semi-desert tropical. The average rainfall is 300 millimetres per year, usually in summer cyclonic or thunderstorm events. Winter rain is not uncommon (Kendrick 2001). Cyclones develop off the north-west coast and often cross the coastline between Karratha and Port Hedland and move inland over the Fortescue Valley system towards Newman (Beard 1990).

The closest Bureau of Meteorology (BOM) weather station to the survey area is at Newman Airport (station number 007176), located 130 kilometres south-east of the survey area. This weather station has been recording rainfall data since 1971 and temperature data since 1996.

Data recorded at Newman Airport (Figure 2.1) shows a mean annual rainfall of 324.3 millimetres (mm). Mean monthly rainfall is highest in February at 70.2 mm, and lowest in September at 3.7 mm. The hottest month is December with a mean maximum temperature of 39.3°C and a mean minimum temperature of 24.1°C. The annual wind records from 9am and 3pm show a dominant easterly throughout the day, with the strongest winds recorded in the morning of up to 30 kilometres /hour (BOM 2021).

Evaporation rates are not recorded at the Newman Airport Weather Station. However, evaporation in the Central Pilbara Region is estimated to be between 2000 millimetres and 3500 millimetres per annum, which is approximately ten times greater than annual rainfall (Gardiner 2003). This disparity maintains a typically arid landscape, except for areas located in proximity to river systems and shallow groundwater resources.

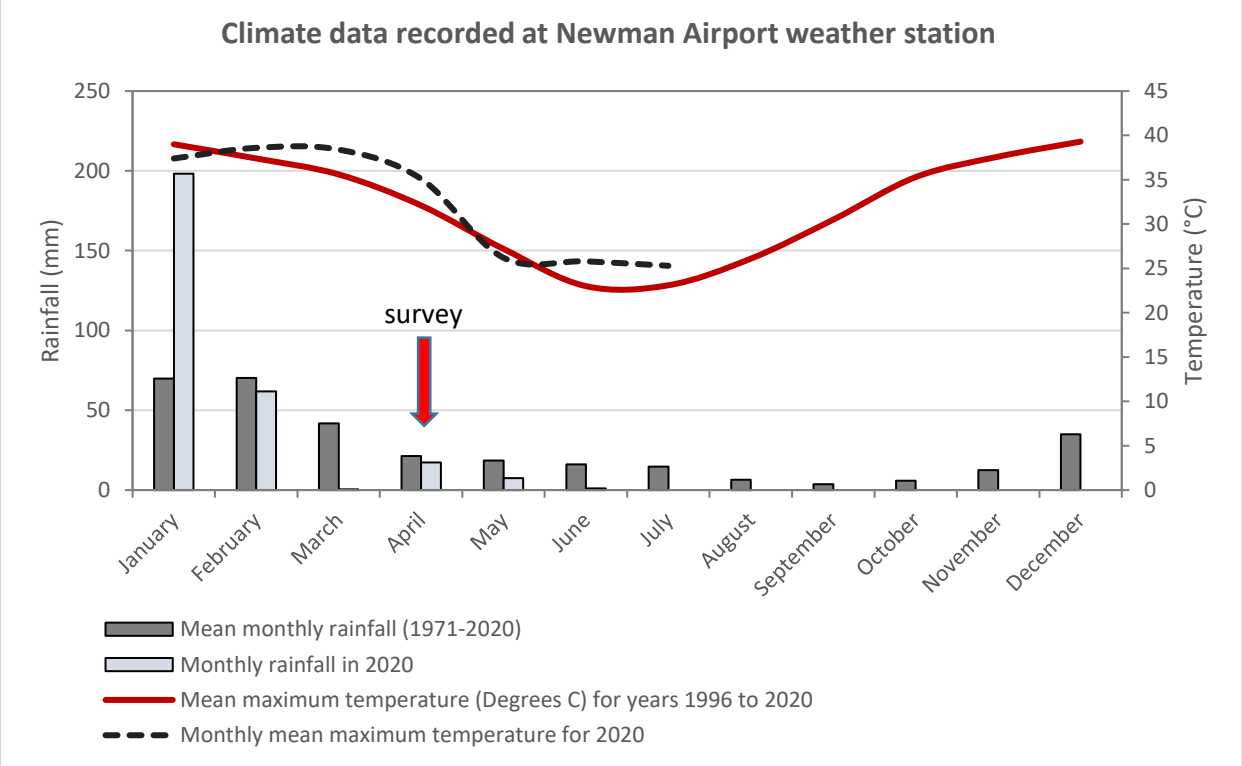


Figure 2.1 Long-term average monthly rainfall and maximum temperature, and 2019-2020 monthly rainfall and mean maximum temperature recorded at Newman Aero weather station (BOM 2020)

The fauna survey took place from 16 to 28 April 2020. Rainfall in the three months preceding the survey was higher than average for the region, with a total of 277.8 millimetres from January to March 2020 (BOM 2020). However, most of this rain fell in January, while rainfall for March was just below average and for February was well below average (see Figure 2.1).

During the survey in April 2020, the survey area was found the be very dry and there was no discernible moisture in the leaf litter, with the exception of the southernmost part of the survey area in the Wannamunna land system. Day-time temperatures in April 2020 were warm to hot, ranging from 33.9 °C to 39.7 °C, while night-time temperatures were mild, ranging from 22.9 °C to 26.6 °C (BOM 2021).

Additional data was collected during the wet season, between 16 and 25 February 2021, comprising supplementary habitat assessment work and deployment of bat recorders.

Table 2.1 Daily rainfall and temperatures recorded during the field survey (Newman Airport weather station)

Survey date	Rainfall (mm)	Maximum Temperature (°C)	Minimum Temperature (°C)
Primary field survey in April 2020			
15 April 2020	0	39.2	24.8
16 April 2020	0	37.8	25.2
17 April 2020	0	37.7	22.9
18 April 2020	0	38.6	23.2
19 April 2020	0	38	26.6
20 April 2020	0	36.2	24.5
21 April 2020	0	36.8	23.3
22 April 2020	0	37.5	24.9
23 April 2020	0	38.5	24.2
24 April 2020	0	39.7	25.6
25 April 2020	0	37.6	25.2
26 April 2020	0	33.8	24.3
27 April 2020	0	32.9	23.1
28 April 2020	0	34	20.7
29 April 2020	0	29.3	19.9
Supplementary data collection in February 2021			
16 February 2021	0	33.5	24.3
17 February 2021	0	37.7	26.5
18 February 2021	0	37.9	26.7
19 February 2021	34.6	32.8	22.3
20 February 2021	0.2	36.7	24.2
21 February 2021	0	38.1	26.3
22 February 2021	0	37.7	25.2
23 February 2021	0	37.6	25.5
24 February 2021	0	37.4	24.6

Survey date	Rainfall (mm)	Maximum Temperature (°C)	Minimum Temperature (°C)
25 February 2021	0	37.2	20.7

2.2 Biogeography

2.2.1 IBRA bioregions

The bioregions of Australia are described in the Interim Biogeographic Regionalisation for Australia (IBRA) (Thackway & Cresswell 1995). Bioregions are large, geographically distinct areas of land with common characteristics such as geology, landform patterns, climate, ecological features and plant and animal communities. The latest version, IBRA7, classifies Australia's landscapes into 89 large geographically distinct bioregions and 419 subregions (DoE 2012).

The Lamb Creek project is located in the Hamersley (PIL3) subregion of the Pilbara bioregion. The Hamersley subregion comprises the southern section of the Pilbara Craton. It is a mountainous area of Proterozoic sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite). Geographically it is synonymous with the Hamersley vegetation system as described by Beard (1990). The dominant vegetation is mulga low woodland over bunch grasses on fine textured soils in valley floors, and Eucalyptus leucophloia (snappy gum) over *Triodia brizoides* on skeletal soils of the ranges. Regional vegetation is further described in section 2.3 Drainage runs into either the Fortescue River to the north, the Ashburton river to the south, or the Robe river to the west (Kendrick 2001).

2.2.2 Land systems

The Lamb Creek survey area traverses five land systems, as mapped by the Western Australian Land Information Authority (2018) and described by Van Vreeswyk *et al*. (2004). These are listed and summarised in Table 2.2.

The majority of the survey area occurs within the Boolgeeda land system, comprising stony slopes, plains, hills, and drainage floors with spinifex. This land system underlies the majority of the retention licence and the proposed haul road corridor.

The Newman land system, comprising rugged mountains, ridges, and plateaux, was the second dominant, intersecting the haul road in two places and covering the south-west and south-eastern corners of the retention licence.

The McKay and Platform Land Systems occurred in the north-eastern part of the retention licence only, while the Wannamunna land system only appeared in the southernmost part of the haul road corridor where it intersects the highway. Intersection version B fell entirely within the Boolgeeda land system.

The vegetation in all but the Wannamunna land system is typified by spinifex grasslands. Wannamunna is characterised by hardpan plains and internal drainage tracts supporting mulga shrublands and woodlands (and occasionally eucalypt woodlands). Floristically, the survey area fell within the Hamersley 18 and Hamersley 82 vegetation system-associations as defined by Beard (2018) as described further in section 2.3.2. Vegetation system mapping and land system mapping overlapped quite well for the Lamb Creek survey area, with Hammersley 82 roughly following the Newman land system, while Hamersley 18 roughly followed the other four land systems including Wannamunna.

Table 2.2 Land systems of the Lamb Creek detailed fauna survey area

Name	Land type	Description	Extent in survey area
Boolgeeda Land System	Stony plains with spinifex grasslands	Stony lower slopes, stony plains below hills, and narrow sub-parallel drainage floors. Supports hard and soft spinifex grasslands or mulga shrublands. Often occurs below hill systems such as Newman and Rocklea	1036 ha
McKay Land System	Hills and ranges with spinifex grasslands	Hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands. Relief up to 100 m	44 ha
Newman Land System	Hills and ranges with spinifex grasslands	Rugged high mountains, ridges and plateaux with near vertical escarpments of jaspilite, chert and shale, supporting hard spinifex grasslands. Relief up to 400 m.	340 ha
Platform Land System	Stony plains with spinifex grasslands	Stony upper plains, dissected slopes and drainage floors, supporting hard spinifex grasslands. Erosional surfaces formed by partial dissection of the old tertiary surface. The gently inclined upper plains have extensive marginal dissection zones with gently inclined to steep slopes. Floors incised up to 30 m with steep stable marginal slopes becoming wider downslope.	198 ha
Wannamunna Land System	Wash plains on hardpan with mulga shrublands	Hardpan plains and internal drainage tracts supporting mulga shrubland and woodlands, and occasionally eucalypt woodlands. Depositional surfaces, level hardpan wash plains subject to overland sheet flow. Broad internal drainage flats receiving run-on from adjacent hardpan surfaces; rare, channelled tracts but mostly not organised through drainage. Relief up to 5 m.	27 ha

2.2.3 Geology

The survey area is located in the south-west corner of the Roy Hill 1:250,000 Geological Survey Sheet (SF50-12: Thorne & Tyler 1997). The geology of the survey area is generally defined by the assemblage of prehnite, pumpellyite, epidote, actinolite. Basement rocks comprise the early Proterozoic Brockman Iron Formation and Weeli Wolli Formation. The Brockman Iron Formation consists of banded iron formation (BIF) and shale, while the Weeli Wolli formation consists of BIF separated by shale and siltstone bands, with younger dolerite sills that intersect the sedimentary sequence.

Regionally, the fresh basement rocks are typically overlain by weathered basement rocks which occur as lateritic and basal gravel and/or conglomerate deposits. These weathered deposits underlie early Tertiary Channel Iron Deposits (CID), which are the dominant economic-grade iron deposits in the region. The CID is typically overlain by younger alluvial and colluvial gravels and sediments (Thorne & Tyler 1997). The survey area overlies the following geological units (Thorne & Tyler 1997).

- Brockman Iron Formation (PLHB): banded iron-formation, chert, and pelite;
- Quaternary Alluvium (Qa): unconsolidated silt, sand, and gravel; in drainage channels and on adjacent floodplains;
- Quaternary Alluvium and Colluvium (Qw): red-brown sandy and clayey soil; on low slopes and sheetwash areas; and
- Cainozoic Colluvium (Czc): partly consolidated quartz and rock fragments in silt and sand matrix; old valley-fill deposits.

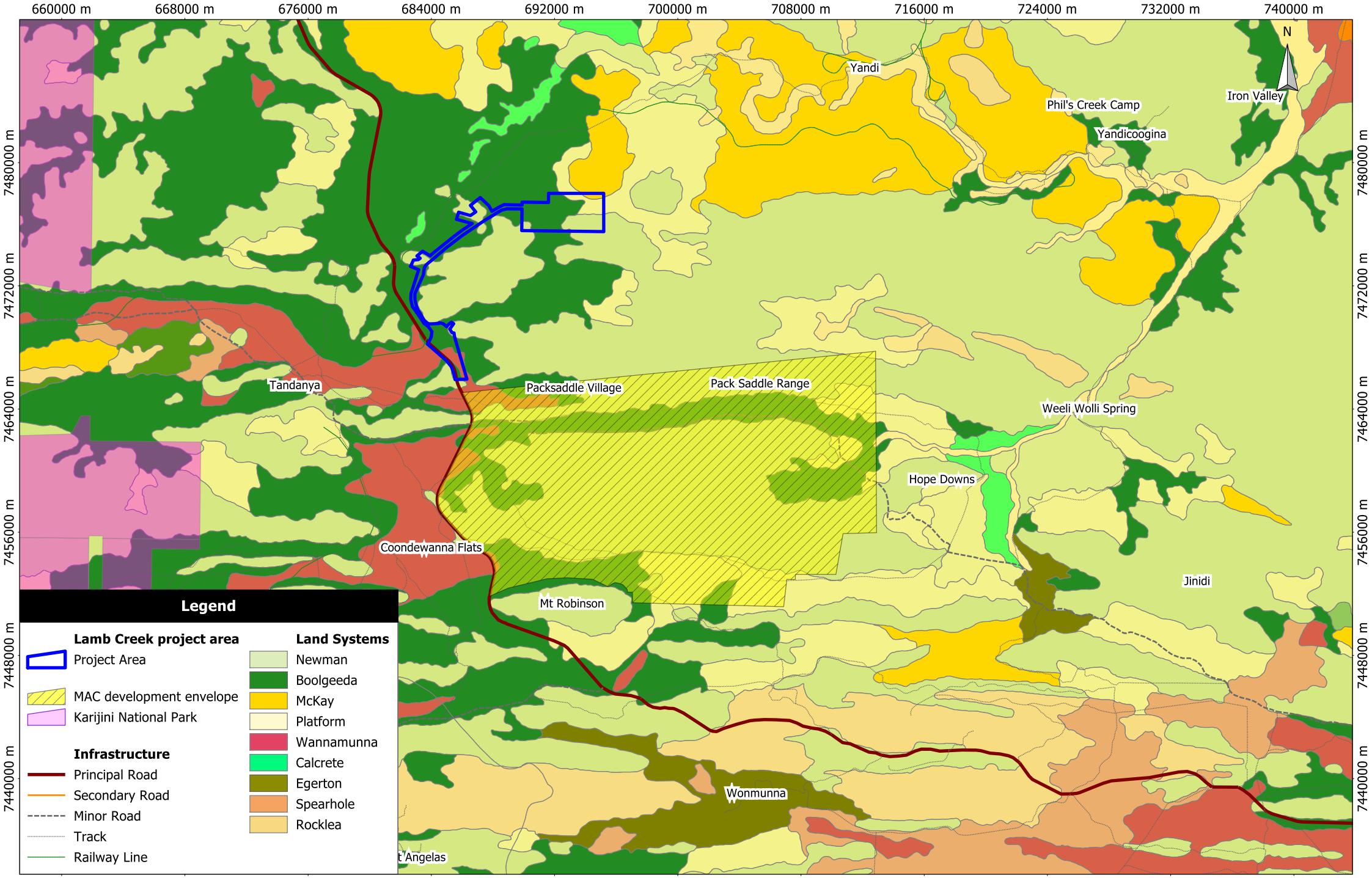
2.2.4 Soils

The survey area is located within the Fortescue botanical district of the Pilbara region (Beard 1990). This region is mountainous, with soils ranging from shallow, stony sandy loams along slopes, to cracking clays, stripped hardpans and calcareous loams along active waterways (Beard 1990).

The landforms of the survey area are typical of the eastern Pilbara with rocky hills, small gorges, mostly seasonal watercourses, and gravelly loam valleys. The soils are typified by hard red alkaline soils on plains, pediments and alluvial areas, while shallow, skeletal soils are common on ranges that rise to 1,250 m (Beard 1990). The southern part of eastern Pilbara region is characterised by earthy loams underlain by red-brown hardpan (Beard 1975, 1990).

The survey area has two distinct soil and landform assemblages. The majority of the haul road corridor (L47/736) and the edges of the mine tenement (R47/19) are characterised as soil unit Fa13. The central part of the mine tenement and small portion of the potential haul road alignment is characterised as soil unit Fb3. These are defined as follows (CSIRO Australia 2018):

- Fa13 – Ranges of banded jaspilite and chert along with shales, dolomites, and iron ore formations with some areas of ferruginous duricrust as well as occasional narrow winding valley plains and steeply dissected pediments. This unit is largely associated with the Hamersley and Ophthalmia Ranges. The soils are frequently stony and shallow and there are extensive areas without soil cover: chief soils are shallow stony earthy loams (Um5.51) along with some (Uc5.11) soils on the steeper slopes. Associated are (Dr2.33, Dr2.32) soils on the limited areas of dissected pediments, while (Um5.52) and (Uf6.71) soils occur on the valley plains; and
- Fb3 – High-level valley plains set in extensive areas of unit Fa13. There are extensive areas of pisolitic limonite deposits: principal soils are deep earthy loams (Um5.52) along with small areas of (Gn2.12) soils.



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Detailed Vertebrate Fauna Survey

Original Size: A4 Scale: 1:300,000
Datum: MGA94 Zone 50
0 10 km

Figure 2.2

Land System Mapping and Regional localities

2.3 Regional vegetation

2.3.1 Botanical district

The survey area is located in the Fortescue botanical district of the Pilbara region (Beard 1990), which forms part of the Eremaean Botanical Province. The Pilbara region receives a slightly higher than average rainfall than most of the Eremaean Province, due to the prevalence of cyclones off the coast, but this is not enough to modify the essentially desert appearance of the plant cover (Beard 1990).

The Fortescue botanical district consists predominantly of tree and shrub steppe communities with *Eucalyptus* trees, Acacia shrubs and spinifex grasses including *Triodia pungens* and *T. wiseana* (Beard 1975). Mulga (species of the *Acacia aneura* complex) occurs in valleys, and short-grass plains may be present on alluvial soils (Beard 1990).

2.3.2 Vegetation system-associations

Digital maps (shapefiles) of pre-European vegetation communities, based on state-wide mapping by J.S. Beard at 1:250,000 scale, are published by the Department of Primary Industries and Regional Development (Beard 2018).

Vegetation of the Hamersley (PIL3) IBRA subregion is generally low Mulga woodland over bunch grasses on fine textured soils in the valleys with snappy gums (*Eucalyptus leucophloia*) over *Triodia brizoides* on skeletal soils of the ranges (Kendrick 2001). The mountain tops and gorges of the Hamersley subregion provide refugia for humidophile and/or fire intolerant flora, and support a diversity of range-restricted species (Kendrick 2001).

The survey area falls within two Beard (2018) vegetation system-associations: Hamersley 18: Low woodland of *Acacia aneura*, and Hamersley 82: Hummock-grass (*Triodia wiseana*) steppe with irregularly scattered *Eucalyptus brevifolia* trees (Table 2.3). Cameras were deployed within the gorge, gully, breakaway habitat adjacent to the proposed haul road corridor located primarily within Hamersley 82.

Table 2.3 Beard vegetation system-associations within the survey area

Beard Vegetation System and Association	Extent in survey area	Extent in Western Australia (ha) [1)]	Pre-European extent remaining (%) [1)]
Hamersley 18	982 ha	575 852 ha	99.2%
Hamersley 82	663 ha	2 157 841 ha	99.4%

Footnotes:
1) Numbers from 2018 Statewide Vegetation Statistics (DBCA 2019)

Vegetation that is not a Threatened or Priority Ecological Community may still be considered significant if it has a restricted distribution, or has experienced a degree of historical impact from threatening processes (EPA 2016a). Vegetation types retaining less than 30% of their pre-European extent generally experience accelerated species loss at an ecosystem level (EPA 2000) and are regarded as being 'vulnerable', while vegetation types retaining less than 10% of their original extent are regarded as being 'endangered' (EPA 2000, Shepherd *et al.* 2002, DER 2014, 2016a).

As described above, the Hamersley 18 and Hamersley 82 vegetation system-associations intersected by the survey area still have close to 100% of their original extent remaining, and would be considered 'least concern' (DER 2014).

2.4 Reserves and Environmentally Sensitive Areas

2.4.1 Environmentally Sensitive Areas

Environmentally sensitive areas (ESAs) are protected under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* and are selected for their environmental values at state or national levels. The survey area does not occur within an ESA, nor are there any ESAs within five kilometres of the survey area, as shown by the Department of Water and Environment Regulation (DWER) Clearing Permit System and Map Viewer (DWER 2020).

Karijini National Park is located to the west of the survey area, approximately 18 kilometres west of the intersection of the proposed haul road and the Great Northern Highway. Mungaroona Range Nature Reserve is approximately 100 kilometres northwest of the survey area. The nearest Nationally Important Wetland is the Fortescue Marsh located 52 km north of the survey area (AWE 2021).

2.4.2 Threatened and Priority Ecological Communities

The survey area is not located within a known Threatened or Priority Ecological Community (TEC-PEC) (Rapallo 2012b, 2021b). The nearest known PEC is subtype 2 of the Coolibah-Lignum Flats vegetation community, with the edge of the buffer zone located less than five kilometres south of the survey area (DBCA 2021b) as shown in Figure 1.2.

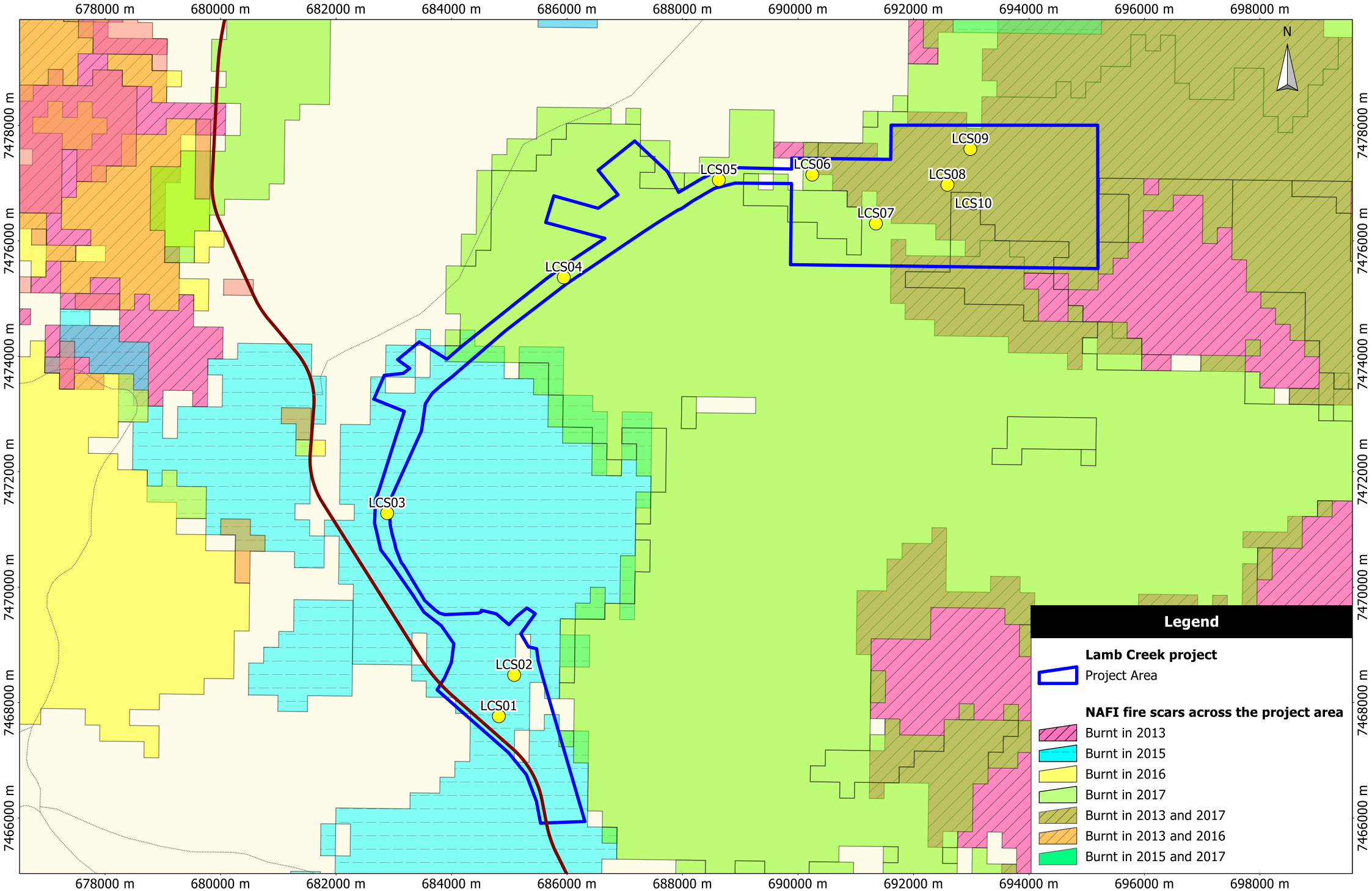
The Coolibah-Lignum Flats vegetation complex is described as: Woodland or forest of *Eucalyptus victrix* (coolibah) over thicket of *Duma florulenta* (lignum) on red clays in run-on zones. Associated species include *Eriachne benthamii*, *Themeda triandra*, *Aristida latifolia*, *Eulalia aurea* and *Acacia aneura* (DBCA 2021d). The Coolibah-Lignum Flats PEC is unlikely to occur within the fauna survey area, as discussed in Rapallo (2012b) and Rapallo (2021b). It must be noted that the flora surveys did not cover the entirety of the current project area.

2.5 Fire history

Fire mapping for Australia is available from the Northern Australia and Rangelands Fire Information (NAFI 2021) website, with fire scar data available from 2000 to present. The NAFI service displays maps of fire activity based on information from satellites, such as hotspots (locations of recently burning fires) and fire scars (maps of recently burnt country).

The majority of the Lamb Creek project area has been burnt since the 2012 fauna survey (Rapallo 2012a), with three partially overlapping fire scars resulting in a mosaic of different fire ages. Fire mapping over the project area between 2012 and 2021 (NAFI 2021) is shown in Figure 2.3.

It must be noted that NAFI data is very broad-scale and does not show the fine-scale mosaic within the project area, nor does the mapping indicate fire intensity. For example, trap site LCS03 (see section 3.3.1) was positioned in one of the few unburnt areas, but the NAFI data does not provide enough detail to show this (Figure 2.3).



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Detailed Vertebrate Fauna Survey

Original Size: A4 Scale: 1:80,000
Datum: MGA94 Zone 50
0 3 km

Figure 2.3

NAFI fire scars across the Lamb Creek project area between 2012 and 2021

3 Methods

3.1 Desktop

The fauna desktop study comprised a search of paid and free databases as listed in Table 3.1, and a review of available literature relevant to the survey area as listed in Table 3.2. The fauna desktop served to place the fauna assemblage of the survey area in a regional context and to compile a list of vertebrate fauna species with the potential to occur within the survey area. This list was then filtered for conservation significant fauna species and likelihood to occur within the survey area was assessed using the fauna decision matrix located in Appendix I.

Table 3.1 Database search parameters

Source of information	Zone	Easting (mE)	Northing (mS)	Search area type
DBCA (2020a)Threatened and Priority Fauna Database (TPFA)	50K	688039	7473704	50 km radius circle centred on point
DBCA (2021a) Threatened and Priority Ecological Communities (TEC-PEC) database	50K	688039	7473704	50 km radius circle centred on point
DBCA (2020b) NatureMap online database	50K	688039	7473704	40 km radius circle centred on point
AWE (2020) Protected Matters search tool	50K	688039	7473704	50 km radius circle centred on point
Birdlife Australia (2020) Birdata online database	50K	688039	7473704	100 x 100 km box centred on point

The surveys used as part of the literature review are listed in Table 3.2 and generally occurred within 50 kilometres of the Lamb Creek project area.

Table 3.2 Fauna surveys completed within 50 km of Lamb Creek

Report title	Distance to Lamb Creek
Rapallo (2012a) Level 2 Fauna Survey and Targeted Northern Quoll Survey of the Lamb Creek Project area	0 km
Biologic (2011) Area C and surrounds fauna survey	3-25 km to the south
Biologic (2012) Southern Flank vertebrate fauna survey	3-25 km to the south
Biologic (2013) Mudlark vertebrate fauna survey	3-25 km to the south
Biologic (2016a) South Flank targeted fauna survey	3-25 km to the south
Ecologia (2004a) Packsaddle Range biological survey	3-25 km to the south
Ecologia (2004b) Area C: Deposits D, E, F biological survey	3-25 km to the south
Ecologia (2005) Pilbara Leaf-nosed Bat and Ghost Bat monitoring survey at Nimingarra and Cattle Gorge.	3-25 km to the south
Ecologia (1998) Mining area C biological survey	3-25 km to the south
ENV (2007) Area C: R deposit fauna assessment	3-25 km to the south
ENV (2008) Area C southern flank deposit fauna assessment	3-25 km to the south

Report title	Distance to Lamb Creek
Halpern Glick Maunsell (1999) Mining Area C western access corridor biological assessment	3-25 km to the south
Outback Ecology (2008) Area C Mining Operation Environmental Management Plan	3-25 km to the south
Specialised Zoological (2008) Area C bat survey	3-25 m to the south

3.1.1 Conservation status and naming

Names for bird species follow Birdlife Australia (2019), names for mammals, reptiles and amphibians follow the Western Australian Museum (2019) with common names supplemented from Wilson and Swan (2017). Further information was gained from Johnstone and Storr (1998, 2004) for birds, Van Dyck and Strahan (2008) for mammals, and Cogger (Cogger 2018) and Tyler and Doughty (2009) for reptiles and amphibians, as well as the Frog Watch website (WAM 2018).

Distribution maps and recent records of vertebrate fauna species were verified using the Atlas of Living Australia (ALA 2021), and Birdata online databases, the Species Profile and Threats Database (SPRAT) (AWE 2021), NatureMap (DBCA 2020b), as well as maps published in Van Dyck and Strahan (2008), Johnstone and Storr (1998, 2004), Wilson and Swan (2017), Cogger (2018), and other relevant publications as cited within this report.

Conservation codes cited in this report are as per Appendix II.

3.2 Personnel and licensing

The personnel involved in the field survey, data entry and analysis, and the preparation of this report are listed in Table 3.3. The field survey was conducted under Fauna Taking (Biological Assessment) Licence BA27000239 issued under Regulation 17 of the *Biodiversity Conservation Regulations 2018*. As part of the license conditions, a list of fauna species recorded in the survey will be forwarded to the DBCA.

Table 3.3 Personnel involved in the project

Name	Position	Field survey	Reporting
Kate George	Principal Environmental Scientist	X	X
Marieke Weerheim	Senior Environmental Scientist	X	X
Jon-Paul Emery	Ecologist	X	X
Jari Cornelis	Ecologist	X	
Heidi Nore	Ecologist	X	
Kady Grosser	Ecologist	X	
Molly George	Ecologist	X	

3.3 Field survey

The detailed vertebrate fauna survey was completed over the period of 16 to 28 April 2020 with supplementary habitat assessment and bat recording occurring during the wet season between the 17 and 25 February 2021.

3.3.1 Systematic trapping

Ten systematic trap sites were established across the survey area, as mapped in Figure 3.1. Trap site locations were selected to cover the major habitats of the survey area and where possible trap sites were positioned in pockets of unburnt habitat within the burn mosaic. Coordinates of trap sites are presented in Appendix III and habitat assessment data presented in Appendix IX.

Trap sites were established in a staggered manner over a four-day period, with sites kept open from the day they were established for a period of seven nights. Trap site closure also occurred in a staggered manner over a four-day period.

Trap site design aligned with recommendations in EPA (2016b). Each systematic trap site comprised six 20-litre buckets, six pipes, and twelve funnel traps, which were distributed equally along two 50-metre drift fences running parallel, approximately 50 metres apart. The two trap lines were surrounded by a grid of 20 aluminium box traps. One camera was positioned at each trap site for a period of 7 days.

Trap effort is summarised in Table 3.4.

All traps were cleared between first light and 10 am. The majority of vertebrate fauna captured in traps were identified in the field and released. Reptiles and mammals that could not immediately be identified at the trap site were taken back to a central location within the project area with shelter (referred to as the 'day camp') for identification using the appropriate keys in Cogger (2018), Wilson and Swan (2017), Van Dyck *et al.* (2013), and Menkhorst and Knight (2010).

Terrestrial invertebrate fauna from orders known to support short range endemic invertebrates (SRE) were collected, stored and labelled according to Western Australian Museum guidelines (WAM 2012). Potential SRE specimens were taken back to Perth and submitted to taxonomic experts for identification. Invertebrate fauna captured during the 2020 vertebrate fauna survey are included in Rapallo (2022).

3.3.2 Bird surveys

Bird surveys were completed at the ten trap sites, with each site surveyed at least once. All systematic bird surveys were completed in the morning before 10 am when bird activity was high and cryptic species were most detectable. The survey method involved 50-minute surveys surrounding each individual trap site. The survey area for each survey was unbounded, but restricted to one single habitat which was representative for each trap site.

3.3.3 SM4 recorders for bats and night parrot

The bat assemblage of the survey area was assessed using two ultrasonic echolocation recorders that were moved to systematically sample all the potential fauna habitats across the survey area. The model of recorder used was a Wildlife Acoustics SM4BAT-FS ultrasonic recorder, hereafter referred to as simply SM4 bat recorders.

Bat survey consisted of completing a total of thirty-three overnight ultrasonic bat sound recordings, beginning at twilight, at sixteen locations within and proximal to the survey area.

SM4 bat recorders were deployed for a minimum of one night at each trap site, as well as at caves 1 and 3 located on the retention licence where ghost bat had been recorded in 2012 (Rapallo 2012a). Additional caves (caves 2, 4 and 5) outside the defined survey area, but proximal to the project area, were sampled opportunistically. Cave 2 was sampled in April 2020, and was located approximately two kilometres to the south of the retention licence. Caves 4 and 5 were sampled in February 2021, and were located in the hills proximal to the Great Northern Highway intersection. Cave 2 was sampled two nights in April 2020, while caves 4 and 5 were sampled for 2 nights in February 2021 (Appendix III).

The survey area was sampled for potential night parrot calls using one Wildlife Acoustics Song Meter SM4 Acoustic Recorder, hereafter referred to as the SM4 night parrot recorder. Acoustic recorders were deployed at areas within the survey area that contained patches of mature spinifex as potential habitat, and a location on the 2020 disturbance footprint. The night parrot recorder was deployed at each site for a minimum of two consecutive nights, with a total of eight acoustic survey nights (Appendix III).

Recordings were "continuous" made using ultrasonic SM4BAT-FS and acoustic SM4A SongMeter (both by Wildlife Acoustics Inc., USA) detectors. The audio settings used followed the manufacturer's recommendations contained in the user manuals (Bat Call WA 2021).

Recordings were sent to Bat Call WA for analysis and identification. For the ultrasonic (bat) recordings, call analysis details are provided in Bat Call WA (2021) (Appendix VIII) as recommended by the Australasian Bat Society (Australasian Bat Society 2006). Reference data for the species identified are available in (Bullen & McKenzie 2002, McKenzie & Bullen 2003, 2009). For the acoustic recordings (night parrot), Bat Call reviewed recordings both manually and using an automatic scan technique for Night parrot calls. Candidate calls were compared to Bat Call's confirmed reference calls.

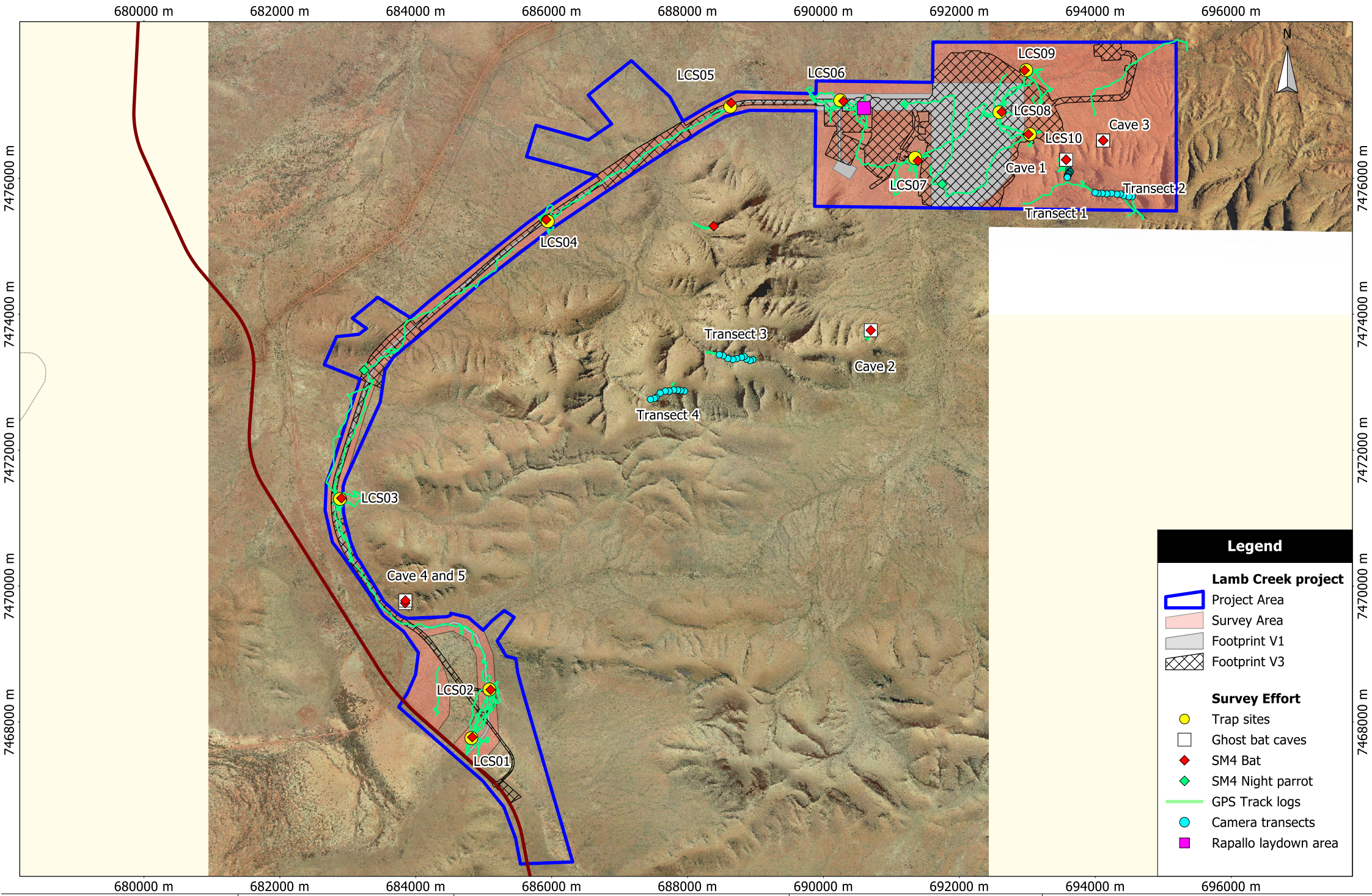
See Figure 3.1 and Appendix III for SM4 deployment locations and duration.

3.3.4 Foraging and leaf litter Searching

Foraging (active searching) targeting both vertebrate and invertebrate fauna was conducted at all trap sites, for a minimum of 1.5 person hours per site. Foraging methods included turning rocks, logs, peeling bark, raking leaf litter, litter sieving and searching under vegetation. Northern quoll camera sites (see section 3.3.6) were searched for a minimum of 0.5 person hours, plus time spent traversing between camera locations.

3.3.5 Opportunistic observations

Opportunistic records of mammals, birds, reptiles, amphibians and potential SRE invertebrates were collected throughout the survey area. Opportunistic records included direct sightings and calls, as well as secondary signs of presence such as tracks, scats, diggings, burrows, mounds, feathers, bones, and sloughed reptile skins. All records were accompanied by a GPS waypoint and/or fauna habitat notes, to link species records to fauna habitats.



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Detailed Vertebrate Fauna Survey

Original Size: A4 Scale: 1:70,000
Datum: MGA94 Zone 50
0 2 km

Figure 3.1

Survey Effort

3.3.6 Camera transects

Forty Swift Enduro motion-detecting camera traps were deployed along four transects in the gorge, gully, breakaway landscapes that occur within the higher elevation areas of the retention licence and ranges adjacent to the proposed haul road corridor. The four transect sites were selected based on aerial photography with consideration of safety and logistics.

Camera transects were placed in four selected areas of gorge / gully habitat, with two transects deployed within the defined survey aera, and two in the elevated areas to the south of the project area. Cameras were positioned between 15 and 50 meters apart, depending on the length of the gorge / gully. This method broadly aligned with an initial reconnaissance survey under (DotEE 2016).

Cameras were deployed for a minimum of 5 consecutive nights (some longer due to the logistics of retrieval) and baited with cat food that contained a high sardine content. Bait was enclosed in non-reward food tubes, to allow for longer deployment time.

Each camera on the transects was programmed to record video for 30 seconds upon being triggered, with detection sensitivity set to medium. See Table 3.4, Figure 3.1 and Appendix III for trap effort and location of camera transects.

A single ScoutGuard 550V camera was deployed at each of the 10 trap sites for a minimum of five days. Cameras were positioned about 30 centimetres off the ground and angled towards the ground. Cameras at trap sites were baited daily for a period of five nights with a mix of dried oats, peanut butter, and olive oil. Bait was not replenished after the fifth night to minimise impacts on normal animal behaviour.

3.3.7 Species richness estimators

Species accumulation curves for birds and trappable ground-dwelling fauna were generated via EstimateS software Version 9.1.0 (Copyright R. K. Colwell). Predicted species richness was calculated by taking the average of the estimators ACE, Chao 1, Jackknife 1 and Bootstrap (Colwell 2013).

Since models can only be generated from data collected through systematic methods, the species accumulation curve and predicted species richness were calculated from systematic trapping data, and from systematic bird surveys. Separate analyses were conducted for these two methods.

Predicted species richness of trappable ground-dwelling vertebrate fauna was calculated using the combined trapping data for mammals and reptiles from all ten trap sites for the single-season fauna survey, with statistics calculated over abundance data (total number of captures per species at that site).

Predicted species richness of birds was calculated using data from systematic birds surveys only, with data entered as total abundance for each species per site. Analyses for both trappable ground-dwelling fauna and birds were run using the default settings with the following exceptions:

- Accumulations (runs) were randomised 10,000 times without replacement.
- Upper abundance limit for rare or infrequent species was set to 3.

3.3.8 Habitat mapping

Broad fauna habitat mapping was completed in 2012 over an area that partially overlaps with the current 2020 survey area. The broad fauna habitat mapping from 2012 was selectively ground-truthed during the 2020 survey and further refined with habitat assessment data collected during a short-range endemic

fauna survey completed in February 2021 (Rapallo 2022). Habitat data included notes on land form, soil, rock cover, and broad description of vegetation.

Fauna habitats were assessed for the likelihood that they may support fauna of conservation significance. All major fauna habitats present within the survey area were scored for significance (High, Moderate or Low) according to the criteria in Appendix IV.

Table 3.4 Summary of survey effort

Name	Effort
Pit fall trap nights	840
Funnel trap nights	840
Box (Elliot) trap nights	1400
Ultrasonic (bat) detector nights	33
Acoustic (night parrot) detector nights	8
Camera nights (transects)	279
Camera nights (trap sites)	73
Systematic bird census (minutes)	500
Trap Site Foraging (minutes)	900
Camera transect site foraging (minutes)	1410

4 Results and Discussion

4.1 Desktop results vertebrate fauna

A portion of the current Lamb Creek project area was surveyed for vertebrate fauna in 2012 by means of a single-season detailed (Level 2) fauna survey. The 2012 survey area overlapped in part with the 2020 survey area, as outlined in section 1 (Figure 1.2). Survey effort consisted of ten trap sites open for five consecutive nights: a trap effort of 852 pitfall traps, 1420 Elliot traps and 710 funnel traps. Bat recorders were deployed for 13 nights. Cameras and cages were deployed for 182 camera nights and 300 cage trap nights within gorges and the faces of rocky escapements. Other activities included spotlighting, habitat assessment, foraging and systematic bird survey (Rapallo 2012).

4.1.1 Regional survey effort

The region has had considerable survey effort over the last 20 years predominantly due to vertebrate fauna surveys completed within, or partly within, the boundary of the Mining Area C (MAC) Development Envelope. The MAC Development Envelope is approximately 10 kilometres south of R47/19 as showed in Figure 1.1.

Twenty-one vertebrate fauna surveys have been conducted wholly or partially in the MAC Envelope between 1997 and 2016; these comprised seven Level 2 surveys (one or two seasons), five Level 1 surveys and nine targeted surveys (for conservation significant fauna) (Biologic 2017).

Mining Area C contains the same land systems as the Lamb Creek survey area and has similar habitats.

4.1.2 Regional fauna assemblage

The fauna desktop study identified 301 species of terrestrial vertebrate fauna recorded within 50 kilometres of the survey area. These included 157 birds, 46 mammals, 91 reptiles, and 7 amphibians. Not all species are likely to occur in the survey area due to the large search extent of the desktop assessment. Additionally, many species tend to be patchily distributed even where appropriate habitats are present, and many species of birds can occur as regular migrants, occasional visitors or vagrants. The desktop results are presented in Appendix V.

4.1.3 Introduced fauna (Pests)

The desktop study identified ten introduced taxa (Pests) recorded within 50 kilometres of the survey area, as presented in Table 4.1. Three of these introduced fauna species are currently listed on the Western Australian Organism List (WAOL) as Permitted - s11 (Department of Agriculture and Food, Western Australia 2021), while the other seven were listed as Declared Pest – s22(2).

Based on distribution maps, database records, and habitat preferences, seven species were considered possible to likely to occur in the survey area. These were cattle (*Bos taurus*), camel (*Camelus dromedarius*), domestic dog (*Canis lupus*), cat (*Felix catus*), house mouse (*Mus musculus*), rabbit (*Oryctolagus cuniculus),* and the red fox (*Vulpes vulpes*). The cat and house mouse were recorded during the survey, while either dingo or dog was also recorded.

Table 4.1 Desktop results: Introduced (feral) fauna recorded within 50 kilometres of the survey area

Scientific name	Common name	Pest Status (WAOL)	Likelihood
Columba livia	Rock Dove	Permitted - s11	Unlikely
Bos taurus	European Cattle	Declared pest - s22(2)	Confirmed
Camelus dromedarius	Dromedary, Camel	Declared pest - s22(2)	Likely
Canis familiaris familiaris	Dog	Declared pest - s22(2)	Likely
Vulpes vulpes	Red Fox	Declared pest - s22(2)	Likely
Equus asinus	Donkey	Declared pest - s22(2)	Unlikely
Equus caballus	Horse	Declared pest - s22(2)	Unlikely
Felis catus	Cat	Permitted - s11	Possible
Oryctolagus cuniculus	Rabbit	Declared pest- s22(2)	Likely
Mus musculus	House Mouse	Permitted - s11	Possible

4.1.4 Conservation significant fauna

The fauna desktop study identified 50 taxa of conservation significant fauna recorded previously within 50 kilometres of the survey area. These are listed in Appendix VI.

Twenty-one of these species were conservation significant only because they are listed Marine under the EPBC Act. These all comprised common and widespread species, including cuckoos, raptors, egrets, rainbow bee-eater, magpie-lark and welcome swallow. Marine species are listed in Appendix VI but are not discussed further in this document.

For the remaining 29 species, likelihood to occur in the survey area was assessed using location and date of previous records, and currently known range and habitat requirements relative to the fauna habitats recorded in the survey area (section 4.5). The risk matrix used to assess likelihood is presented in Appendix I, and likelihood scores are shown in Appendix VI.

Based on the likelihood assessment outlined above, seventeen conservation significant species were considered unlikely to highly unlikely to occur in the survey area due to absence of suitable habitat (such as sand dunes for bilbies and mulgaras, and rivers, dams, wetlands for wader species). Species were also considered unlikely if they were rare vagrants, or where recent distribution maps showed that the survey area was located well outside their known range (these database records may have been incorrect).

The Pilbara Leaf-nosed bat (*Rhinonicteris aurantia* – Pilbara population) was considered unlikely to occur in the survey area, based on extensive survey efforts completed in the adjacent Mining Area C. Despite many years of surveying including cave assessments and acoustic surveys, the species was only detected twice as a foraging visitor (Biologic 2017). Bob Bullen (*pers. comm*. 2020) confirmed that, based on the survey results for Mining Area C, it is highly unlikely that roost caves for the Pilbara Leaf-nosed Bat occur in the survey area.

The remaining twelve species of conservation significant fauna were assessed as possible, likely or confirmed to occur in the survey area. These are listed in Table 4.2 below.

Table 4.2 Desktop results: Fauna species confirmed to possible to occur in the survey area

Name	Status[1)]		Likelihood	Details
	BCA	EPBC		
Fork-tailed swift (*Apus pacificus)*		MI, MA	Confirmed	Recorded at Lamb Creek in 2012, from all habitats surveyed (Rapallo 2012a) and there are also multiple records from Mining Area C (Biologic 2017).
Peregrine falcon (*Falco peregrinus)*	OS		Likely	Recorded from Mining Area C (Biologic 2017). Prefers areas with cliffs and rocky escarpments for nesting. The survey area contains some potentially suitable breeding habitat within the gorge, gully , breakaway habitat that occurs within the higher elevation areas of the retention licence, with more extensive suitable habitat in the ranges adjacent to the proposed haul road corridor. Water ecotones and tree covered areas provide productive habitat for Peregrine falcon prey species. However, Peregrine Falcons are an open country hunter (Ratcliffe 1993, Jenkins 2000) and some level of open country is essential for them to access prey (Jenkins & Hockey 2001). Peregrine falcon is likely to forage broadly across all habitats within the survey area especially on drainage ecotones during wetter seasons, but lack of permanent and semi-permanent water in the region will limit prey availability.
Night parrot (*Pezoporus occidentalis*)	CR	EN	Possible	Based on accepted records, Night parrot habitat comprises long-unburnt mature Triodia grasslands forming mosaics with samphire and chenopod shrublands (Jackett et al. 2017, McDougall et al. 2009, Murphy et al. 2017) including genera such as Atriplex, Bassia and Maireana, on floodplains and claypans, and on the margins of salt lakes, creeks or other sources of water (McGilp 1931, Wilson 1937). Contemporary Western Australian Pilbara/Murchison records include records north east of Wiluna (Hamilton et al. 2017, Jackett et al. 2017), Lake Disappointment (Great Sandy Desert) (Harewood 2018), Great Sandy Desert (Caccetta 2018) , south of Newman (Ison 2017), salt lake systems on Martu County (Michelmore & Birch 2020) and near the Fortescue Marsh (Davis & Metcalf 2008). The current interim guidelines for preliminary surveys of Night parrot in Western Australia suggest the species requires large, dense Triodia hummocks primarily old-growth (often more than 50 years unburnt) for roosting and nesting (DPaW 2017), although little is known about foraging sites hence the precautionary score of possible. Foraging habitat is typically located nearby to roosting habitat (Jackett et al. 2017), though individuals have been recorded 9.4 km from roosting sites in a single night and recorded to have travelled over 40 km in a single night (Murphy et al. 2017). Local records of the Night parrot are scarce, with the nearest contemporary record of the species observed at Minga Well, a station bore and livestock watering point with large pools of water near Fortescue Marsh (Davis & Metcalf 2008) and a record from near Newman (Ison 2017) . At Lamb Creek, mature triodia at site LCS03 (which has not been affected by recent fires) could be utilised by Night parrot; however, most of the survey area has been recently burnt in 2013, 2015 and 2017 (NAFI 2021). There is unburnt Triodia on the surrounding hill slopes, but the majority were small clumps that would not provide extensive cover, with larger clumps occurring on outwash slopes. Small patches of mature triodia occurred in creek lines and low points of stony plain but were often small patches. Night parrot was not detected via acoustic recorder and habitats of the survey area do not include mosaics with samphire and chenopod shrublands, salt lake margin, or paleochannel.

Name	Status[1)]		Likelihood	Details
	BCA	EPBC		
Grey falcon (*Falco hypoleucos)*	VU	VU	Possible	Grey falcon commonly nests in timbered areas, particularly tall trees along watercourses, and forages in open or more sparsely vegetated habitats (Garnett et al. 2011). Medium Drainage habitats are likely to provide suitable nesting habitat for the species. Grey falcon is likely to forage broadly across all habitats within the survey area particularly Stony Plain. Highly nomadic with multiple records within 20 km of the survey area, including from Mining Area C where none of the records were breeding records (Biologic 2017).
Letter-winged Kite (*Elanus scriptus*)	P4		Possible	The Letter-winged Kite is a bird of open country and grasslands in arid and semi-arid Australia, where there are tree-lined streams or water courses. When food is plentiful, the species irrupts and birds may disperse to higher rainfall coastal regions (Birdlife 2020b). This kite roosts by day in the high canopy of leafy trees and is the only member of its family that hunts at night. Highly nomadic several records within 10 km of the survey area (DBCA 2020b). Probable infrequent visitor during irruptive events.
Ghost bat (*Macroderma gigas*)	VU	VU	Confirmed	Recorded by Rapallo in 2012, 2020 and 2021 in the retention licence (cave 1 and 3) and adjacent (cave 2). A regional review completed in November 2016 mapped all known ghost bat caves in the vicinity of Mining Area C (Biologic 2016b). A cluster of roost caves are located just east of the Lamb Creek haul road alignment. Bat Call WA confirmed that these caves comprise a category 2 roost cave surrounded by category 3 caves in an "apartment block" configuration (Bob Bullen pers. comm. 2020). These caves (cave 4 and 5 in Figure 3.1) are located 200-250 m east of the haul road corridor.
Short-tailed mouse (*Leggadina lakedownensis*)	P4		Possible	This species has a broad distribution across much of northern Australia, but is irregularly distributed with scattered populations (Van Dyck & Strahan 2008). In habits areas of open tussock and hummock grassland, Acacia scrubland, and savanna woodland, on alluvial clay or sandy soils (Lee 1995) and also cracking clay in the Pilbara (Gibson & McKenzie 2009) The DBCA threatened fauna database has two records from the same locality approximately 9 km SW of the survey area (GNHI), recorded in 1997 from the Boolgeeda land system DBCA 2020b). There are no records from Mining Area C despite extensive survey effort (Biologic 2017). The Short-tailed mouse could occur within the tussock grassland habitat of the survey area.
Northern quoll (*Dasyurus hallucatus*)	EN	EN	Confirmed	Recorded at Lamb Creek during the 2012 surveys (flora and fauna) from scats and camera (Rapallo 2012a). No records from Mining Area C despite extensive survey effort . Scats recorded approximately 5 km northwest of Mining Area C and a male quoll observed 5 km east of Mining Area C (Biologic 2017). Regionally there is a concentration of records 40 km to the north east from 2018 (DBCA 2020b). At Lamb Creek, potential habitat occurs within the gorge, gully , breakaway landscapes that occur within the higher elevation areas of the retention licence and ranges adjacent to the proposed haul road corridor. Northern quoll may forage/disperse through surrounding habitats such as hill crest/hillslope and drainage habitats.

Name	Status[1)]		Likelihood	Details
	BCA	EPBC		
Western pebble-mound mouse (*Pseudomys chapmani*)	P4	LC	Confirmed	The Western pebble-mound mouse occurs on the gentler slopes of rocky ranges where the ground is covered with a stony mantle and vegetated by hard spinifex, often with a sparse overstorey of eucalypts and scattered shrubs (Anstee & Armstrong 2001). Recorded in the survey area during the 2012 and 2020 survey from stony plain and hillcrest/hilltop habitat. Multiple records from Mining Area C (Biologic 2017) and other localities (DBCA 2020b).
Pilbara olive python (*Liasis olivaceus barroni*)	VU	VU	Confirmed	Within inland Pilbara the species is most often encountered near permanent waterholes in rocky ranges or among riverine vegetation (Pearson 1993). Recorded at Lamb Creek during the 2012 survey crossing stony plain between the Hamersley massive (hillcrest /hilltop habitat) and the Lamb Creek (medium drainage) within the now discounted southern haul road option (Rapallo 2012a). Five records from Mining Area C (Biologic 2017). At Lamb Creek, potential habitat occurs within the gorge, gully , breakaway landscapes that occur within the higher elevation areas of the retention licence and ranges adjacent to the proposed haul road corridor. The species may forage/disperse through drainage habitats.
Pilbara barking gecko (*Underwoodisaurus seorsus*)	P2		Likely	Pilbara barking gecko is a rock inhabiting, restricted-range species encountered at mid elevations in the Hamersley Ranges, widely separated from the closest populations of the related barking gecko *Underwoodisaurus milii* in the northern Goldfields and Shark Bay in Western Australia (Doughty & Oliver 2011) . The species has been recorded from several locations at Mining Area C and surrounds from gorge gully habitats (Biologic 2017). The species is known to be distributed over a wider area, having been recorded 120 km to the north-west and approximately 40 km to the south-west (DBCA 2020b). It is unknown whether its distribution is continuous between these areas, or if it occurs as a series of isolated populations. At Lamb Creek, potential habitat occurs within the gorge, gully , breakaway landscapes that occur within the higher elevation areas of the retention licence and ranges adjacent to the proposed haul road corridor.
Gane's blind snake (*Anilios ganei*)	P1		Likely	Endemic to the Pilbara, Gane's blind snake was originally listed because it was known from just a few scattered records, this species has now been more recently recorded from nine records in the region (DBCA 2020b). Gane's blind snake has been recorded from five locations within the Mining Area C Development Envelope, including an open drainage line (ENV Australia 2007) , rocky slope below the vertical wall of a gully, and mulga woodland habitat (Biologic 2011). Gane's blind snake was not recorded in this survey or the 2012 Lamb creek fauna survey but potential habitat occurs within the gorge, gully, breakaway, medium drainage, tussock grassland and mulga/corymbia plain habitats.

Footnotes:
1) Status: BCA = Western Australian Biodiversity Conversation Act 2016. EPBC = Commonwealth Environment Protection and Biodiversity Conservation Act 1999. See Appendix II for conservation codes.

4.2 Vertebrate fauna assemblage

During the 2020 detailed fauna survey of Lamb Creek, 128 species of vertebrate fauna were recorded, including 63 bird species, 20 mammal species, 44 reptile species, and one frog.

Combined with the 2012 fauna survey results, the total number of vertebrate fauna recorded from the Lamb Creek project area to date is 185 species. Results are presented in Appendix VII, summarised in Table 4.3 below and discussed in the text below.

Table 4.3 Summary of the total number of vertebrate fauna species recorded from Lamb Creek to date

Species group	2012 fauna survey	2020 fauna survey	Total recorded from Lamb Creek to date
Birds	76	63	87
Mammals	22	20	28
Reptiles	58	44	68
Amphibians	2	1	2
Totals	**158**	**128**	**185**

4.2.1 Birds

Birds were the most frequently observed fauna group, with 947 records representing 63 bird species. Of these species, 51 (81%) were recorded during systematic bird surveys, eleven species were recorded opportunistically, and one species, the little button-quail, was captured in a fauna trap.

Bird diversity was lower than predicted from the desktop study, which listed 159 bird species recorded from the region (section 4.1.2). However, the survey area did not contain suitable habitat for every one of these regional species. For example, there was no habitat for waders or waterbirds, while some species on the desktop list are migratory or respond to rainfall.

The habitat with the highest bird diversity recorded was medium drainage lines, dominated by *Corymbia*, *Acacia* and *Gossypium* over spinifex) with 34 bird species recorded, whereas the habitat with the lowest number of birds recorded was the hill crests and hill slopes habitat with only nine species recorded. The low diversity in this habitat likely reflects the low botanical diversity and structurally simplistic habitat.

The most frequently recorded bird species during the systematic surveys were the white-breasted woodswallow (n=103), Singing honeyeater (n=84), and budgerigars (n=76).

One conservation significant bird species has been recorded in the Lamb Creek project to date. This is the fork-tailed swift (*Apus pacificus*) which is listed EPBC Migratory and Marine. The fork-tailed swift is an extremely aerial species that is highly unlikely to land in the survey area and would not be affected by developments on the ground.

A comparison with data from the 2012 survey (Rapallo 2012a) indicated that the bird diversity in 2020 was lower than in that earlier survey, when 76 bird species were recorded (Table 4.3). The 2012 survey, however, covered a larger area as a southern haul road option was included, and in 2012 the survey area had not experienced recent fires. Over both survey years combined (see Appendix V) a total of 87 bird species have been recorded from the Lamb Creek project to date. Of these species, 52 were recorded in both survey years, 24 were only recorded in 2012, and four were only recorded in 2020. This difference

reflects the variability in bird assemblages between seasons and between years, and underlines that no single season survey would capture the complete avifauna of an area.

No conservation significant bird species were recorded in 2020. However, in 2012 the Fork-tailed swift (listed EPBC Migratory and Marine) was recorded from several locations (section 4.1.4).

4.2.2 Mammals

Twenty species of mammal were recorded during the 2020 survey. Bats were the most abundant group, with seven species recorded including the conservation significant ghost bat (listed Vulnerable). The majority of mammal species were recorded from systematic trap sites.

Mammal diversity was lower than predicted from the desktop study, which lists 46 mammal species recorded previously within 50 kilometres of the survey area (Appendix V), of which 43 species recorded from the adjacent Mining Area C. However, the Lamb Creek survey area did not contain suitable habitat for some of these regional species (for example no sand plains for Bilbies), and the survey comprised a single season only. In comparison, 21 surveys have been completed over the adjacent Mining Area C with data spanning many years and seasons, and over a much larger area containing habitats that do not occur in the Lamb Creek survey area (Biologic 2017).

To date, 28 mammal species have been recorded from Lamb Creek over both 2012 and 2020 surveys combined (Table 4.3). The number of mammal species recorded in 2020 was 19 compared to 22 recorded in 2012. The majority of species were recorded in both surveys. The northern quoll, listed Endangered, was only recorded in 2012, as discussed further below.

Systematic captures of small mammals were dominated by small dasyurids and rodents. The most abundant species were the Ooldea dunnart (*Sminthopsis ooldea*), Pilbara ningaui (*Ningaui timealeyi*) and the sandy inland mouse (*Pseudomys hermannsburgensis*) each with five captures. One additional species, the common rock rat (*Zyzomys argurus*) was recorded from a camera trap. The only conservation significant trappable mammal species recorded in 2020 was the western pebble-mound mouse (*Pseudomys chapmani*) which was recorded in the form of numerous mounds across the survey area. Nearly all pebble-mounds were recorded in the habitats of hill crest and hill slopes (section 4.5.2) and stony plain (section 4.5.1).

The 2020 survey recorded two conservation significant mammal species: the ghost bat (Vulnerable) and the western pebble-mound mouse (Priority 4). These same species were also recorded in 2012, as well as the northern quoll and the Pilbara olive python. These are discussed further in section 4.3.

Four introduced (feral) mammal species were recorded in 2020. These were the dromedary camel (*Camelus dromedarius*) and dog/dingo (*Canis lupus* sp.) which are listed declared pests s22(2), and the feral cat (*Felis catus*) and house mouse (*Mus musculus*) which are listed permitted s11 on the Western Australian Organism List (DAFWA 2021). One additional species of introduced fauna, the cow (*Bos taurus*) was recorded in 2012 (Rapallo 2012a).

4.2.3 Reptiles

During the 2020 survey 44 species of reptile and one species of amphibian were recorded from the Lamb Creek survey area. The desktop study indicated a total of 91 reptile species and seven amphibian species have been recorded within 50 kilometres of the survey area. However, the survey area does not contain suitable habitat for every one of these species.

To date, 68 reptile species and two frog species have been recorded from the 2012 and 2020 Lamb Creek survey areas (Table 4.3). In 2012 58 reptile species and two frog species were recorded, which is clearly higher than the number of species recorded in 2020. The lower numbers in 2020 were most likely because spotlighting was not permitted in 2020 due to logistics and client safety restrictions, and also because the survey area was recovering after several fires which burnt the majority of the survey area.

Overall, reptile records were still quite high during the 2020 survey. The reptile assemblage comprised sixteen skink species, five varanid species, five pygopod species, six agamid species and eight gecko species and four species of elapid for a total of 44 reptile species. The most commonly recorded reptile species were the rock ctenotus (*Ctenotus saxatilis*) with 86 records followed by the leopard ctenotus (*Ctenotus pantherinus*) with 61 records. The two most common geckos were the Pilbara ground gecko (*Lucasium wombeyi*) and western beaked gecko (*Rhynchoedura ornata*) with 37 and 36 records, respectively. The majority of reptile records came from systematic trapping.

Reptile species richness was generally consistent across all sites. The highest species richness was recorded at sites S06 and S09 with 15 species recorded at each.

No reptile species of conservation significance were recorded in 2020. However, in 2012 the Pilbara olive python (*Liasis olivaceus barroni*), listed Vulnerable under both the *Biodiversity Conservation Act 2016* and the EPBC Act, was recorded from a single location (section 4.3).

4.2.4 Amphibians

Amphibian diversity was low across the survey area, with only one species, *Cyclorana maini,* recorded. This is not a conservation listed taxon. One individual was detected opportunistically at trap site S02 within the Tussock grassland plain habitat. The lack of diversity and abundance of amphibian records likely reflects the low rainfall in the month prior to the survey.

4.2.5 Species richness estimators

To provide an indication of survey completeness, the software program EstimateS (Version 9.1.0) (Colwell 2013) was used to generate species accumulation curves and to calculate predicted species richness. Species accumulation curves represent a theoretical model of the relationship between survey effort and species accumulation: as the number of individuals recorded during the survey increases, the accumulation of fauna species decreases until the curve reaches an asymptote (Gotelli & Colwell 2011).

Since models can only be generated from data collected through systematic methods, the species accumulation curve and predicted species richness were calculated from systematic trapping data, and from systematic bird surveys. Separate analyses were conducted for these two methods.

4.2.5.1 Species accumulation curve for trapping data

The species accumulation curve for trapping data is presented in Figure 4.1, plotting the number of fauna species recorded (y-axis) against the number of individual animals captured in traps (x-axis). Observed species richness is presented as a sample-based rarefaction curve, computing the mean number of fauna species (S(est)) over all possible combinations of 1, 2, and up to 402 individuals captured (Colwell *et al.* 2012).

Systematic trapping recorded 43 species. The predicted species richness for trappable ground-dwelling fauna was 71 species, which indicates that 61% of the (estimated) trappable fauna had been captured

during the survey. This is reflected in the species accumulation curve, which after 402 individuals captured has not started to approach an asymptote (Figure 4.1).

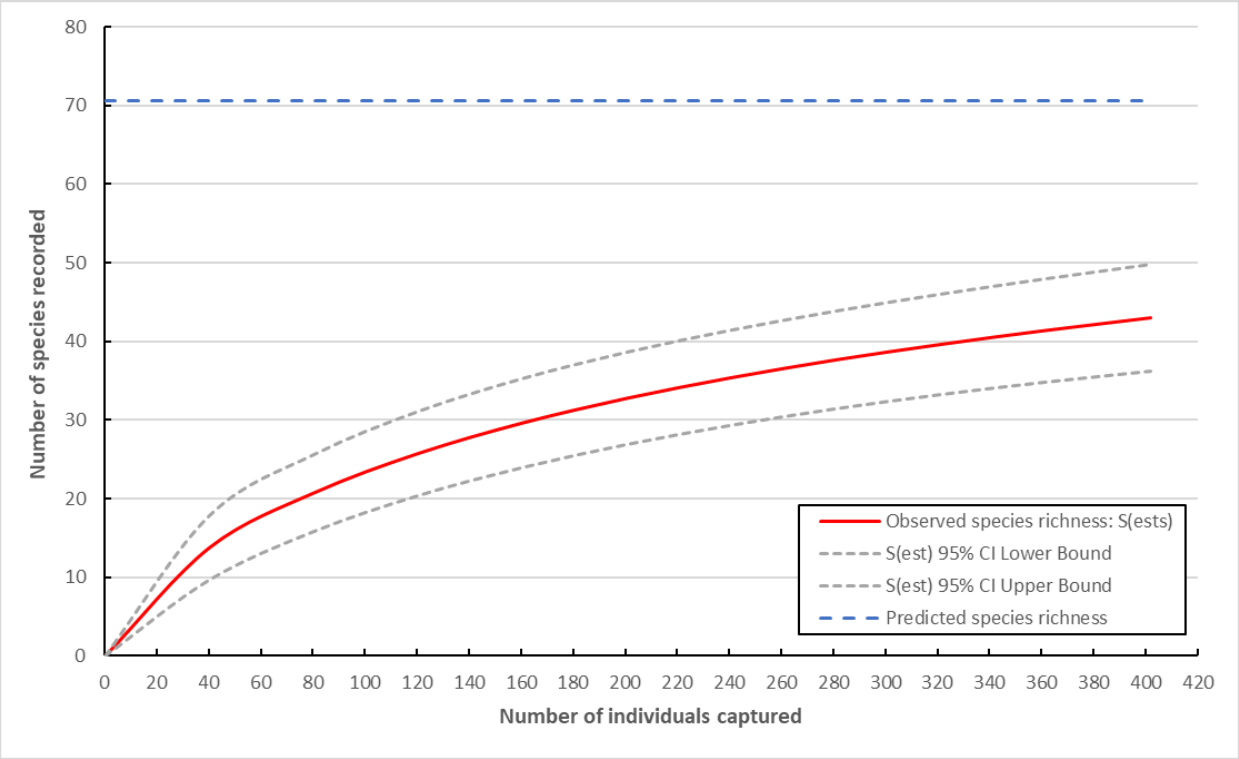


Figure 4.1 Species accumulation curve for trappable vertebrate fauna

The primary reason for the large difference between predicted and recorded species richness was the Chao 1 estimator which is very sensitive to the presence of species represented only by singletons (rare species) relative to species captured more than once. The theory behind the Chao 1 estimator is that if rare species (singletons) are still being discovered by the end of the survey, there are likely to still be more species present in the survey area that have not yet been recorded (Vavrek 2011). During the 2020 survey of Lamb Creek, sixteen species out of a total of 43 were trapped only once, hence 37% of the species were represented by singletons. This suggests that more species are likely present in the survey area than recorded during the current survey.

Opportunistic and spotlighting records of trappable fauna (excluding microbats and species too large to be captured in the traps deployed) yielded an additional nine species of small to medium-sized ground dwelling vertebrate fauna that could have been captured in traps. Hence, the actual number of trappable fauna recorded during the survey was 52, which represents 73% of the predicted total.

A comparison with data from the 2012 survey (Rapallo 2012a) yielded a total of 26 mammals (of which 19 trappable), 68 reptiles, and two frogs recorded from the Lamb Creek project area over both surveys combined (see Appendix V). Out of the combined total of 96 species of mammals, reptiles, and frogs recorded from Lamb Creek to date, 49 were recorded in both surveys, 33 were recorded only in 2012, and fourteen were recorded only in 2020.

The desktop study identified 46 mammals, 91 reptiles, and seven frog species within 50 kilometres of the survey area (section 4.1.2). Of these, 24 mammals were not considered trappable as they were either too big for the traps deployed, or were bats. Hence, the total number of potential trappable fauna identified in the desktop is 113 species. This number exceeds the predicted species richness, which is not unexpected, as not all species occur everywhere within their range, and not all habitats that appear

potentially suitable may meet the exact specifications that a particular species needs. The Pilbara region is well surveyed, and this indicates that the desktop list provides a good representation of all potential species within 50 kilometres of the survey area. Further trapping efforts in the survey area are likely to yield additional species for the Lamb Creek project.

Based on current desktop results, differences between the two survey years, as well as the shape of the species accumulation curve, it is expected that additional surveys would improve the known species richness of the Lamb Creek survey area. However, without considerable trapping effort, further surveys are unlikely to yield additional trappable conservation significant vertebrate fauna. The habitat suitable for those species not yet recorded in the survey area (see desktop section 4.1.4) are primarily within the areas to the south of the haul road, which is outside of the survey area.

4.2.5.2 Species accumulation curve for systematic bird survey data

The species accumulation curve for systematic bird survey data is presented in Figure 4.2, plotting the number of bird species recorded (y-axis) against the total number of detections for all species combined (x-axis). Observed species richness is presented as a sample-based rarefaction curve, computing the mean number bird species (S(est)) over all possible combinations of 1, 2, and up to 335 detections (Colwell *et al.* 2012). Predicted species richness was calculated by taking the average of the estimators ACE, Chao 1, Jackknife 1, and Bootstrap, as appropriate for abundance data (Colwell 2013).

Systematic bird surveys recorded 51 bird species. The predicted bird species richness was 67 species, which indicates that 76% of the (estimated) bird species present in the survey area had been detected through systematic surveys. This is reflected in the species accumulation curve, which after 335 detections is not yet approaching an asymptote (Figure 4.2).

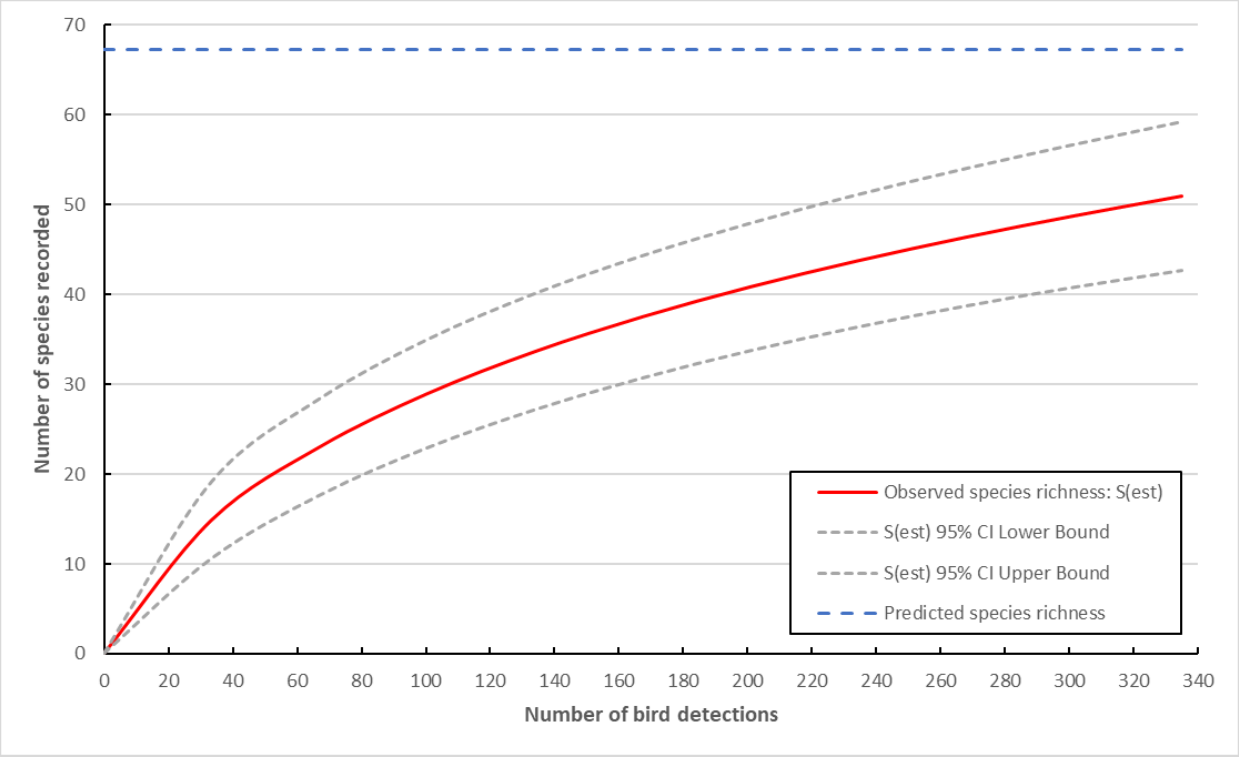


Figure 4.2 Species accumulation curve for systematic bird surveys

Similar to the trapping data, the Chao 1 estimator for the systematic bird data was very high compared to the other estimators, which is reflected by the fact that out of the total 51 species, 15 were

represented by singletons (29%). A high Chao 1 is a strong indication that further rare species occur in the survey area that have not yet been detected during the survey.

Opportunistic bird records collected during the survey (plus three Little button-quails captured in traps) yielded an additional twelve species. Hence the actual number of bird species recorded during the survey was 63, which represent 94% of the predicted total.

Bird assemblages of a given area often show variability between seasons and between years. A comparison with data from the 2012 survey (Rapallo 2012a) yielded a total of 86 bird species recorded from the Lamb Creek project area over both surveys combined (see Appendix V). Of these species, 47 were recorded in both survey years, 29 were only recorded in 2012, and 10 were only recorded in 2020. The total number of 86 bird species exceeds the predicted species richness of 67 bird species. However, since predicted species richness was calculated on data from the 2020 survey, it can only estimate total bird species richness at the time of the survey, and not across seasons or years.

The desktop study identified 157 bird species recorded within 50 kilometres of the survey area. The survey area contains potentially suitable habitat for 131 of these species (excluding ducks, waders, and other waterbirds).

Based on the desktop results, seasonal variability in bird assemblages, and the shape of the species accumulation curve, it is expected that additional surveys would further improve the known bird species richness of the Lamb Creek survey area. However, further surveys are unlikely to yield additional conservation significant bird species for the survey area.

4.4 Conservation significant vertebrate fauna

Five species of vertebrate fauna listed as conservation significant under either the Western Australian *Biodiversity Conservation Act 2016* (BC Act) or the federal *Environment Protection and Biodiversity Conservation Act 1950* (EPBC Act)[1] or listed as priority species by the department of Biodiversity Conversation and Attractions (DBCA) have been recorded from or proximal to the current Lamb Creek survey area to date, as listed below.

- Northern quoll (*Dasyurus hallucatus*) listed Endangered under both the EPBC Act and BC Act – Confirmed, recorded in 2012.
- Ghost bat (*Macroderma gigas*) listed Vulnerable under both the EPBC Act and the Biodiversity Conservation Act 2016 (BD Act) listed Confirmed, recorded in 2012 and 2020.
- Western pebble-mound mouse (*Pseudomys chapmani*) listed DBCA Priority 4 – Confirmed, recorded throughout the project area in 2012 and 2020.
- Fork-tailed Swift (*Apus pacificus*) listed Migratory and Marine under the EPBC Act – Confirmed, recorded in 2012.
- Pilbara olive python (*Liasis olivaceus barroni*) listed Vulnerable under both the EPBC Act and the BC Act – Confirmed, recorded in 2012.

4.4.1 Northern quoll

The Northern quoll is listed as Endangered under the EPBC act and the BC Act. The species, once widely distributed across northern Australia, is now restricted to three isolated populations; the Pilbara, the Kimberley and Northern Territory, and Queensland, in addition to a number of islands along the north coast (DoE 2016). Such declines are primarily due to the western expansion of the cane toad which is highly toxic to predators when consumed (Woinarski *et al.* 2008). Other threats include predation from feral predators such as foxes and cats, inappropriate fire regimes, disease, habitat degradation through grazing as well as habitat destruction through mining and agriculture (Woinarski *et al.* 2011).

The Northern quoll is both arboreal and terrestrial, inhabiting ironstone and sandstone ridges, scree slopes, granite boulders and outcrops, drainage lines and riverine habitats (Braithwaite & Griffiths 1994, Oakwood 2002). Rocky habitats tend to support higher densities, as they offer protection from predators and are generally more productive in terms of availability of resources (Braithwaite & Griffiths 1994, Oakwood 2002). Other microhabitat features important to the species include: rock cover; proximity to permanent water and time-since last fire (Woinarski *et al.* 2008). Dens occur in a wide range of situations including: rock overhangs, tree hollows, hollow logs, termite mounds, goanna burrows and human dwellings/infrastructure, where individuals usually den alone (Oakwood 2002, Woinarski *et al.* 2008). Northern quoll populations go through boom-bust cycles with population crashes recorded in years of drought (Hernandez-Santin, et al. 2019, Moore et al. 2021).

The Northern quoll is moderately common through part of the Pilbara (within 150 kilometres of the coast) and therefore usually present where suitable rocky habitat is present. Northern quoll occur in the hard rocky habitats of the Pilbara that provide denning habitat and safety from predators and fire (Hill & Ward 2010, Turpin & Bamford 2014).

Habitat critical to the survival of the northern quoll is defined as rocky habitats such as ranges, escarpments, mesas, gorges, breakaways, boulder fields, major drainage lines, or treed creek lines (DotEE

[1] Note that all species listed under the EPBC Act as Threatened (see Appendix II) are considered Matters of National Environmental Significance (MNES).

2016). The gorge, gully, breakaway habitat within the higher elevation areas of the retention licence and ranges adjacent to the proposed haul road corridor fit the definition of critical northern quoll habitat, defined by large areas of condensed, complex rocky habitat, with intact vegetation occurring within and in the areas surrounding habitat (DotEE 2016, Moore et al. 2021). Habitat complexity within-patch scale (Moore *et al.* 2021) is present for denning via the deep cracks and crevices of the extensive outcropping. Suitable denning habitat for this species occurs within the gorge, gully, breakaway habitat within the higher elevation areas of the retention licence and the ranges adjacent to the proposed haul road corridor. Northern quoll may forage/disperse through surrounding habitats such as hill crest/hillslope and drainage habitats.

No evidence of Northern quoll was detected during the 2020 survey, despite significant effort including searching on foot for scats, footprints and other signs, and placement of 40 camera traps (279 camera nights) (Figure 3.1). The 2012 trap effort of 182 camera nights and 300 cage trap nights yielded one individual recorded via camera and a scat from gorge, gully, breakaway habitat located in the ranges adjacent to the current haul road corridor (Rapallo 2012a). In addition, a scat was recorded during April 2012 flora surveying from a rock overhang in the gorge, gully, rocky breakaways habitat of the eastern part of the retention licence (M. Weerheim *pers. comm*.) (Figure 4.3). The 2012 survey coincided with the recruitment season for northern quoll (Hernandez-Santin, et al. 2019).

Northern quoll was recorded very infrequently from the adjacent Mining Area C, despite significant survey effort over many years, and all records were scats only (Biologic 2017).

Based on desktop evidence and records from 2012 and 2020, it appears that northern quoll are locally present at low density. It is unlikely that an extensive population of northern quoll inhabits the survey area, or habitats adjacent to it, bearing in mind that the current 2020 survey was completed at reconnaissance level, and survey work to date (2012 and 2020) and did not cover all areas of potential gorge / gully habitat within the project area.

4.4.2 Ghost bat

The Ghost bat (*Macroderma gigas*) is listed It is listed as Vulnerable under both the Western Australian *Biodiversity Conservation Act 2016* and under the Commonwealth EPBC Act. The species has declined significantly over the last 200 years and currently has a patchy and widespread distribution across northern Australia (Van Dyck & Strahan 2008). The availability of suitable roost caves is critical for the species' persistence and survival (Armstrong & Anstee 2000).

Rapallo recorded ghost bat at Lamb Creek during a detailed fauna survey in 2012. At that time, the ghost bat was Priority 4 and not considered an MNES species. Hence, (DEWHA 2010) did not apply to the ghost bat at the time. Furthermore, ultrasonic recordings in 2012 failed to detect ghost bat calls as, at the time, the consensus was that their echolocation and social calls were difficult to distinguish from other signals based on their structure (Armstrong 2010). All ghost bat records from Rapallo (2012) were through direct sightings on the few select caves that could be visited by the team on foot as access via helicopter was not provided.

Bat survey work completed in 2020-2021 was a component of the detailed survey in order to assess general bat populations of the survey area. Caves 1, 2 and 3, where ghost bats had been detected visually in 2012 were re-visited in April 2020. Caves 4 and 5 were identified after the 2020 field survey when additional regional information became available. Because they were very close to the survey area (approximately 200 meters) caves 4 and 5 were visited opportunistically in February 2021 during SRE field

work, with some additional recordings also made at caves 1 and 2. The purpose of this was to make use of the opportunity to accumulate more survey data, as a helicopter was available.

Calls at times consistent with foraging visits were detected at Caves 2 and 3 in April 2020 and at Caves 3 and 4 in February 2021. At least four diurnally roosting ghost bats were confirmed at Cave 1 in 2020. This was confirmed by the temporal pattern of their recorded calls on three nights. Both social and ultrasonic calls were recorded before dawn followed by similar numbers of calls soon after dusk that day.

In 2021 calls consistent with diurnally roosting ghost bats were detected at Cave 5. These records are consistent with the Ghost bat being present in the region (Bat Call WA 2021) including the adjacent Mining Area C (Biologic 2017, 2016b).

Cave 1 is provisionally assigned as a Category 2 roost while Caves 2, and 3 are provisionally Category 3. Caves 4 and 5 are known Category 3 and 2 respectively (Bat Call unpublished data) and occur nearby to a number of other caves, shelters and overhangs identified in Biologic (2016b).

Caves that are confirmed as Category 2 and groupings of caves that surround them are critical Ghost bat habitat (Bat Call WA 2021). Based on this, caves 4 and 5 are confirmed critical habitat, and cave 1 is potential critical habitat pending confirmation. Caves are initially given a provisional categorisation based on the first visit. In order for this status to become confirmed, permanent monitoring is required to confirm pattern of usage over a two-year period (B. Bullen *pers. comm*. January 2022).The roost categories are detailed in (Appendix VIII).

Ghost bat will often forage more broadly across habitats, often utilising drainage lines and other habitats where prey species are likely to be most abundant (Richards *et al.* 2008, Tidemann *et al.* 1985). Therefore, until habitat requirements for Ghost bat in the Pilbara are refined it is assumed that suitable foraging habitat exists across all habitats of the survey area.

Cave 1 and cave 3 are located in the retention licence (R47/19), within respectively 325 metres and 600 meters from footprint V3, while cave 4 and 5 are located adjacent to the project area within 200 meters of the haul road footprint in L47/713 (Figure 4.3).

In summary, ghost bat was confirmed in the areas surveyed at Lamb Creek in 2012, 2020 and 2021. To date no targeted work on ghost bats as per DEWHA (2010) or detailed cave/roost assessments have been completed in the Lamb Creek project area, and some areas have never been visited as they were added after the surveys were completed. The work completed on ghost bats in 2012, 2020 and 2021 was either a component of a detailed survey or opportunistic records.

4.4.3 Pilbara olive python

The Pilbara olive python (*Liasis olivaceus barroni*) is listed Vulnerable under both the *Biodiversity Conservation Act 2016* and the EPBC Act. This species was not recorded in 2020, but in 2012 it was recorded crossing stony plain habitat between the Hamersley massive (hillcrest/hilltop habitat) and the Lamb Creek (medium drainage) within the now discounted southern haul road option (Rapallo 2012a), (Figure 4.3). The species has been recorded from the adjacent Mining Area C (Biologic 2017) and from four DBCA records in the vicinity (Appendix VI).The Pilbara olive python favours areas with permanent water holes in rocky rangers or along rivers (Pearson 1993).

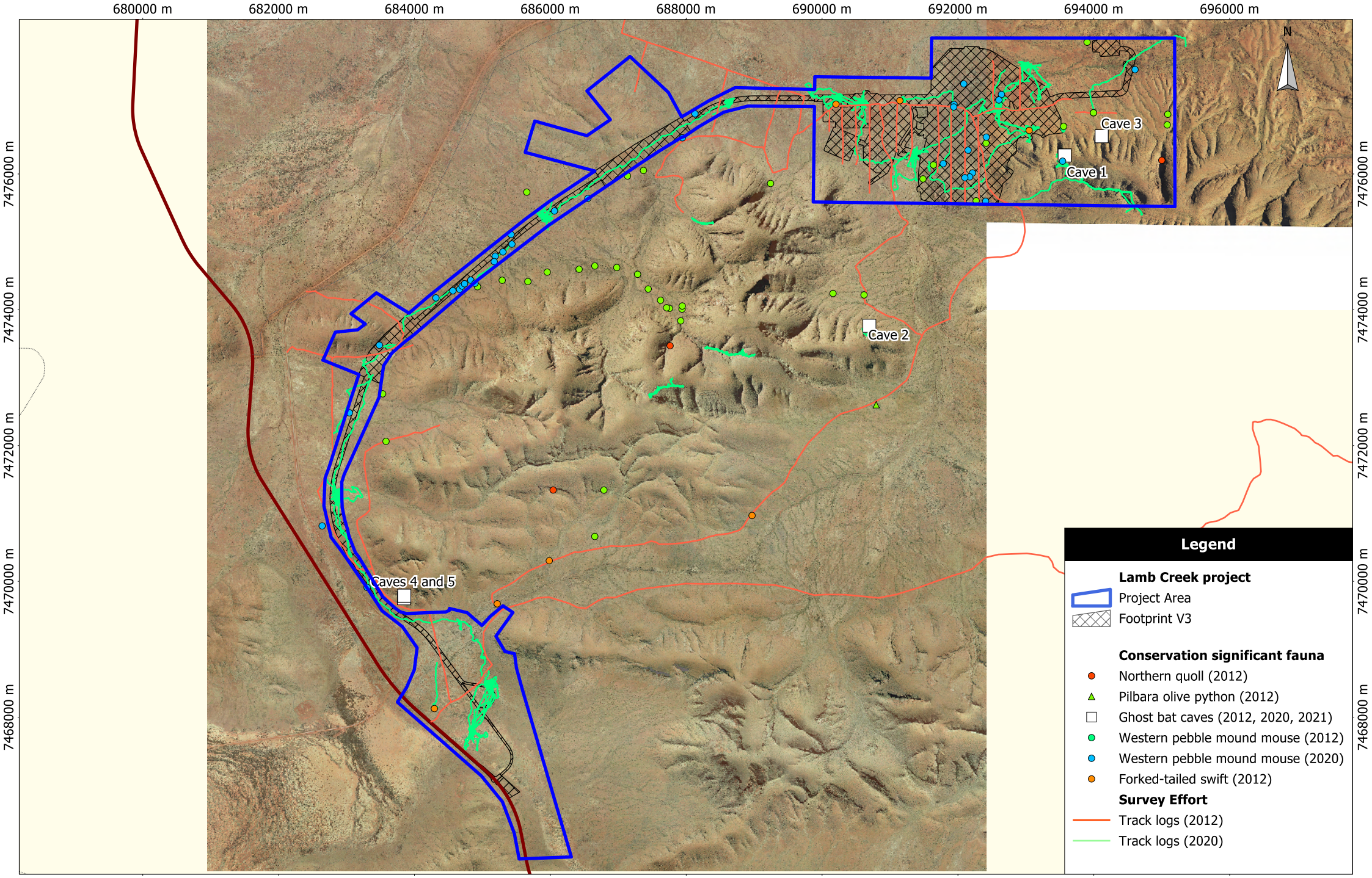
This species is likely to be found within the gorges and gullies of the ranges adjacent to the proposed haul road corridor and may forage/disperse through surrounding habitats such as stony plain and drainage habitats.

4.4.4 Western pebble-mound mouse

The Western pebble-mound mouse (*Pseudomys chapmani*) is listed by the DBCA as Priority 4 which is defined as taxa in need of monitoring. The species has experienced a significant decline in their range from the Gascoyne and Murchison (Van Dyck & Strahan 2008). Pebble mounds were recorded in both 2012 and 2020 from the hill crest/hill slopes and stony plain habitats (Figure 4.3). The Western pebble-mound mouse was also recorded throughout similar habitat in the adjacent Mining Area C project area (Biologic 2017) and appears to be locally common.

4.4.5 Fork-tailed swift

The Fork-tailed swift (*Apus pacificus*) is listed Migratory and Marine under the EPBC Act. It was not recorded in 2020, but in 2012 it was recorded from all habitats of the survey area (Rapallo 2012a) . This species is migratory, and would forage above the Lamb Creek project area during summer (Johnstone & Storr 1998). The species is entirely aerial and would not land in the survey area. Hence, project activities on the ground are unlikely to impact this species.



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Detailed Vertebrate Fauna Survey

Original Size: A4 Scale: 1:70,000
Datum: MGA94 Zone 50
0 2 km

Figure 4.3

Conservation significant vertebrate fauna records 2012 and 2020 surveys

4.5 Broad fauna habitats

Seven broad fauna habitats were identified in the survey area, as mapped in Figure 4.4. Habitats are summarised in Table 4.4 and Table 4.5 with habitat assessment data presented in Appendix IX.

Table 4.4 Broad Fauna Habitats

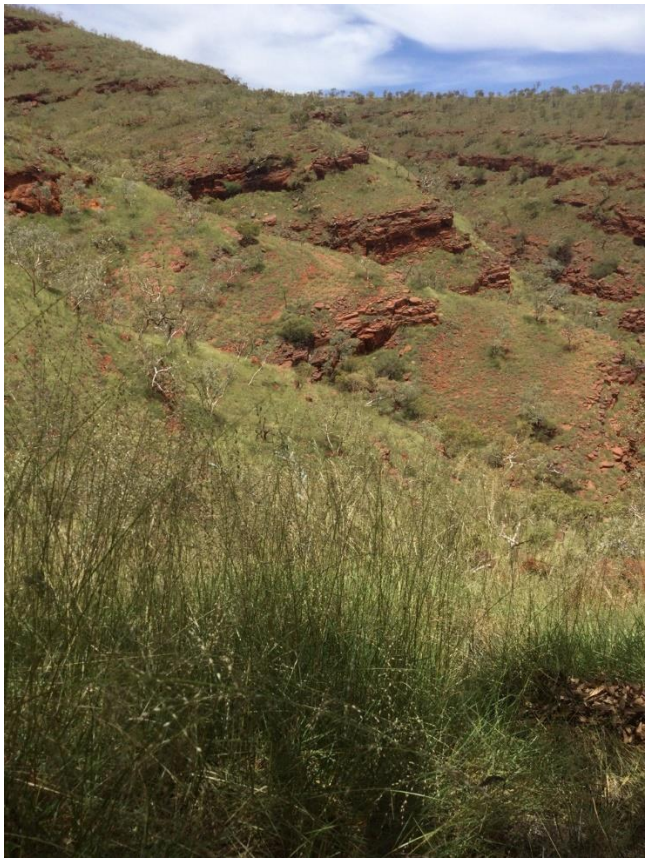
Broad fauna habitat	Area (ha)
Stony plain	518
Hillcrests/hillslope	319
Mulga/corymbia plain	292
Minor drainage	211
Tussock grassland plain	137
Medium drainage	113
Gorge, gully and rocky breakaway	55
Road – Bitumen (not a habitat)	1
	1645

Table 4.5 Fauna habitat descriptions

Habitat	Representative Photo
Stony plain Plains and lower slopes of spinifex hummock grasslands (or in small patches, tussock grass) on red sandy clay loam to loam soil. Typically, with a mantle of gravel (less so on the valley floor adjacent to drainage, where soils are loamier). Little to no overstory aside from scattered trees or patches of mixed shrubs often regenerating from fire. Generally, *Eucalyptus leucophloia* occurs on the slopes, *Eucalyptus gamophylla* on lower slopes and *Corymbia hamersleyana* is typically associated with drainage). Potential conservation significant species: ▪ Night parrot (possible foraging/ dispersal in small area of unburnt mature Triodia near LCS03) ▪ Ghost bat (foraging/ dispersal) ▪ Grey falcon (foraging/ dispersal ▪ Western pebble-mound mouse (breeding/ shelter, foraging/ dispersal) ▪ Pilbara olive python (foraging/dispersal) Sites: LC16, LC22, LC24B, LC24A, LC27B, LC28, LC29A, LC30, LC37A, LC40, LCS08, LCS03 LCS04 Area: 518 hectares Significance: Low	

Habitat	Representative Photo
Hillcrest/hill slopes Slopes and hill crests of the higher elevation areas. Spinifex hummock grassland dominated with scattered Eucalyptus leucophloia trees and mallee, and acacia and grevillea shrubs on rocky, red skeletal soils (loams to clay/loam). Potential conservation significant species: ▪ Ghost bat (foraging/ dispersal) ▪ Western pebble-mound mouse (breeding/ shelter, foraging/ dispersal) ▪ Northern quoll (foraging/ dispersal) Area : 319 hectares Sites: LC11, LC19, LC17, LC38, LC26, LCS10 Significance: Moderate	
Mulga/corymbia plain Open mulga shrubland patches over spinifex or tussock grassland on loams to sandy clay loam occurring in areas of sheet flow drainage. The mulga patches are surrounded by run-off zones of stonier plain of open spinifex/tussock grassland under very open mulga/ *Corymbia deserticola (*shrubland). Potential conservation significant species: ▪ Ghost bat (foraging/ dispersal) ▪ Grey falcon (foraging/ dispersal ▪ Gane's blind snake Area: 291 hectares Sites: LC04, LC05, LC06, LC07, LC08, LC09, LC10, LC15, LCS05 and LCS06 Significance: Moderate	

Habitat	Representative Photo
Minor drainage The smaller narrow drainage channels and shallow gullies that bisect the stony plain habitat and hill slopes, forming flow zones on the valley floor. Mixed open shrubland to shrubland often over tussock grass and herbs with occasional fringing trees (scattered *Eucalyptus leucophloia, Corymbia or Eucalyptus gamophylla)* Potential conservation significance species: ▪ Ghost bat (foraging/ dispersal) ▪ Grey falcon (foraging/ dispersal) ▪ Peregrine falcon (foraging/ dispersal) ▪ Pilbara olive python (foraging/ dispersal) ▪ Northern quoll (foraging/ dispersal) Area : 210.6 hectares Sites: LC18, LC23, LC25, LC27A, LC36, LC37, LC42A, LC44, LC43, LC45, LC29B Significance: Moderate	
Tussock grassland plain Tussock grass (Aristida i*naequiglumis*, *A. contorta*, *Themeda triandr*a) dominated largely undefined drainage plain. Contains occasional open mulga woodland stands or scattered mulga individuals on brown sandy clay loam to loams. Contains patches of spinifex. Potential conservation significant species: ▪ Ghost bat (foraging/ dispersal) ▪ Grey falcon (foraging/ dispersal ▪ Peregrine falcon (foraging/ dispersal) ▪ Gane's blind snake ▪ Short-tailed mouse Area : 137 hectares Sites: LC31, LC32, LC33, LC34, LC35, LC41, LC42, LCS01, LCS02 Significance: Moderate	

Habitat	Representative Photo
Medium drainage Wide loamy drainage channels to undefined drainage (gravelly) containing occasional emergent *Corymbia hamersleyana* over patches of low mixed shrubs over buffel grass and tussock grass dominated understory on low relief. Contains very occasional mulga stands in loamier soils. Potential conservation significant species: ▪ Ghost bat (foraging/ dispersal) ▪ Grey falcon (breeding/ nesting, foraging, dispersal) ▪ Pilbara olive python (foraging/dispersal) ▪ Northern quoll (foraging/ dispersal) ▪ Peregrine falcon (foraging/ dispersal) ▪ Gane's blind snake Area : 113 hectares Sites: LC01, LC02, LC03, LC39, LC39A, LCS07, LCS09 Significance: Moderate	
Gorge, gully and rocky breakaway The wide rocky gullies and gorges that bisect the hillcrest/hillslopes of the higher elevation areas containing caves, deep cracks, and crevices. Breakaways occur as the rugged edges of hillslopes. Spinifex hummock grassland with mixed shrubland patches or occasional ficus occurring in shaded locations or occasional *Eucalyptus leucophloia.* otential conservation significant species: ▪ Pilbara olive python (breeding/ shelter, foraging/ dispersal) ▪ Northern quoll (breeding/ shelter, foraging/ dispersal) ▪ Ghost bat (roosting/foraging/ dispersal) ▪ Peregrine falcon (breeding/foraging/ dispersal) ▪ Pilbara barking gecko ▪ Gane's blind snake Area : 54.7 hectares Sites: LC13, LC21, LC12, LC14, LC20, LC12, LC14, LC20 Significance: High	

4.5.1 Stony plain

A habitat of the lower slopes, undulating and level plains, the stony plain habitat often occurs in shallow valleys below hill systems. This habitat typically has a low habitat complexity due to low diversity of microhabitat and minimum shading from vegetation and landform dependent on surrounding topography and outcropping.

The stony plain habitat is the most extensive habitat on the survey area (518 hectares), covering most of the retention licence and haul road corridor on the lower valley sides to valley floor. At Lamb Creek this habitat is characterised by little to no overstory aside from scattered trees or patches of mixed shrubs often regenerating from fire. *Eucalyptus leucophloia* often occurs on the slopes, *Eucalyptus gamophylla* on the valley floor and lower slopes and *Corymbia hamersleyana* grades into drainage. Within the survey area the stony plain typically has low habitat complexity with microhabitats restricted to infrequent rocky outcrops and limited shade provided by vegetation.

Stony plain habitat is a common habitat in the Pilbara, particularly in the Boolgeeda Land System. Aerial photography and helicopter visuals confirm that this broad habitat occurs outside of the survey area. There are some species of conservation significance that may utilise this habitat, primarily as foraging or dispersal. However, they are not restricted to this habitat type. The stony plain habitat is ranked as low significance (Table 4.5, Appendix IV).

4.5.2 Hill crests/hill slopes

Hillcrests and hillslopes are the rocky crest and slopes of the large hills and ranges. This habitat typically has a low habitat complexity due to low diversity of microhabitat and minimum shading from vegetation and landform dependent on surrounding topography and outcropping.

At Lamb Creek this habitat is confined to the higher elevation areas (centre and south-east corner of the retention licence) and falls within the Newman Land and Boolgeeda Land System. There are no high elevation south facing slopes and outcropping with cracks and crevices predominately occurs in the adjacent gorge, gully and rocky breakaway habitat. This broad habitat can contain areas of outcropping, outwash (minor drainage) and breakaway that were too small to map in detail.

Hill crests and hill slopes formed the second most extensive habitat within the survey area, covering 319 hectares. Vegetation is characterised by a *Triodia hummock* grassland with scattered *Eucalyptus leucophloia* trees and mallee, and acacia and grevillea shrubs.

Aerial photography, helicopter visuals, and ground-truthing for camera trapping confirmed that this habitat extends outside of the retention licence, to the south of the haul road corridor. In a regional context, rocky spinifex dominated hillcrests and hillslopes habitats of the Pilbara are common.

Conservation significant species are likely to disperse and forage within these habitats due to the proximity of the gorge, gully and rocky breakaway habitat, therefore, this habitat is ranked as moderate significance (Table 4.5, Appendix IV).

4.5.3 Gorge, gully and rocky breakaway

Gorges are deeply incised, with vertical cliff faces, while gullies are more open and shallower. Breakaways refer to rugged slopes with vertical fall on the edge of a hill or range. This habitat can support caves and

semi-permanent rock pools and has a moderate to high habitat complexity largely dependent on landform and aspect.

At Lamb Creek this habitat is confined to the higher elevation areas within the retention licence and falls within the Newman Land System. This habitat bisects the hillcrest/hillslopes of the higher elevation areas and contains caves, deep cracks/crevices, and shaded microhabitats from both vegetation and landform shadow. The more open, shallow gullies contain have lower habitat complexity with microhabitats occurring within the rocky substrate and partial shade provided by vegetation and landform. The deepest gorge on the retention licence has northern-facing slope and there are no south facing gorges or deep gullies.

This habitat occurs as two deep gorges and two smaller gorges in the centre and south-east corner of the retention licence and is typically vegetated with spinifex hummock grassland with mixed shrubland patches or ficus occurring in shaded locations and occasional *Eucalyptus leucophloia*. The gorge, gully and rocky breakaway habitat does not occur on the haul road corridor.

The gorge, gully and rocky breakaway habitat is one of the smallest habitats in the survey area (54.7 hectares) due to its narrow features. Aerial photography and helicopter visuals and ground-truthing for camera trapping confirmed that this habitat extends outside of the retention licence, bisecting the higher elevation areas adjacent to the proposed haul road corridor. In a regional context, the gorges, gully and rocky breakaway habitats of the Pilbara are restricted to the Chichester and Hamersley IBRA subregions but are well represented. Locally, this habitat occurs at Mining Area C (Biologic 2017) and within Karijini National Park.

The gorge, gully and rocky breakaway habitat are considered important for conservation significant fauna, including Matters of National Environmental Significance species. The gorge, gully and rocky breakaway habitat is ranked as high significance (Table 4.5, Appendix IV).

4.5.4 Medium drainage

Medium drainage is defined as the narrow gravelly drainage channels that become wider on the lower plains of the valley. This drainage is made up of minor tributaries that feed into the major creek lines of the catchment. Medium drainage is often fringed by *Corymbia hamersleyana*. Medium drainage habitat typically exhibits a moderate habitat diversity with some tree hollows and woody debris (logs and leaf litter) and typically does not contain semi-permanent/ permanent pools or the large fringing river gums.

At Lamb Creek this habitat occurs on the valley floor of the retention licence as wide loamy drainage channels to undefined drainage (gravelly) containing occasional emergent *Corymbia hamersleyana* over patches of low mixed shrubs over buffel grass and tussock grass dominated understory on low relief. Contains very occasional mulga stands in loamy soils as the habitat transitions into mulga/corymbia plain habitat.

The medium drainage habitat provides higher protection than the surrounding stony plain habitat due to partial shading from vegetation and some leaf litter and woody debris, however it was noted in 2020 and 2021 that detritus and litter within this habitat was sparse or in piles without accumulated soil - indicating recent fast flow and little opportunity for soil and fine detritus to accumulate. This habitat typically has deeper loamier soils than the surrounding stony plain, therefore greater potential to retain moisture.

The medium drainage habitat although small in area (113 hectares) due to narrow features is relatively common throughout the Pilbara. Aerial photography and helicopter visuals confirm that this habitat occurs outside of the survey area aligning with the Lamb Creek that feeds into Marillana creek.

The medium drainage habitat provides foraging and dispersal opportunities for conservation significant fauna including Matters of National Environmental Significance species. The medium drainage habitat is ranked as moderate significance (Table 4.5, Appendix IV).

4.5.5 Minor drainage

Minor drainage represents the small drainage channels that originate from the hillcrest/ hillslope habitats and bisect the stony plain habitat. Minor drainage typically exhibits a low-moderate habitat complexity, with some shading from vegetation but low soil moisture levels, low accumulated litter, and generally gravelly soils.

At Lamb Creek this habitat occurs throughout the survey area and represents the smaller drainage channels and shallow gullies. Typically, vegetation can be denser than the surrounding habitat of stony plain or hill slopes and hill crests, consisting of mixed open shrubland to shrubland often over tussock grass and herbs with occasional fringing trees (scattered *Eucalyptus leucophloia, Corymbia hamersleyana or Eucalyptus gamophylla*. The substrate can be sandy in places but generally consists of a skeletal loam gravel or stone. This broad habitat although small in area (211 hectares) is relatively common throughout the Pilbara. Aerial photography and helicopter visuals confirm that this habitat occurs outside of the survey area.

There are some species of conservation significance that may utilise this habitat, primarily as foraging or dispersal, however, they are not restricted to this habitat type. The minor drainage line habitat is ranked as moderate significance (Table 4.5, Appendix IV).

4.5.6 Tussock grassland plain

The tussock grassland plain habitat is defined as tussock grassland dominated drainage plain (hardpan) containing open mulga woodland stands or scattered mulga individuals on brown sandy clay loam to loams with surface mantles of very few to few pebbles of ironstone.

This habitat occurs at the southern end of the haul road corridor within the Wannamunna and Boolgeeda land systems. This habitat receives run-on from adjacent hills and surrounding stony plain and much of the drainage is undefined. The tussock grassland broad habitat is not widespread throughout the Pilbara, compared with the adjacent spinifex stony plain and hillcrest/hillslope habitats and aligns broadly with the groves landform unit of the Boolgeeda land system, the hardpan plains landform unit of the Wannamunna land system and 'valley floor mulga' as described by Kendrick (2001).

Aerial photography suggests that this habitat continues south east from the survey area parallel to the Great Northern Highway, aligning with the mulga habitat found at Area C (Biologic 2017), approximately three kilometres to the south-south west of the survey area.

Mulga (species in the *Acacia aneura* complex) is widespread across arid and semi-arid regions of Western Australia, covering approximately 37 percent of the surface area of Western Australia (Fox 1980). Grove-intergrove Mulga communities of the eastern Hamersley range were considered as "ecosystems at risk" by (Kendrick 2001) because it is thought that sensitivity to disturbance is greatest at the northern limit of

mulga's distribution (Fox 1980), related to the dominant summer rainfall pattern of the Pilbara (Fox 1980, Kendrick 2001, Maslin & Reid 2012).

Kendrick (2001) lists a number of 'ecosystems at risk' including grove/inter-grove mulga of the eastern Hamersley range, and 'valley floor mulga' within the Hamersley IBRA subregion. Given the lack of detail provided by Kendrick, it is not possible to determine if the habitats containing mulga vegetation at Lamb Creek match the mulga ecosystems at risk. However, vegetation types B, C, D and E (Rapallo 2021b) do contain *Acacia aptaneura* within the upper storey on stony or clay plains and floodplains, which broadly aligns with the broad description of 'valley floor mulga'.

Regionally, (Biota 2014) consider "valley floor mulga" to extend over a range of approximately 350 kilometres through the southern half of the Pilbara (Biota, unpublished data, cited in Biota 2014) and Onshore (2017) conclude that mulga vegetation of *Acacia catenulata* subsp. *occidentalis* and *Acacia aptaneura* that aligns with valley floor mulga' on the MAC Development Envelope is common on plains between Newman and Roy Hill (approximate range 150 kilometres).

Onshore (2017) concluded that seven other vegetation associations within BHP Billiton Iron Ore's consolidated vegetation mapping database support *Acacia catenulata* subsp. o*ccidentalis* and *Acacia aptaneura* as dominant upper storey components, and are considered to be closely affiliated with the mulga communities recorded on the lower stony plains of the MAC development area. As such Onshore (2017) does not considered the mulga communities within the MAC Development Area to be locally endemic or unique.

Neither the vegetation association nor related ecosystem of "valley floor mulga" has been nominated as a PEC by DBCA since identified as an ecosystem at risk by Kendrick (2001b) suggesting a low level of perceived conservation significance.

The tussock grassland plain habitat provides foraging and dispersal opportunities for conservation significant fauna including Matters of National Environmental Significance species. The tussock grassland plain habitat is ranked as moderate significance (Table 4.5, Appendix IV).

4.5.7 Mulga/corymbia plain

The mulga/corymbia plain habitat is defined as level plain subject to sheet flow containing mulga woodland patches adjacent to run-on zones of stonier plain.

At Lamb Creek this habitat occurs on the valley floor adjacent to medium drainage primarily in the retention licence and also in the northern section of the haul road corridor. Vegetation is broadly open mulga shrubland patches over spinifex or tussock grassland surrounded by run - on zones of stonier plain of open spinifex/tussock grassland under very open mulga/ *Corymbia deserticola* shrubland. Soils are loams to sandy clay loam.

The mulga/corymbia plain habitat exhibits a moderate habitat complexity. Mulga stands provide shade; however, the stands are not extensive or thick, therefore the shade is patchy as is the accumulated litter and associated patches of moister soil. Within the mulga patches this habitat provides loamier soil for burrowing species, however the substrate in adjacent run-on areas is predominantly hard and stony.

This habitat aligns broadly with the stony lower plains and narrow drainage floors, channels land landform unit of the Boolgeeda land system (van Vreeswyk et al. 2004) and 'valley floor mulga' as described by Kendrick (2001).

Boolgeeda is a common system in shallow valleys below hill systems such as the Newman and Rocklea land system (van Vreeswyk et al. 2004). Aerial photography and helicopter visuals suggest that this habitat occurs outside of the survey area however, ground truthing has not verified the extent of individual mulga patches beyond 50 metres south of the survey area. Valley floor mulga is discussed in detail in section 4.5.6.

Disruption to sheet flow could impact this habitat. The mulga/corymbia plain habitat provides foraging and dispersal opportunities for conservation significant fauna including Matters of National Environmental Significance species . The mulga/corymbia plain habitat is ranked as moderate significance (Table 4.5, Appendix IV).

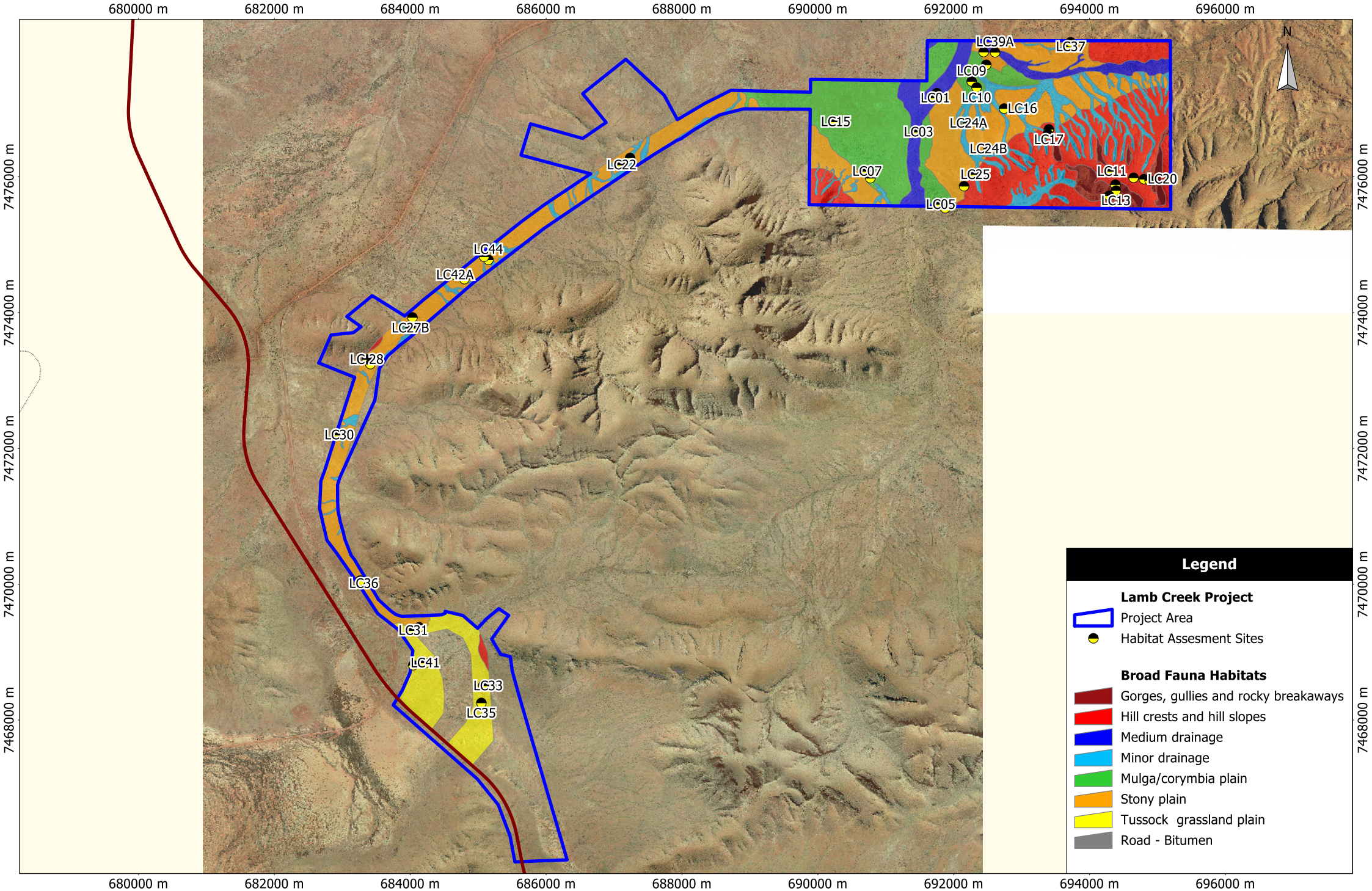
4.5.8 Disturbance

Some habitats have been disturbed via selective clearing for tracks, drill pads and laydown associated with exploration activities, particularly within the stony plain habitat of the retention licence. The majority of the survey area has been burnt over recent years, with some parts burnt several times (NAFI 2021) resulting in a mosaic of different post fire ages. See section 2.5.

4.6 Habitat Features

Water sources are a limiting factor for many ecosystems ((James *et al.* 1995), particularly within arid-zone ecosystems such as the Pilbara ((Burbidge *et al*. 2010, Doughty *et al.* 2011) and often represent areas of comparatively high ecological productivity (Murray *et al.* 2003). Continuous sources of food and moisture, and water for amphibians provides opportunities to forage and breed (James *et al.* 1995). To date there have not been permanent or semi-permanent pools recorded from the Lamb Creek project area, despite extensive use of helicopter in 2012, 2020 and 2021 for baseline surveys.

Caves can be important features within a landscape, particularly in arid zone systems, often providing stable microclimates, shelter and protection (Medellin et al. 2017). Ghost bat occurrence, or evidence of occurrence, has been recorded at five known caves on or proximal to the survey area (section 4.4.2). Cave photographs are located in Appendix VIII.



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Detailed Vertebrate Fauna Survey

Original Size: A4 Scale: 1:70,000
Datum: MGA94 Zone 50
0 2 km

Figure 4.4

Habitats of the survey area

4.7 Survey adequacy and limitations

The following sections address level of assessment, survey completeness and survey limitations. The field survey was completed in April 2020 and aligned with the following Environmental Protection Authority (EPA) guidance statements:

- *Technical Guidance – Terrestrial Fauna Surveys* (EPA 2016c)
- *Technical Guidance – Sampling methods for terrestrial vertebrate fauna* (EPA 2016b).

These guidance statements have been superseded by the current technical guidance (EPA 2020), which was published post field work (June 2020).

4.7.1 Level of assessment and survey timing

A single-phase detailed vertebrate fauna survey was conducted over 13 days, from 16 to 28 April 2020. Supplementary habitat assessment and bat call recordings occurred during the wet season between 16 and 25 February 2021. The survey level and timing were as per client request aligning with the end of the EPA (2016b, 2020) recommended survey period for reptiles in the Eremaean botanical province. The recommended survey period for birds and amphibians in the Eremaean province is after rain (EPA 2016b, 2020). As described in section 2.1, rainfall in January 2020 was above average, but below average for February and March 2020 (BOM 2020), and there was no rainfall during the survey. At the time of the survey, the area appeared to be very dry.

The primary focus of the detailed terrestrial vertebrata fauna survey was to identify the faunal assemblages present in the survey area. For this reason, conducting the survey post summer rainfall, when faunal activity is typically high was appropriate. The field survey occurred post-mating season for Northern quoll (Hernandez-Santin, *et al.* 2019), however, the cameras deployed as part of this survey were additional survey effort to the detailed survey rather than constituting a targeted survey as per the Commonwealth guidelines for Northern quoll (DoE 2016). A targeted conservation significant fauna survey (including northern quoll and ghost bat) was beyond the scope.

4.7.2 Survey completeness

Species accumulation curves for trappable fauna and birds are presented in section 4.2.5. Species richness estimators indicate that the survey recorded 61% of the estimated trappable fauna, and 76% of the estimated birds. This is reflected in the shape of the species accumulation curves, which by the end of the survey had not started to approach an asymptote. Additional trapping surveys would likely improve the known species richness of the survey area; however, further short-term trapping surveys are unlikely to yield additional conservation significant species.

4.7.3 Survey limitations

In accordance with EPA (2016c, 2020) technical guidance, an assessment of the limitations of the survey is presented in Table 4.6.

Table 4.6 Limitations of the fauna survey of the Lamb creek survey project area

Aspect	Limitation	Discussion
Scope and intensity	No	Scope and intensity of the survey were suitable to achieve the aims of a level 2 fauna survey as outlined in EPA (2016a).

Aspect	Limitation	Discussion
Availability of contextual information at a regional and local scale	No	Extensive surveying has been undertaken in the Pilbara region including an extensive body of work over BHP Mining Area C which is located directly adjacent and south of the survey area over similar land systems.
Competency/experience of the team carrying out the survey, including experience in bioregion surveyed	No	All members of the survey team have experience in conducting fauna surveys in arid Western Australia.
Proportion of fauna recorded and/or collected, any identification issues	Partial	Approximately 43% of vertebrate fauna identified in the desktop assessment were recorded during the field survey. Although the desktop assessment is likely to overestimate the number of species occurring within the survey area, appropriate sampling was conducted to adequately sample all fauna groups. Apart from SRE specimens, all observed fauna was identified at the point of observation during the field surveys. All recorded bat calls were analysed, and species identified by an external expert. The survey recorded 128 species of vertebrate fauna, including 63 bird species, 20 mammal species, 44 reptile species, and one frog species. However, in comparison with the 2012 survey, the 2020 fauna assemblage was subdued, which was likely related to low rainfall and recent fires. In addition, the 2012 survey included nocturnal spotlighting which often produces additional fauna that are not captured in traps or diurnal surveys, while in 2020 nocturnal surveys were not possible due to client safety requirements. The species accumulation curves for trappable fauna and birds indicated that additional trapping effort is likely to detect further species within the Lamb Creek survey area. The survey comprised a single-season detailed fauna survey, and was not a targeted survey for conservation significant fauna including ghost bat, northern quoll, and Pilbara olive python. The latter two species were not detected in 2020 but known to be present at Lamb Creek in 2012. These species are cryptic and take sufficient effort to detect. Targeted surveys in accordance with national guidelines (DEWHA 2010, 2011) may detect these species within the project area but this was outside the scope. The method used to sample northern quoll broadly aligned with an initial reconnaissance survey under DotEE (2016), but this was not the purpose of the survey which was designed as a detailed fauna survey. Not all critical habitat as per (DotEE 2016) was ground truthed. The camera transects deployed aimed to collect supplementary data to feed into a targeted survey. SM4 deployment completed in 2020 and 2021 did not comprise a targeted survey for ghost bat as per DEWHA (2010). This is not a limitation of this survey as it was a detailed vertebrate fauna survey and a targeted ghost bat survey was outside the scope.
Was the appropriate area fully surveyed (effort and extent)	Partial (survey area) Yes (project area)	The entire survey area (but not the project area) was covered through the use of helicopters which enabled access to all areas. Approximately 555 hectares (25%) of the current project area has not been covered by fauna surveys. Spotlighting was not conducted due to client safety restrictions. Often nocturnal surveys detect additional species including owls

Aspect	Limitation	Discussion
		and nightjars, reptile or mammal species that are not typically captured in traps, and species like frogs which most frequently call at night. The survey was completed as a single-phase detailed vertebrate fauna survey, and not a targeted conservation significant fauna survey.
Access restrictions within the survey area	No	All survey areas were accessible by helicopter.
Survey timing, rainfall, season of survey	Partial	The survey was completed in late April, which falls within the EPA (EPA 2016b) recommended timing to survey reptiles in the Eremaean botanical province. The recommended survey time for birds and frogs is immediately after rainfall events. Rainfall in the two-month preceding the survey was low compared to the annual average and conditions over most of the project area were dry. This is a factor of the survey being single-season only. A single-season survey is unlikely to sample all fauna species present, either because they are infrequently encountered, or because they are not present year-round.
Disturbances that may have affected the results of the survey (e.g. fire, flooding, clearing)	No	The survey area experienced fires in recent years, and the vegetation over most of the survey area was regenerating and relatively sparse compared to unburnt conditions. This is likely to have influenced the overall diversity and abundance of species, however where possible trap sites were positioned in pockets of unburnt habitat within the burn mosaic.

5 Conclusion

Five species of vertebrate fauna listed as conservation significant under either the Western Australian *Biodiversity Conservation Act 2016* (BC Act) or the federal *Environment Protection and Biodiversity Conservation Act 1950* (EPBC Act) or ranked as a priority species by the Department of Biodiversity Conversation and Attractions (DBCA) have been recorded from or proximal to the Lamb Creek project area to date.

- Northern quoll (*Dasyurus hallucatus*) listed Endangered under both the EPBC Act and BC Act – Confirmed, recorded in 2012.
- Ghost bat (*Macroderma gigas*) listed Vulnerable under both the EPBC Act and the BC Act - Confirmed, recorded in 2012 and 2020.
- Western pebble-mound mouse (*Pseudomys chapmani*) DBCA Priority 4 – Confirmed, mounds recorded throughout the survey area in 2012 and 2020.
- Fork-tailed Swift (*Apus pacificus*) listed migratory and marine under the EPBC Act – Confirmed, recorded in 2012.
- Pilbara olive python (*Liasis olivaceus barroni*) listed Vulnerable under both the EPBC Act and the BC Act – Confirmed, recorded in 2012.

The desktop review identified 29 species of conservation significance (excluding species listed solely as EPBC Marine) for which records, or potential habitat exist within 50 kilometres of the project area.

Five species identified in the desktop were recorded during the 2012 and 2020-2021 surveys, as discussed above. Three species were considered likely to occur within the survey area. These were Peregrine falcon (*Falco peregrinus* – listed Other Specially Protected Fauna under the BC Act), Gane's blind snake (*Anilios ganei* –DBCA Priority 1) and Pilbara barking gecko (*Underwoodisaurus seorsus* - DBCA Priority 2).

Four species of conservation significance were regarded as possibly occurring within the survey area these were Night parrot (*Pezoporus occidentalis* – listed Critically Endangered under the BC Act and Endangered under the EPBC Act), Grey falcon (*Falco hypoleucos* – listed Vulnerable under both the EPBC Act and the BC Act), Letter-winged Kite (*Elanus scriptus* – DBCA Priority 1), and the Short-tailed mouse (*Leggadina lakedownensis* – DBCA Priority 4).

Night parrot was not detected via acoustic recorder in 2020. Much of the spinifex across the survey area has been frequently burnt and habitats of the survey area do not include mosaics with samphire and chenopod shrublands, salt lake margin, or paleochannel.

The remaining seventeen species identified by the desktop assessment were considered unlikely to occur within the survey area.

Within the survey area, the gorge, gully, and rocky breakaway habitat was considered to be of high significance for vertebrate fauna as this habitat support species of conservation significance (including nationally listed threatened species) or contains core habitats for such species. Five habitats were ranked as of moderate significance (Hillcrest/hillslope, Mulga/Corymbia plain, Minor drainage, Tussock grassland plain, Medium drainage) and the remaining habitat (Stony plain) was ranked as low significance, as it is widespread in the surrounding region and species of conservation significance are exclusively dependent on this habitat.

To date there have not been permanent or semi-permanent pools recorded from the Lamb Creek project area, despite extensive use of helicopter in 2012, 2020 and 2021 for baseline surveys.

There are five known caves on or proximal to the survey area in which Ghost bat occurrence, or evidence of occurrence, has been recorded. Cave 1 is provisionally assigned as a Category 2 roost while caves 2, and 3 are provisionally Category 3. Caves 4 and 5 are known Category 3 and 2 respectively and occur nearby to a number of other caves, shelters and overhangs. Caves that are confirmed as Category 2 and groupings of caves that surround them are critical Ghost bat habitat.

Cave 1 and 3 are located in the R47/19, within respectively 325 meters and 600 meters from footprint V3 (mining pit, stock piles, infrastructure). Caves 4 and 5 were located adjacent to L47/736 within 200 meters of footprint V3 (haul road).

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7 Appendices

No	Title
Appendix I	Likelihood of occurrence matrix: Vertebrate fauna
Appendix II	Conservation codes
Appendix III	Site coordinates, camera trap and SM4 deployment details
Appendix IV	Significance assessment criteria: Habitat
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Appendix I Likelihood of occurrence matrix: Vertebrate fauna

Species records relative to survey area	Habitat suitability			
	High (breeding and foraging)	Medium (foraging habitat)	Low (dispersal habitat)	Unsuitable [6]
Records within 10 km [1]	Highly Likely	Likely	Likely	Possible
Records within 50 km [2]	Likely	Possible	Possible	Unlikely
Records within 100 km [3]	Possible	Possible	Possible	Unlikely
Records within 200 km [4]	Possible	Unlikely	Unlikely	Unlikely
No records within 200 km [5]	Unlikely	Unlikely	Unlikely	Highly unlikely

Footnotes for highly cryptic or poorly known species for which there are few records, and for under-surveyed areas:
1 – Survey area occurs within currently known range and species has high dispersal capability.
2 – Survey area occurs within currently known range and species has low dispersal capability.
3 – Survey area occurs on margin of currently known range and species has high dispersal capability.
4 – Survey area occurs outside of currently known range and species has high dispersal capability.
5 – Survey area occurs outside of currently known range and species has low dispersal capability.
Footnotes with habitat suitability:
6 – Depending on a species' ecology, 'unsuitable' can either mean 'not preferred' or 'not containing resources', or it can be 'prohibitive' (i.e. absence of water for aquatic species). This distinction affects the final likelihood score in this column.

Appendix II Conservation codes

Threatened species under the Commonwealth EPBC Act

Threatened fauna and flora may be listed under Section 178 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in any one of the following categories:

EX Extinct

EW Extinct in the wild

CR Critically endangered

EN Endangered

VU Vulnerable

CD Conservation dependent

Migratory and Marine species under the Commonwealth EPBC Act

Migratory and Marine species are not listed as Threatened but are protected for other reason. Only Migratory species are considered Matters of National Environmental Significance (MNES) while Marine species are not.

MI Migratory

MA Marine

Migratory species listed under international agreements to which Australia is a party are protected under section 209 of the EPBC Act and are considered MNES. Listed migratory species are those listed in the:

- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
- China-Australia Migratory Bird Agreement (CAMBA)
- Japan-Australia Migratory Bird Agreement (JAMBA)
- Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA)

Marine species are those listed under s248 of the EPBC Act. Marine species are not considered MNES.

Conservation codes for Western Australian flora and fauna under the Western Australian *Biodiversity Conservation Act 2016*

Threatened, Extinct and Specially Protected fauna or flora are species which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such.

The *Wildlife Conservation (Specially Protected Fauna) Notice 2018* and the *Wildlife Conservation (Rare Flora) Notice 2018* have been transitioned under regulations 170, 171 and 172 of the *Biodiversity Conservation Regulations 2018* to be the lists of Threatened, Extinct and Specially Protected species under Part 2 of the *Biodiversity Conservation Act 2016*.

Categories of Threatened, Extinct and Specially Protected fauna and flora are:

Threatened species

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR Critically endangered species

Threatened species considered to be "facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines.

Published under **schedule 1** of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 201*8 for critically endangered flora.

EN Endangered species

Threatened species considered to be "facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under **schedule 2** of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018 for endangered flora*.

VU Vulnerable species

Threatened species considered to be "facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines.

Published under **schedule 3** of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

Extinct species

Listed by order of the Minister as extinct under section 23(1) of the BC Act as extinct or extinct in the wild.

EX Extinct species

Species where "there is no reasonable doubt that the last member of the species has died", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under **schedule 4** of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018 for extinct flora*.

EW Extinct in the wild species

Species that "is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species

MI Migratory species

Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), an environmental treaty under the United Nations Environment Program.

Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species. Published as migratory birds protected under an international agreement under **schedule 5** of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

CD **Species of conservation interest (conservation dependent fauna)**

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act). Published as conservation dependent fauna under **schedule 6** of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018.*

OS **Other specially protected species**

Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act). Published as other specially protected fauna under **schedule 7** of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

Priority species

Priority species are possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations. In this report, priority species are given the codes P1, P2, P3 and P4.

P1 **Priority 1: Poorly-known species**

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2 **Priority 2: Poorly-known species**

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3 **Priority 3: Poorly-known species**

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 **Priority 4: Rare, Near Threatened and other species in need of monitoring**

(a) **Rare**. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.

(b) **Near Threatened**. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Appendix III Site coordinates, camera trap and SM4 deployment details

Site Name	Site Type	Easting	Northing	Zone	Broad fauna habitat
LCS01	Trap Site	684819	7467764	50	Tussock grassland plain
LCS02	Trap Site	685084	7468479	50	Tussock grassland plain
LCS03	Trap Site	682885	7471282	50	Stony plain
LCS04	Trap Site	685943	7475368	50	Stony plain
LCS05	Trap Site	688629	7477055	50	Stony plain
LCS06	Trap Site	690247	7477147	50	Mulga/corymbia plain
LCS07	Trap Site	691349	7476300	50	Medium drainage lines
LCS08	Trap Site	692588	7476971	50	Stony plain
LCS09	Trap Site	692984	7477591	50	Medium drainage lines
LCS10	Trap Site	693039	7476648	50	Majority Hill crests and hill slope. Some minor drainage (scree slope)

Site Name	Site Type	Transect ID	Easting	Northing	Zone	Broad fauna habitat
MDCNQ01210420	Camera Transect	Transect 1	693611	7476123	50	Gorge, gully and rocky breakaway
MDCNQ02210420	Camera Transect	Transect 1	693624.1	7476107	50	Gorge, gully and rocky breakaway
MDCNQ03210420	Camera Transect	Transect 1	693628.7	7476099	50	Gorge, gully and rocky breakaway
MDCNQ04210420	Camera Transect	Transect 1	693620.9	7476084	50	Gorge, gully and rocky breakaway
MDCNQ05210420	Camera Transect	Transect 1	693609.4	7476071	50	Gorge, gully and rocky breakaway
MDCNQ06210420	Camera Transect	Transect 1	693600.4	7476057	50	Gorge, gully and rocky breakaway
MDCNQ07210420	Camera Transect	Transect 1	693605.6	7476056	50	Gorge, gully and rocky breakaway
MDCNQ07210420	Camera Transect	Transect 1	693601.1	7476056	50	Gorge, gully and rocky breakaway
MDCNQ08210420	Camera Transect	Transect 1	693591	7476034	50	Gorge, gully and rocky breakaway
MDCNQ08210420	Camera Transect	Transect 1	693589.9	7476035	50	Gorge, gully and rocky breakaway
MDCNQ09210420	Camera Transect	Transect 1	693587.4	7476026	50	Gorge, gully and rocky breakaway
MDCNQ10210420	Camera Transect	Transect 1	693587	7476013	50	Gorge, gully and rocky breakaway
MDCNQ11220420	Camera Transect	Transect 2	694542.3	7475730	50	Gorge, gully and rocky breakaway
MDCNQ12210420	Camera Transect	Transect 2	694495.3	7475731	50	Gorge, gully and rocky breakaway
MDCNQ13220420	Camera Transect	Transect 2	694414.2	7475744	50	Gorge, gully and rocky breakaway
MDCNQ14220420	Camera Transect	Transect 2	694368.2	7475770	50	Gorge, gully and rocky breakaway
MDCNQ15220420	Camera Transect	Transect 2	694319.1	7475766	50	Gorge, gully and rocky breakaway

Site Name	Site Type	Transect ID	Easting	Northing	Zone	Broad fauna habitat
MDCNQ16220420	Camera Transect	Transect 2	694238.9	7475780	50	Gorge, gully and rocky breakaway
MDCNQ17220420	Camera Transect	Transect 2	694169.5	7475772	50	Gorge, gully and rocky breakaway
MDCNQ18220420	Camera Transect	Transect 2	694101.8	7475779	50	Gorge, gully and rocky breakaway
MDCNQ19220420	Camera Transect	Transect 2	694040.9	7475778	50	Gorge, gully and rocky breakaway
MDCNQ20220420	Camera Transect	Transect 2	693998.3	7475789	50	Gorge, gully and rocky breakaway
MDCNQ21220420	Camera Transect	Transect 2	688959.4	7473331	50	Gorge, gully and rocky breakaway
MDCNQ22220420	Camera Transect	Transect 2	688921	7473319	50	Gorge, gully and rocky breakaway
MDCNQ230420	Camera Transect	Transect 3	688868.4	7473340	50	Gorge, gully and rocky breakaway
MDCNQ24220420	Camera Transect	Transect 3	688832.4	7473378	50	Gorge, gully and rocky breakaway
MDCNQ25220420	Camera Transect	Transect 3	688795.1	7473365	50	Gorge, gully and rocky breakaway
MDCNQ26220420	Camera Transect	Transect 3	688724	7473347	50	Gorge, gully and rocky breakaway
MDCNQ27220420	Camera Transect	Transect 3	688667.4	7473334	50	Gorge, gully and rocky breakaway
MDCNQ28220420	Camera Transect	Transect 3	688593.2	7473349	50	Gorge, gully and rocky breakaway
MDCNQ29220420	Camera Transect	Transect 3	688524.1	7473391	50	Gorge, gully and rocky breakaway
MDCNQ30220420	Camera Transect	Transect 3	688468.1	7473404	50	Gorge, gully and rocky breakaway
MDCNQ31230420	Camera Transect	Transect 4	687953.5	7472869	50	Gorge, gully and rocky breakaway
MDCNQ32230420	Camera Transect	Transect 4	687901.9	7472876	50	Gorge, gully and rocky breakaway
MDCNQ33230420	Camera Transect	Transect 4	687853.9	7472883	50	Gorge, gully and rocky breakaway
MDCNQ34230420	Camera Transect	Transect 4	687796.5	7472886	50	Gorge, gully and rocky breakaway
MDCNQ35230420	Camera Transect	Transect 4	687729.3	7472869	50	Gorge, gully and rocky breakaway
MDCNQ36230420	Camera Transect	Transect 4	687672.5	7472870	50	Gorge, gully and rocky breakaway
MDCNQ37230420	Camera Transect	Transect 4	687596.8	7472840	50	Gorge, gully and rocky breakaway
MDCNQ38230420	Camera Transect	Transect 4	687536.3	7472774	50	Gorge, gully and rocky breakaway
MDCNQ39230420	Camera Transect	Transect 4	687513.4	7472762	50	Gorge, gully and rocky breakaway
MDCNQ40230420	Camera Transect	Transect 4	687453.9	7472748	50	Gorge, gully and rocky breakaway

Site Name	Type	Date deployed	Survey nights	Zone	Easting	Northing	Survey Period	Comment
SM4U-6479_Site 1	Bat Detector	20/04/20	1	50	684831.3	7467776.8	2020	Vertebrate Trap Site
SM4U-6488_Site 2	Bat Detector	20/04/20	1	50	685101.9	7468474.6	2020	Vertebrate Trap Site
SM4U-6479_Site 3	Bat Detector	21/04/20	1	50	682905.3	7471293.6	2020	Vertebrate Trap Site
SM4U-6479_Site 4	Bat Detector	22/04/20	1	50	685919.3	7475392	2020	Vertebrate Trap Site
SM4U-6479_Site 5	Bat Detector	23/04/20	1	50	688642.3	7477107.3	2020	Vertebrate Trap Site
SM4U-6488_Site 6	Bat Detector	16/04/20	2	50	690293.6	7477135	2020	Vertebrate Trap Site
SM4U-6479_Site 7	Bat Detector	16/04/20	2	50	691388.9	7476256.9	2020	Vertebrate Trap Site
SM4A-4717_A3	Night Parrot	20/04/20	3	50	682915.6	7471272.9	2020	Spinifex patch
SM4U-6488_Site 8	Bat Detector	18/04/20	1	50	692623.3	7476976.7	2020	Vertebrate Trap Site
SM4U-6488_Site 9	Bat Detector	19/04/20	1	50	692959.1	7477588.3	2020	Vertebrate Trap Site
SM4U-6479_Site10	Bat Detector	18/04/20	2	50	693016.2	7476648.8	2020	Vertebrate Trap Site
SM4A-4717_A_Haul Road	Night Parrot	23/04/20	2	50	683241.5	7473176.7	2020	Spinifex patch
SM4U-6479_Gully	Bat Detector	27/04/20	0	50	688385	7475295.9	2020	Deep Gully - Failed to record
SM4U-6488_Cave 1	Bat Detector	21/04/20	4	50	693571.3	7476273.6	2020	Cave
SM4U-6488_Cave 2	Bat Detector	25/04/20	2	50	690696.5	7473764.1	2020	Cave
SM4U-6479_Cave 3	Bat Detector	24/04/20	4	50	694116.6	7476556.6	2020	Cave
SM4A-4717_A_footprint	Night Parrot	25/04/20	3	50	691745.9	7475914.2	2020	Spinifex patch in disturbed area
SM4U-4031_Cave 1	Bat Detector	20/02/21	3	50	693571	7476273	2021	Cave
SM4U-8168_Cave 3	Bat Detector	20/02/21	3	50	694116	7476556	2021	Cave
SM4U-4031_Cave 4	Bat Detector	23/02/21	2	50	683844	7469750	2021	Cave
SM4U-8168_Cave 5	Bat Detector	23/02/21	2	50	683848	7469788	2021	Cave

Appendix IV Significance assessment criteria: Habitat

Rank	Criteria
High	Fauna listed as threatened under the EPBC Act and/ or BC Act and fauna listed as Species of Special Conservation Interest or Other Specially Protected Species have been recorded breeding from this habitat type within the survey area
	Fauna listed as threatened under the EPBC Act and/ or BC Act and fauna listed as species of Special Conservation Interest or Other Specially Protected Species have been recorded foraging or sheltering from this habitat type within the survey area where the species is solely reliant on this habitat type for foraging or sheltering
	Habitat known to be suitable core habitat (breeding), for EPBC Act and/ or BC Act listed threatened fauna and/or fauna listed as species of Special Conservation Interest or Other Specially Protected Species, and there are records of this species within 40km^2
	Habitat known to be suitable core habitat (foraging or sheltering), for EPBC Act and/ or BC Act listed threatened fauna and or fauna listed as species of Special Conservation Interest or Other Specially Protected Species, and there are records of this species within 40km^2 and the species is solely reliant on this habitat type for foraging or sheltering.
	Habitat is regionally uncommon or limited in extent and known to support species listed as: ▪ Threatened fauna under the EPBC Act and/or BC Act, but it is not their core habitat (e.g. may be used periodically/ seasonally or for dispersal). ▪ DBCA listed Priority fauna which are known to be solely reliant on this habitat.
	Habitat known to support EPBC Act and/or BC Act listed Migratory fauna such as breeding grounds, or important feeding grounds such as Eighty Mile Beach (including ephemeral habitats) defined via international agreement e.g. RAMSA and also Important Bird Areas (Dutson *et al.* 2009) https://www.birdlife.org.au/documents/OTHPUB-IBA-supp.pdf
Moderate	Habitat known to regularly support EPBC Act and/or BC Act listed Migratory fauna – (not breeding grounds or important feeding grounds)
	Habitat that is regionally uncommon (e.g. occurs in small and isolated areas) and supports a particularly diverse and uncommon faunal assemblage.
	Habitat is common and widespread and known to support species listed as: Threatened fauna under the EPBC Act and/or BC Act but it is not their core habitat (e.g. may be used periodically/ seasonally or for dispersal, or foraging habitats that where the species is not solely reliant on that habitat for resources, is an occasional visitor or foraging habitat is marginal. Species of Special Conservation Interest or Other Specially Protected Species under the BC Act but it is not their core habitat (e.g. may be used periodically/ seasonally or for dispersal) or foraging habitats that where the species is not solely reliant on that habitat for resources, is an occasional visitor or foraging habitat is marginal. DBCA listed Priority fauna which are known to be solely reliant on this habitat
Low	▪ Habitat is widespread/common and does not solely support any DBCA listed Priority fauna ▪ Habitat has minimal records of EPBC Act and/or BC Act listed Migratory fauna – (not breeding grounds or important feeding grounds). Especially so if these records are > 10 years old.

Appendix V Desktop results: All vertebrate fauna species recorded within 50 km of Lamb Creek

Family	Scientific name[1)]	Common name	Status[2)]		Databases[3)]				Survey reports[4)]													
			EPBC	BCA	TPFa	NM	PM50	BD50	BL11	BL12	BL13	BL16	EC04a	EC04b	EC05	EC98	EV07	EV08	MA99	OE08	SZ08	Ra12
Birds																						
Casuariidae	*Dromaius novaehollandiae*	Emu						1								1						
Anatidae	*Dendrocygna eytoni*	Plumed Whistling-Duck						1														
Anatidae	*Malacorhynchus membranaceus*	Pink-eared Duck						1														
Anatidae	*Cygnus atratus*	Black Swan						1														
Anatidae	*Aythya australis*	Hardhead						1														
Anatidae	*Anas superciliosa*	Pacific Black Duck						1														
Anatidae	*Anas gracilis*	Grey Teal						1														
Phasianidae	*Synoicus ypsilophorus*	Brown Quail						1														
Podicipedidae	*Tachybaptus novaehollandiae*	Australasian Grebe						1														
Podicipedidae	*Poliocephalus poliocephalus*	Hoary-headed Grebe						1														
Columbidae	**Columba livia*	Rock Dove					1															
Columbidae	*Geophaps plumifera*	Spinifex Pigeon						1	1	1		1	1	1		1	1	1	1	1		1
Columbidae	*Phaps chalcoptera*	Common Bronzewing						1	1	1	1		1			1	1	1		1		1
Columbidae	*Ocyphaps lophotes*	Crested Pigeon						1	1	1	1		1	1		1	1	1	1	1		1
Columbidae	*Geopelia cuneata*	Diamond Dove						1	1		1		1	1		1	1	1	1	1		1
Columbidae	*Geopelia placida*	Peaceful Dove						1	1		1					1	1					
Cuculidae	*Centropus phasianinus*	Pheasant Coucal						1														
Cuculidae	*Chalcites basalis*	Horsfield's Bronze-Cuckoo	MA					1	1	1	1		1	1		1		1		1		1
Cuculidae	*Chalcites osculans*	Black-eared Cuckoo	MA				1	1								1			1			
Cuculidae	*Heteroscenes pallidus*	Pallid Cuckoo	MA					1	1		1		1	1		1	1	1	1	1		1
Otididae	*Ardeotis australis*	Australian Bustard						1	1	1	1					1		1		1		1
Podargidae	*Podargus strigoides*	Tawny Frogmouth						1	1	1			1	1		1	1	1				1
Eurostopodidae	*Eurostopodus argus*	Spotted Nightjar	MA					1	1	1	1		1	1		1	1			1		1
Aegothelidae	*Aegotheles cristatus*	Australian Owlet-nightjar						1	1	1	1		1	1		1	1	1	1	1		1
Apodidae	*Apus pacificus*	Fork-tailed Swift	MI, MA	MI		1	2	1	1											1		1
Rallidae	*Hypotaenidia philippensis*	Buff-banded Rail						1														
Rallidae	*Fulica atra*	Eurasian Coot						1														
Burhinidae	*Burhinus grallarius*	Bush Stone-curlew						1														
Recurvirostridae	*Himantopus leucocephalus*	Pied Stilt	MA					1									1					
Charadriidae	*Charadrius ruficapillus*	Red-capped Plover	MA					1														
Charadriidae	*Charadrius veredus*	Oriental Plover	MI				2															
Charadriidae	*Elseyornis melanops*	Black-fronted Dotterel						1			1					1						

Family	Scientific name[1]	Common name	Status[2]		Databases[3]				Survey reports[4]													
			EPBC	BCA	TPFa	NM	PM50	BD50	BL11	BL12	BL13	BL16	EC04a	EC04b	EC05	EC98	EV07	EV08	MA99	OE08	SZ08	Ra12
Rostratulidae	*Rostratula australis*	Australian Painted-snipe	EN, MA	EN			2															
Scolopacidae	*Calidris acuminata*	Sharp-tailed Sandpiper	MI, MA				2															
Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper	CR, MI, MA	CR			3															
Scolopacidae	*Calidris melanotos*	Pectoral Sandpiper	MI, MA				2															
Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	MI, MA				2															
Scolopacidae	*Tringa nebularia*	Common Greenshank	MI, MA	IA	2	1																
Turnicidae	*Turnix velox*	Little Button-quail						1	1		1		1	1		1	1	1	1	1		1
Pelicanidae	*Pelecanus conspicillatus*	Australian Pelican						1														
Ardeidae	*Nycticorax caledonicus*	Nankeen Night-Heron						1														
Ardeidae	*Bubulcus ibis*	Cattle Egret	MA				1															
Ardeidae	*Ardea pacifica*	White-necked Heron						1														
Ardeidae	*Ardea alba*	Great Egret	MA				1	1														
Ardeidae	*Egretta novaehollandiae*	White-faced Heron						1								1						1
Threskiornithidae	*Threskiornis spinicollis*	Straw-necked Ibis						1														
Phalacrocoracidae	*Microcarbo melanoleucos*	Little Pied Cormorant						1														
Phalacrocoracidae	*Phalacrocorax sulcirostris*	Little Black Cormorant						1														
Phalacrocoracidae	*Phalacrocorax varius*	Pied Cormorant						1			1							1		1		
Anhingidae	*Anhinga novaehollandiae*	Australasian Darter						1														
Accipitridae	*Elanus axillaris*	Black-shouldered Kite						1			1						1					1
Accipitridae	*Elanus scriptus*	Letter-winged Kite		P4	1	1																
Accipitridae	*Hamirostra melanosternon*	Black-breasted Buzzard						1	1		1											1
Accipitridae	*Lophoictinia isura*	Square-tailed Kite						1														
Accipitridae	*Aquila audax*	Wedge-tailed Eagle						1	1	1	1		1	1		1	1	1				1
Accipitridae	*Hieraaetus morphnoides*	Little Eagle						1	1								1	1		1		1
Accipitridae	*Circus approximans*	Swamp Harrier						1														
Accipitridae	*Circus assimilis*	Spotted Harrier						1	1		1					1	1					1
Accipitridae	*Accipiter fasciatus*	Brown Goshawk	MA					1	1	1	1					1						1
Accipitridae	*Accipiter cirrocephalus*	Collared Sparrowhawk						1	1	1	1					1						1
Accipitridae	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	MA				1															
Accipitridae	*Haliastur sphenurus*	Whistling Kite	MA					1	1	1	1		1			1	1	1		1		1
Accipitridae	*Milvus migrans*	Black Kite						1												1		1
Tytonidae	*Tyto alba*	Barn Owl						1	1				1	1								
Strigidae	*Ninox boobook*	Southern Boobook	MA					1	1	1				1		1	1					1
Strigidae	*Ninox connivens subsp. connivens*	Barking Owl (southwest)		P3		1																

Family	Scientific name[1]	Common name	Status[2]		Databases[3]				Survey reports[4]													
			EPBC	BCA	TPFa	NM	PM50	BD50	BL11	BL12	BL13	BL16	EC04a	EC04b	EC05	EC98	EV07	EV08	MA99	OE08	SZ08	Ra12
Meropidae	*Merops ornatus*	Rainbow Bee-eater	MA				1	1	1	1	1					1	1	1	1	1		1
Alcedinidae	*Todiramphus sanctus*	Sacred Kingfisher	MA					1										1	1			
Alcedinidae	*Todiramphus pyrrhopygius*	Red-backed Kingfisher						1	1	1	1		1	1			1	1		1		1
Alcedinidae	*Dacelo leachii*	Blue-winged Kookaburra						1	1		1									1		
Falconidae	*Falco cenchroides*	Nankeen Kestrel	MA					1	1	1	1			1		1	1	1	1			1
Falconidae	*Falco longipennis*	Australian Hobby						1	1		1					1		1				1
Falconidae	*Falco berigora*	Brown Falcon						1	1	1	1		1	1		1	1	1		1		1
Falconidae	*Falco hypoleucos*	Grey Falcon	VU	VU	4	1							1					1				
Falconidae	*Falco peregrinus*	Peregrine Falcon		OS	10	1		1	1	1						1						
Cacatuidae	*Nymphicus hollandicus*	Cockatiel						1														1
Cacatuidae	*Eolophus roseicapilla*	Galah						1	1	1	1		1	1		1	1	1		1		1
Cacatuidae	*Cacatua sanguinea*	Little Corella						1			1					1	1		1			
Psittaculidae	*Psephotellus varius*	Mulga Parrot						1			1						1			1		
Psittaculidae	*Barnardius zonarius*	Australian Ringneck						1	1	1	1		1	1		1	1	1	1	1		1
Psittaculidae	*Pezoporus occidentalis*	Night Parrot	EN	CR			1															
Psittaculidae	*Neopsephotus bourkii*	Bourke's Parrot						1		1			1			1				1		
Psittaculidae	*Melopsittacus undulatus*	Budgerigar						1	1		1		1	1		1	1		1	1		1
Ptilonorhynchidae	*Ptilonorhynchus guttatus*	Western Bowerbird						1	1	1	1		1	1		1	1	1	1	1		1
Climacteridae	*Climacteris melanurus*	Black-tailed Treecreeper						1					1			1						
Maluridae	*Malurus lamberti*	Variegated Fairy-wren						1	1	1	1		1	1		1	1		1	1		1
Maluridae	*Malurus splendens*	Splendid Fairy-wren						1			1							1				
Maluridae	*Malurus leucopterus*	White-winged Fairy-wren						1	1	1	1		1	1		1	1	1		1		
Maluridae	*Malurus leucopterus subsp. leucopterus*	White-winged Fairy-wren (Dirk Hartog Island)	VU	VU		1																
Maluridae	*Stipiturus ruficeps*	Rufous-crowned Emu-wren						1	1	1	1		1	1		1						
Maluridae	*Amytornis striatus*	Striated Grasswren						1	1	1	1		1	1		1				1		
Meliphagidae	*Sugomel niger*	Black Honeyeater						1														1
Meliphagidae	*Lichmera indistincta*	Brown Honeyeater						1	1	1	1		1	1		1	1	1	1	1		1
Meliphagidae	*Melithreptus gularis*	Black-chinned Honeyeater						1	1	1			1	1		1	1					1
Meliphagidae	*Certhionyx variegatus*	Pied Honeyeater						1									1					1
Meliphagidae	*Conopophila whitei*	Grey Honeyeater						1	1	1	1									1		1
Meliphagidae	*Epthianura tricolor*	Crimson Chat						1	1		1						1	1				1
Meliphagidae	*Epthianura aurifrons*	Orange Chat						1														
Meliphagidae	*Acanthagenys rufogularis*	Spiny-cheeked Honeyeater						1	1	1	1		1	1		1	1	1		1		1
Meliphagidae	*Gavicalis virescens*	Singing Honeyeater						1	1	1	1		1	1		1	1	1	1	1		1
Meliphagidae	*Ptilotula keartlandi*	Grey-headed Honeyeater						1	1	1	1	1	1	1		1	1	1		1		1

Family	Scientific name[1]	Common name	Status[2]		Databases[3]				Survey reports[4]													
			EPBC	BCA	TPFa	NM	PM50	BD50	BL11	BL12	BL13	BL16	EC04a	EC04b	EC05	EC98	EV07	EV08	MA99	OE08	SZ08	Ra12
Meliphagidae	*Ptilotula plumula*	Grey-fronted Honeyeater						1														
Meliphagidae	*Ptilotula penicillata*	White-plumed Honeyeater						1	1	1	1					1			1	1		1
Meliphagidae	*Purnella albifrons*	White-fronted Honeyeater							1													1
Meliphagidae	*Manorina flavigula*	Yellow-throated Miner						1	1	1	1		1	1		1	1	1	1	1		1
Pardalotidae	*Pardalotus rubricatus*	Red-browed Pardalote						1	1	1	1					1	1			1		1
Pardalotidae	*Pardalotus striatus*	Striated Pardalote						1	1	1	1		1	1		1	1		1	1		
Acanthizidae	*Gerygone fusca*	Western Gerygone						1	1	1	1			1		1		1	1	1		1
Acanthizidae	*Smicrornis brevirostris*	Weebill						1	1	1	1		1	1		1	1	1	1	1		1
Acanthizidae	*Pyrrholaemus brunneus*	Redthroat						1			1											
Acanthizidae	*Aphelocephala leucopsis*	Southern Whiteface						1														
Acanthizidae	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill						1		1	1					1						
Acanthizidae	*Acanthiza apicalis*	Inland Thornbill						1	1	1	1			1		1			1	1		1
Acanthizidae	*Acanthiza robustirostris*	Slaty-backed Thornbill						1		1	1			1		1		1				
Acanthizidae	*Acanthiza uropygialis*	Chestnut-rumped Thornbill						1		1	1					1						1
Pomatostomidae	*Pomatostomus temporalis*	Grey-crowned Babbler						1	1	1	1			1		1		1		1		1
Pomatostomidae	*Pomatostomus superciliosus*	White-browed Babbler						1		1	1					1			1			
Neosittidae	*Daphoenositta chrysoptera*	Varied Sittella						1			1					1	1					
Campephagidae	*Coracina maxima*	Ground Cuckoo-shrike						1	1	1	1					1	1					1
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckoo-shrike	MA					1	1	1	1		1	1		1	1	1	1	1		1
Campephagidae	*Lalage tricolor*	White-winged Triller						1	1	1	1		1	1		1	1	1	1	1		1
Cinclosomatidae	*Cinclosoma castaneothorax*	Chestnut-breasted Quail-thrush						1		1												
Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler						1	1	1	1		1	1		1	1	1	1	1		1
Pachycephalidae	*Colluricincla harmonica*	Grey Shrike-thrush						1	1	1	1	1	1	1		1	1	1	1	1		1
Oreoicidae	*Oreoica gutturalis*	Crested Bellbird						1	1	1	1		1	1		1	1	1	1	1		1
Psophodidae	*Psophodes occidentalis*	Chiming Wedgebill						1														
Artamidae	*Gymnorhina tibicen*	Australian Magpie						1	1	1	1		1	1		1	1	1	1	1		1
Artamidae	*Cracticus nigrogularis*	Pied Butcherbird						1	1	1	1		1	1		1	1	1	1	1		1
Artamidae	*Cracticus torquatus*	Grey Butcherbird						1	1	1	1		1	1		1	1	1		1		1
Artamidae	*Artamus personatus*	Masked Woodswallow						1								1	1		1			1
Artamidae	*Artamus cinereus*	Black-faced Woodswallow						1	1	1	1		1	1		1	1	1		1		1
Artamidae	*Artamus minor*	Little Woodswallow						1	1	1	1		1	1		1	1		1	1		1
Artamidae	*Artamus leucorynchus*	White-breasted Woodswallow																				
Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail						1	1	1	1	1	1	1		1	1	1	1	1		1
Rhipiduridae	*Rhipidura fuliginosa*	Grey Fantail						1	1	1	1			1		1	1	1				

Family	Scientific name[1]	Common name	Status[2]		Databases[3]				Survey reports[4]													
			EPBC	BCA	TPFa	NM	PM50	BD50	BL11	BL12	BL13	BL16	EC04a	EC04b	EC05	EC98	EV07	EV08	MA99	OE08	SZ08	Ra12
Corvidae	*Corvus orru*	Torresian Crow						1	1	1	1		1	1			1	1	1	1		1
Corvidae	*Corvus bennetti*	Little Crow						1								1						1
Corvidae	*Corvus coronoides*	Australian Raven																				1
Monarchidae	*Grallina cyanoleuca*	Magpie-lark	MA					1	1	1	1		1	1		1	1	1	1	1		1
Petroicidae	*Petroica goodenovii*	Red-capped Robin						1		1	1					1	1		1			
Petroicidae	*Melanodryas cucullata*	Hooded Robin						1	1	1	1		1	1		1	1	1	1	1		1
Dicaeidae	*Dicaeum hirundinaceum*	Mistletoebird						1	1	1	1		1	1		1	1					1
Estrildidae	*Emblema pictum*	Painted Finch						1	1	1	1		1	1		1	1	1		1		1
Estrildidae	*Neochmia ruficauda*	Star Finch						1					1	1								
Estrildidae	*Taeniopygia guttata*	Zebra Finch						1	1	1	1		1	1		1	1	1	1	1		1
Motacillidae	*Anthus novaeseelandiae*	Australasian Pipit	MA					1	1	1							1		1	1		
Motacillidae	*Motacilla flava*	Yellow Wagtail	MI, MA				2															
Motacillidae	*Motacilla cinerea*	Grey Wagtail	MI, MA				2															
Alaudidae	*Mirafra javanica*	Horsfield's Bushlark						1					1					1				
Locustellidae	*Cincloramphus cruralis*	Brown Songlark						1														1
Locustellidae	*Cincloramphus mathewsi*	Rufous Songlark						1	1		1		1			1	1	1		1		1
Locustellidae	*Poodytes carteri*	Spinifexbird						1	1	1	1		1	1		1	1	1		1		1
Acrocephalidae	*Acrocephalus australis*	Australian Reed-Warbler						1														
Hirundinidae	*Cheramoeca leucosterna*	White-backed Swallow						1														
Hirundinidae	*Petrochelidon ariel*	Fairy Martin						1									1			1		
Hirundinidae	*Petrochelidon nigricans*	Tree Martin						1								1	1					
Hirundinidae	*Hirundo neoxena*	Welcome Swallow	MA					1									1	1				
Hirundinidae	*Hirundo rustica*	Barn Swallow	MI, MA				2															
Mammals																						
Tachyglossidae	*Tachyglossus aculeatus*	Short-beaked Echidna							1	1	1	1				1						1
Dasyuridae	*Dasycercus blythi*	Brush-tailed Mulgara, Ampurta		P4	1	1																
	Dasykaluta rosamondae	Kaluta							1	1	1			1		1	1			1		1
	Dasyurus geoffroii	Western Quoll, Chuditch	VU	VU		1																
	Dasyurus hallucatus	Northern Quoll	EN	EN	9	1	1			1												1
	Ningaui timealeyi	Pilbara Ningaui							1	1	1			1		1				1		1
	Planigale ingrami	Long-tailed Planigale																				1
	Planigale sp. 1	(undescribed planigale species)							1	1	1			1		1	1					
	Pseudantechinus woolleyae	Woolley's Pseudantechinus							1	1												

Family	Scientific name[1)]	Common name	Status[2)]		Databases[3)]				Survey reports[4)]													
			EPBC	BCA	TPFa	NM	PM50	BD50	BL11	BL12	BL13	BL16	EC04a	EC04b	EC05	EC98	EV07	EV08	MA99	OE08	SZ08	Ra12
	Sminthopsis macroura	Froggatt's Stripe-faced Dunnart							1	1	1			1		1						1
	Sminthopsis ooldea	Ooldea Dunnart									1					1						
	Sminthopsis youngsoni	Lesser Hairy-footed Dunnart									1											
Thylacomyidae	*Macrotis lagotis*	Bilby, Dalgyte	VU	VU	2	1	1															
Macropodidae	*Osphranter robustus*	Euro, Biggada							1	1		1	1	1		1	1	1	1	1		1
	Osphranter rufus	Red Kangaroo, Marlu								1								1	1	1		
	Petrogale rothschildi	Rothschild's Rock-wallaby							1	1	1	1				1		1		1		1
Muridae	**Mus musculus*	House Mouse					1		1	1	1	1										1
	Leggadina lakedownensis	Short-tailed Mouse		P4	2	1																
	Pseudomys chapmani	Western Pebble-mound Mouse		P4	191	1			1	1	1		1	1		1	1	1	1	1		1
	Pseudomys desertor	Desert Mouse							1	1	1						1					1
	Pseudomys hermannsburgensis	Sandy Inland Mouse							1	1	1			1		1				1		1
	Zyzomys argurus	Common Rock-rat							1	1	1	1		1		1	1	1		1		1
	Zyzomys pedunculatus	Central Rock-rat	CR	CR		1																
Leporidae	**Oryctolagus cuniculus*	Rabbit					1			1	1											
Rhinonycteridae	*Rhinonicteris aurantia (Pilbara)*	Pilbara Leaf-nosed Bat	VU	VU	8	1	1			1							1					
Megadermatidae	*Macroderma gigas*	Ghost Bat	VU	VU	133	1	1		1	1	1											1
Emballonuridae	*Saccolaimus flaviventris*	Yellow-bellied Sheath-tailed Bat							1	1			1	1				1			1	1
	Taphozous georgianus	Common Sheath-tailed Bat							1	1	1		1	1	1		1	1			1	1
	Taphozous hilli	Hill's Sheath-tailed Bat							1	1	1					1						
Molossidae	*Austronomus australis*	White-striped Free-tailed Bat								1	1			1				1				
	Chaerephon jobensis	Greater Northern Free-tailed Bat							1	1	1						1	1				1
	Ozimops lumsdenae	Northern Free-tailed Bat							1	1	1		1	1			1	1			1	
	Ozimops planiceps	Southern Free-tailed Bat														1						
Vespertilionidae	*Chalinolobus gouldii*	Gould's Wattled Bat							1	1	1		1	1		1	1	1			1	1
	Nyctophilus geoffroyi	Lesser Long-eared Bat							1	1			1				1					
	Scotorepens balstoni	Inland Broad-nosed Bat														1						
	Scotorepens greyii	Little Broad-nosed Bat							1	1	1		1	1		1	1	1			1	1
	Vespadelus finlaysoni	Finlayson's Cave Bat							1	1	1		1	1	1	1	1	1			1	1
Canidae	**Canis familiaris familiaris*	Dog					1					1										
	**Vulpes vulpes*	Red Fox					1											1				

Family	Scientific name[1)]	Common name	Status[2)]		Databases[3)]				Survey reports[4)]												
			EPBC	BCA	TPFa	NM	PM50	BD50	BL11	BL12	BL13	BL16	EC04a	EC04b	EC05	EC98	EV07	EV08	MA99	OE08	SZ08	Ra12
	Canis familiaris dingo	Dingo							1	1	1		1	1		1		1	1	1		1
Felidae	**Felis catus*	Cat					1			1	1	1		1		1		1	1	1		
Equidae	**Equus asinus*	Donkey					1			1												
	**Equus caballus*	Horse					1															
Camelidae	**Camelus dromedarius*	Dromedary, Camel					1		1	1												
Bovidae	**Bos taurus*	European Cattle							1	1						1		1		1		1
Reptiles																						
Carphodactylidae	*Nephrurus cinctus*	Northern Banded Knob-tailed Gecko							1	1	1											1
	Underwoodisaurus seorsus	Pilbara Barking Gecko		P2	17	1			1	1	1		1									
Diplodactylidae	*Crenadactylus ocellatus*	South-western Clawless Gecko																				1
	Diplodactylus conspicillatus	Variable Fat-tailed Gecko																				1
	Diplodactylus pulcher	Pretty Gecko								1	1											1
	Diplodactylus savagei	Southern Pilbara Beak-faced Gecko							1		1					1		1		1		1
	Lucasium stenodactylum	Sand-plain Gecko							1	1	1			1								1
	Lucasium wombeyi	Pilbara Ground Gecko							1	1	1					1	1					1
	Oedura fimbria	Western Marbled Velvet Gecko							1	1	1		1	1		1	1	1		1		1
	Rhynchoedura ornata	Western Beaked Gecko							1	1	1									1		1
	Strophurus elderi	Jewelled Gecko							1													
	Strophurus wellingtonae	Western-shield Spiny-tailed Gecko							1	1	1		1				1	1				1
Gekkonidae	*Gehyra pilbara*	Pilbara Dtella							1							1						
	Gehyra punctata	Spotted Rock Dtella							1	1	1		1	1		1	1	1				1
	Gehyra variegata	Variegated gehyra							1	1	1			1		1	1	1				1
	Heteronotia binoei	Bynoe's Gecko							1	1	1			1		1	1			1		1
	Heteronotia spelea	Pilbara Cave Gecko							1	1	1			1			1	1				
Pygopodidae	*Delma butleri*	Spinifex Delma														1						
	Delma elegans	Pilbara Delma							1		1											1
	Delma haroldi	Neck-barred Delma												1								
	Delma nasuta	Sharp-snouted Delma							1	1	1			1								1
	Delma pax	Peace Delma							1		1			1		1				1		
	Delma tincta	Black-necked Delma							1	1	1					1				1		1
	Lialis burtonis	Burton's Snake-lizard							1	1	1						1					1
	Pygopus nigriceps	Western Hooded Scaly-foot									1							1				1

Family	Scientific name[1)]	Common name	Status[2)]		Databases[3)]				Survey reports[4)]												
			EPBC	BCA	TPFa	NM	PM50	BD50	BL11	BL12	BL13	BL16	EC04a	EC04b	EC05	EC98	EV07	EV08	MA99	OE08	SZ08	Ra12
Agamidae	*Ctenophorus caudicinctus*	Western Ring-tailed Dragon							1	1	1		1	1		1	1	1		1		1
	Ctenophorus isolepis	Yellowy Military Dragon							1	1	1			1		1		1				1
	Ctenophorus nuchalis	Central Netted Dragon									1											
	Ctenophorus reticulatus	Western Netted Dragon								1	1											
	Diporiphora amphiboluroides	Mulga Dragon								1	1					1						1
	Diporiphora valens	Southern Pilbara Tree Dragon								1	1			1								1
	Gowidon longirostris	Long-nosed Dragon							1	1	1		1	1		1		1	1	1		1
	Pogona minor	Dwarf Bearded Dragon							1	1	1		1	1		1			1			1
	Tympanocryptis cephalus	Coastal pebble-mimic dragons									1											
Scincidae	*Carlia munda*	Striped Rainbow Skink							1	1	1		1	1		1	1			1		1
	Carlia triacantha	Desert Rainbow Skink							1	1												
	Cryptoblepharus buchananii	Buchanan's Snake-eyed Skink								1	1											
	Cryptoblepharus ustulatus	Russet Snake-eyed Skink							1	1	1											1
	Ctenotus duricola	Eastern Pilbara Lined Ctenotus							1		1		1	1		1						1
	Ctenotus hanloni	Nimble Ctenotus									1					1						
	Ctenotus helenae	Dusky Ctenotus							1	1	1			1			1	1				1
	Ctenotus leonhardii	Common Desert Ctenotus														1						
	Ctenotus pantherinus	Leopard Ctenotus							1	1	1		1	1		1	1			1		1
	Ctenotus piankai	Coarse Sands Ctenotus														1						
	Ctenotus rubicundus	Ruddy Ctenotus							1		1		1	1		1						1
	Ctenotus rutilans	Rusty-shouldered Ctenotus								1						1		1				1
	Ctenotus saxatilis	Rock Ctenotus							1	1	1		1	1		1	1	1		1		1
	Ctenotus schomburgkii	Barred Wedge-snouted Ctenotus								1	1			1		1						1
	Ctenotus serventyi	North-western Sandy-loam Ctenotus							1													
	Ctenotus uber	Western Spotted Ctenotus									1											1
	Cyclodomorphus melanops	Spinifex Slender Blue-tongue							1	1	1					1	1			1		1
	Egernia cygnitos	Western Pilbara Spiny-tailed Skink								1	1											1
	Egernia depressa	Southern Pygmy Spiny-tailed Skink							1		1		1	1		1						
	Egernia formosa	Goldfields Crevice-skink							1	1		1				1	1	1		1		1

Family	Scientific name[1]	Common name	Status[2]		Databases[3]				Survey reports[4]													
			EPBC	BCA	TPFa	NM	PM50	BD50	BL11	BL12	BL13	BL16	EC04a	EC04b	EC05	EC98	EV07	EV08	MA99	OE08	SZ08	Ra12
	Eremiascincus pallidus	Western Narrow-banded Skink							1		1					1		1		1		
	Eremiascincus richardsonii	Broad-banded Sand Swimmer							1													
	Lerista chalybura	Pilbara blue-tailed Slider							1	1	1		1	1		1						1
	Lerista flammicauda	Pilbara Flame-tailed Slider									1											
	Lerista muelleri	Mueller's Three-toed Slider							1	1	1					1		1				1
	Lerista neander	Pilbara Robust Slider									1					1	1					
	Menetia greyii	Common Dwarf Skink							1	1	1			1		1		1				1
	Menetia surda	Western Dwarf Skink									1											
	Morethia ruficauda	Fire-tailed Skink							1	1	1		1	1		1				1		1
	Tiliqua multifasciata	Central Blue-tongue							1	1	1		1			1	1	1				1
Varanidae	*Varanus acanthurus*	Spiny-tailed Goanna							1	1	1		1	1		1				1		1
	Varanus brevicauda	Short-tailed Pygmy Goanna																		1		1
	Varanus bushi	Pilbara Mulga Goanna							1	1	1			1		1	1					1
	Varanus giganteus	Perentie							1	1		1				1		1		1		1
	Varanus gouldii	Bungarra or Sand Goanna																1				
	Varanus hamersleyensis	Southern Pilbara Rock Goanna							1	1						1	1	1				1
	Varanus panoptes	Yellow-spotted Monitor							1	1			1			1		1	1	1		1
	Varanus tristis	Racehorse Goanna							1	1		1	1				1	1		1		1
Typhlopidae	*Anilios ammodytes*	Pilbara Blind Snake															1	1				
	Anilios ganei	Gane's Blind Snake		P1	2	1			1					1				1				
	Anilios grypus	Northern Beaked Blind Snake							1									1				
	Anilios hamatus	Northern Hook-snouted Blind Snake								1								1				
Pythonidae	*Antaresia perthensis*	Pygmy Python							1	1				1		1		1				1
	Antaresia stimsoni	Stimson's Python																	1			
	Aspidites melanocephalus	Black-headed Python														1						
	Liasis olivaceus barroni	Pilbara Olive Python	VU	VU	4	1	1			1							1					1
Elapidae	*Acanthophis wellsi*	Pilbara Death Adder							1				1	1								
	Brachyurophis approximans	North-western Shovel-nosed Snake							1	1								1				
	Demansia psammophis	Yellow-faced Whipsnake							1	1				1				1				1
	Demansia rufescens	Rufous Whipsnake							1	1			1				1	1	1			
	Furina ornata	Moon Snake							1	1				1			1	1				
	Parasuta monachus	Monk Snake							1	1								1				1

Family	Scientific name[1)]	Common name	Status[2)]		Databases[3)]				Survey reports[4)]													
			EPBC	BCA	TPFa	NM	PM50	BD50	BL11	BL12	BL13	BL16	EC04a	EC04b	EC05	EC98	EV07	EV08	MA99	OE08	SZ08	Ra12
	Pseudechis australis	Mulga Snake							1	1				1								1
	Pseudonaja mengdeni	Western Brown Snake								1							1			1		1
	Pseudonaja modesta	Ringed Brown Snake							1	1								1				1
	Suta fasciata	Rosen's Snake							1							1		1				1
	Vermicella snelli	Pilbara Bandy Bandy							1													1
Amphibians																						
Pelodryadidae	*Cyclorana maini*	Sheep Frog							1	1	1					1		1		1		1
	Cyclorana occidentalis	Western Water-holding Frog																1				
	Litoria rubella	Little Red Tree Frog							1	1	1					1	1	1		1		1
Limnodynastidae	*Neobatrachus sutor*	Shoemaker Frog									1							1				
	Platyplectrum spenceri	Centralian Burrowing Frog									1											
Myobatrachidae	*Pseudophryne douglasi*	Gorge Toadlet							1													
	Uperoleia russelli	Northwest Toadlet							1													

Footnotes:
1) Scientific name:
Asterisk (*) preceding name indicates fauna species in introduced (not native) to Western Australia.
2) Status:
EPBC = Conservation listing under the federal EPBC Act: CR = Critically Endangered, EN = Endangered, VU = Vulnerable, MI = Migratory, MA = Marine
BCA = Conservation listing under the Western Australian Biodiversity Conservation Act and Priority listing by the DBCA: CR = Critically Endangered, EN = Endangered, VU = Vulnerable, MI = Migratory, OS = Other specially protected fauna, P1 to P4 = DBCA Priority 1 to 4
3) Databases:
TPFa = DBCA Threatened and Priority Fauna Database (50 km radius)
NM = DBCA NatureMap online database (40 km radius)
PM = Protected Matters database (50 km radius). Only returns species and communities listed under the EPBC Act.
BD50 = Birdlife Australia Birdata database (50 km radius)
4) Fauna survey reports:
BL11 = Biologic (2011) Area C and surrounds fauna survey
BL12 = Biologic (2012) Southern Flank vertebrate fauna survey
BL13 = Biologic (2013) Mudlark vertebrate fauna survey
BL16 = Biologic (2016) South Flank targeted fauna survey
EC04a = Ecologia (2004a) Packsaddle Range biological survey
EC04b = Ecologia (2004b) Area C: Deposits D, E, F biological survey
EC05 = Ecologia (2005) Pilbara Leaf-nosed Bat and Ghost Bat monitoring survey at Nimingarra and Cattle Gorge.
EC98 = Ecologia (1998) Mining area C biological survey
EV07 = ENV (2007) Area C: R deposit fauna assessment
EV08 = ENV (2008) Area C southern flank deposit fauna assessment
MA99 = Halpern Glick Maunsell (1999) Mining Area C western access corridor biological assessment
OE08 = Outback Ecology (2008) Area C Mining Operation Environmental Management Plan
SZ08 = Specialised Zoological (2008) Area C bat survey
Ra12 = Rapallo (2012) Lamb Creek detailed fauna survey and targeted northern quoll survey
*RA20 = Rapallo (2020) Lamb Creek - **THIS SURVEY***

Appendix VI Desktop results: Conservation significant fauna recorded within 50 km of Lamb Creek

Family	Scientific name	Common name	Status[1)]		Total records	Likelihood in Survey area
			EPBC	BCA		
Birds						
Cuculidae	*Chalcites basalis*	Horsfield's Bronze-Cuckoo	MA		10	Confirmed
Cuculidae	*Chalcites osculans*	Black-eared Cuckoo	MA		5	Likely
Cuculidae	*Heteroscenes pallidus*	Pallid Cuckoo	MA		11	Confirmed
Eurostopodidae	*Eurostopodus argus*	Spotted Nightjar	MA		10	Confirmed
Apodidae	*Apus pacificus*	Fork-tailed Swift	MI, MA	MI	11	Confirmed
Scolopacidae	*Tringa nebularia*	Common Greenshank	MI, MA	IA	3	Unlikely
Ardeidae	*Bubulcus ibis*	Cattle Egret	MA		2	Possible
Threskiornithidae	Threskiornis spinicollis	Straw-necked Ibis	MA		1	Possible
Accipitridae	*Elanus scriptus*	Letter-winged Kite		P4	2	Possible
Accipitridae	*Accipiter fasciatus*	Brown Goshawk	MA		7	Confirmed
Accipitridae	*Haliastur sphenurus*	Whistling Kite	MA		11	Confirmed
Strigidae	Ninox boobook	Southern Boobook	MA		7	Likely
Strigidae	Ninox connivens subps. connivens	Barking Owl (southwest)		P3	1	Highly unlikely
Meropidae	*Merops ornatus*	Rainbow Bee-eater	MA		13	Confirmed
Alcedinidae	Todiramphus sanctus	Sacred Kingfisher	MA		3	Possible
Falconidae	*Falco cenchroides*	Nankeen Kestrel	MA		11	Confirmed
Falconidae	*Falco hypoleucos*	Grey Falcon	VU	VU	7	Possible
Falconidae	*Falco peregrinus*	Peregrine Falcon		OS	16	Likely
Psittaculidae	*Pezoporus occidentalis*	Night Parrot	EN	CR	2	Possible
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckoo-shrike	MA		13	Confirmed
Maluridae	Malurus leucopterus subsp. leucopterus	White-winged Fairy-wren (Dirk Hartog Island)	VU	VU	1	Highly unlikely
Monarchidae	*Grallina cyanoleuca*	Magpie-lark	MA		12	Confirmed

Family	Scientific name	Common name	Status[1)]		Total records	Likelihood in Survey area
			EPBC	BCA		
Motacillidae	Anthus novaeseelandiae	Australasian Pipit	MA		6	Possible
Hirundinidae	*Hirundo neoxena*	Welcome Swallow	MA		3	Possible
Mammals						
Dasyuridae	*Dasycercus blythi*	Brush-tailed Mulgara, Ampurta		P4	2	Unlikely
Dasyuridae	*Dasyurus hallucatus*	Northern Quoll	EN	EN	16	Confirmed
Dasyuridae	*Dasyurus geoffroii*	Western quoll, Chuditch	VU	VU	1	Highly unlikely
Thylacomyidae	*Macrotis lagotis*	Bilby, Dalgyte	VU	VU	5	Unlikely – no sandplains
Muridae	*Leggadina lakedownensis*	Short-tailed Mouse		P4	3	Likely
Muridae	*Pseudomys chapmani*	Western Pebble-mound Mouse		P4	205	Confirmed
Muridae	*Zyzomys pedunculatus*	Central rock rat	CR	CR	1	Highly unlikely
Rhinonycteridae	*Rhinonicteris aurantia (Pilbara)*	Pilbara Leaf-nosed Bat	VU	VU	13	Unlikely
Megadermatidae	*Macroderma gigas*	Ghost Bat	VU	VU	142	Confirmed
Reptiles						
Carphodactylidae	*Underwoodisaurus seorsus*	Pilbara Barking Gecko		P2	22	Likely
Typhlopidae	*Anilios ganei*	Gane's Blind Snake		P1	6	Likely
Pythonidae	*Liasis olivaceus barroni*	Pilbara Olive Python	VU	VU	10	Confirmed

Appendix VII List of vertebrate fauna species recorded during the survey

Family	Scientific Name	Common name	Status[1)]	Systematic trap sites										Other sites[2)]		
				S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	Opp	CT	SM4
Birds																
Phasianidae	*Coturnix pectoralis*	Stubble Quail	MA					1							1	
Columbidae	*Geophaps plumifera*	Spinifex Pigeon					1							1		
Columbidae	*Ocyphaps lophotes*	Crested Pigeon		2		1						1		2		
Columbidae	*Geopelia cuneata*	Diamond Dove		2				1						2		
Columbidae	*Geopelia placida*	Peaceful Dove						1								
Cuculidae	*Chalcites osculans*	Black-eared Cuckoo	MA				1							1		
Otididae	*Ardeotis australis*	Australian Bustard												1		
Turnicidae	*Turnix velox*	Little Button-quail		2										3		
Accipitridae	*Elanus axillaris*	Black-shouldered Kite												1		
Accipitridae	*Aquila audax*	Wedge-tailed Eagle												1		
Accipitridae	*Accipiter fasciatus*	Brown Goshawk	MA			1										
Accipitridae	*Haliastur sphenurus*	Whistling Kite	MA	2		1		1						2		
Accipitridae	*Milvus migrans*	Black Kite		1												
Falconidae	*Falco cenchroides*	Nankeen Kestrel	MA			1										
Falconidae	*Falco berigora*	Brown Falcon								2	1			2		
Cacatuidae	*Nymphicus hollandicus*	Cockatiel				1					1	1		3		
Cacatuidae	*Eolophus roseicapilla*	Galah									3					
Psittacidae	*Barnardius zonarius*	Australian Ringneck				1			1		3					
Psittacidae	*Melopsittacus undulatus*	Budgerigar					1		3		2	5	2	2		
Maluridae	*Malurus lamberti*	Variegated Fairy-wren				2		1						7		

Family	Scientific Name	Common name	Status[1)]	Systematic trap sites										Other sites[2)]		
				S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	Opp	CT	SM4
Maluridae	*Malurus leucopterus*	White-winged Fairy-wren				1								2		
Meliphagidae	*Lichmera indistincta*	Brown Honeyeater				1			1					1		
Meliphagidae	*Certhionyx variegatus*	Pied Honeyeater									1			1		
Meliphagidae	*Conopophila whitei*	Grey Honeyeater		1								1				
Meliphagidae	*Epthianura tricolor*	Crimson Chat												1		
Meliphagidae	*Acanthagenys rufogularis*	Spiny-cheeked Honeyeater		2	1	3	1	2	1	4	4	3	6	4		
Meliphagidae	*Gavicalis virescens*	Singing Honeyeater		4	1	2	1	5	8	6	6	6		4		
Meliphagidae	*Ptilotula keartlandi*	Grey-headed Honeyeater		2	1	2	1	1	2	2	3		6	4		
Meliphagidae	*Ptilotula plumula*	Grey-fronted Honeyeater												1		
Meliphagidae	*Ptilotula penicillata*	White-plumed Honeyeater				2										
Meliphagidae	*Purnella albifrons*	White-fronted Honeyeater		1	1	3	2							3		
Meliphagidae	*Manorina flavigula*	Yellow-throated Miner		1										1		
Pardalotidae	*Pardalotus rubricatus*	Red-browed Pardalote									4			4		
Pardalotidae	*Pardalotus striatus*	Striated Pardalote												1		
Acanthizidae	*Gerygone fusca*	Western Gerygone		1					1		2			1		
Acanthizidae	*Smicrornis brevirostris*	Weebill			1	1		2			3	8	2	1		
Acanthizidae	*Aphelocephala leucopsis*	Southern Whiteface								1				1		
Acanthizidae	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill												1		
Acanthizidae	*Acanthiza apicalis*	Inland Thornbill				2				2	3					
Acanthizidae	*Acanthiza robustirostris*	Slaty-backed Thornbill									2					
Pomatostomidae	*Pomatostomus temporalis*	Grey-crowned Babbler		1	1			1	3	1		3		2		

Family	Scientific Name	Common name	Status[1)]	Systematic trap sites										Other sites[2)]		
				S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	Opp	CT	SM4
Campephagidae	*Coracina maxima*	Ground Cuckoo-shrike								3						
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckoo-shrike	EPBC Marine									1		2		
Campephagidae	*Lalage tricolor*	White-winged Triller		3							1					
Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler		2	1	3	1					2		7		
Pachycephalidae	*Colluricincla harmonica*	Grey Shrike-thrush										2		4		
Oreoicidae	*Oreoica gutturalis*	Crested Bellbird		1	1	2	1	2	2	4	7	1	4	7		
Artamidae	*Gymnorhina tibicen*	Australian Magpie									4					
Artamidae	*Cracticus nigrogularis*	Pied Butcherbird		1	1	1	1				2	1	3	2		
Artamidae	*Artamus cinereus*	Black-faced Woodswallow		1			1		7			2		2		
Artamidae	*Artamus minor*	Little Woodswallow							4	1				3		
Artamidae	*Artamus leucorynchus*	White-breasted Woodswallow		1					5	5			1			
Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail		3	1			1	2		8	6		5		
Corvidae	*Corvus orru*	Torresian Crow												1	1	
Corvidae	*Corvus bennetti*	Little Crow							1					1		
Petroicidae	*Petroica goodenovii*	Red-capped Robin												1		
Petroicidae	*Melanodryas cucullata*	Hooded Robin								2	7		1	2		
Estrildidae	*Emblema pictum*	Painted Finch												1		
Estrildidae	*Taeniopygia guttata*	Zebra Finch		2				1	3	4		5	1	3		
Locustellidae	*Cincloramphus cruralis*	Brown Songlark		1										1		
Locustellidae	*Cincloramphus mathewsi*	Rufous Songlark								1				1		
Locustellidae	*Poodytes carteri*	Spinifexbird							3	2				2		

Family	Scientific Name	Common name	Status[1)]	Systematic trap sites										Other sites[2)]		
				S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	Opp	CT	SM4
Mammals																
Dasyuridae	*Dasykaluta rosamondae*	Kaluta					2		1		1				1	
Dasyuridae	*Dasyurus hallucatus*	Northern Quoll	EN											1		
Dasyuridae	*Ningaui timealeyi*	Pilbara Ningaui			1	2	1	1								
Dasyuridae	*Sminthopsis ooldea*	Ooldea Dunnart			2			1				2				
Macropodidae	*Osphranter robustus*	Euro, Biggada												3		
Macropodidae	*Petrogale rothschildi*	Rothschild's Rock-wallaby												10		
Muridae	*Mus musculus*	House Mouse	s11										1			
Muridae	*Pseudomys chapmani*	Western Pebble-mound Mouse	P4											35		
Muridae	*Pseudomys desertor*	Desert Mouse		2								1				
Muridae	*Pseudomys hermannsburgensis*	Sandy Inland Mouse		1			2		1	1						
Megadermatidae	*Macroderma gigas*	Ghost Bat	VU													3
Emballonuridae	*Taphozous hilli*	Hill's Sheath-tailed Bat														8
Molossidae	*Chaerephon jobensis*	Greater Northern Free-tailed Bat														8
Molossidae	*Ozimops lumsdenae*	Northern Free-tailed Bat														2
Vespertilionidae	*Chalinolobus gouldii*	Gould's Wattled Bat														7
Vespertilionidae	*Scotorepens greyii*	Little Broad-nosed Bat														9
Vespertilionidae	*Vespadelus finlaysoni*	Finlayson's Cave Bat														9
Canidae	*Canis familiaris dingo*	Dingo												1		
Felidae	*Felis catus*	Cat	s11											1		

Family	Scientific Name	Common name	Status[1)]	Systematic trap sites										Other sites[2)]		
				S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	Opp	CT	SM4
Reptiles																
Carphodactylidae	*Nephrurus cinctus*	Northern Banded Knob-tailed Gecko						3		1						
Diplodactylidae	*Diplodactylus pulcher*	Pretty Gecko		1												
Diplodactylidae	*Diplodactylus savagei*	Southern Pilbara Beak-faced Gecko									2		5			
Diplodactylidae	*Lucasium wombeyi*	Pilbara Ground Gecko			1	7	10	5	4	5	2	2	1			
Diplodactylidae	*Rhynchoedura ornata*	Western Beaked Gecko		2				2	12	8		12				
Diplodactylidae	*Strophurus elderi*	Jewelled Gecko							1							
Gekkonidae	*Gehyra variegata*	Variegated gehyra		4	4				1							
Gekkonidae	*Heteronotia binoei*	Bynoe's Gecko				3	9	3	2		6	4	2			
Pygopodidae	*Delma butleri*	Spinifex Delma				1										
Pygopodidae	*Delma nasuta*	Sharp-snouted Delma									1					
Pygopodidae	*Delma pax*	Peace Delma						1			1					
Pygopodidae	*Delma tincta*	Black-necked Delma					1									
Pygopodidae	*Lialis burtonis*	Burton's Snake-lizard						1			1		1			
Agamidae	*Ctenophorus caudicinctus*	Western Ring-tailed Dragon		1	2	1	4	2	5	1	3	2	2	14		
Agamidae	*Ctenophorus isolepis*	Yellowy Military Dragon		4		1	1		1			1		3		
Agamidae	*Diporiphora amphiboluroides*	Mulga Dragon												2		
Agamidae	*Diporiphora valens*	Southern Pilbara Tree Dragon		1		4	1		1	2	2			1		
Agamidae	*Gowidon longirostris*	Long-nosed Dragon												1		

Family	Scientific Name	Common name	Status[1)]	Systematic trap sites										Other sites[2)]		
				S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	Opp	CT	SM4
Agamidae	*Pogona minor*	Dwarf Bearded Dragon		2					1							
Scincidae	*Carlia triacantha*	Desert Rainbow Skink		7	1	1	1		2							
Scincidae	*Cryptoblepharus ustulatus*	Russet Snake-eyed Skink													2	
Scincidae	*Ctenotus duricola*	Eastern Pilbara Lined Ctenotus				2					1	1				
Scincidae	*Ctenotus helenae*	Dusky Ctenotus										1				
Scincidae	*Ctenotus pantherinus*	Leopard Ctenotus		20	7	11	8	2	3	2	2	4	1	1		
Scincidae	*Ctenotus saxatilis*	Rock Ctenotus		18	10	5	3	3	7	8	11	11	6	5	4	
Scincidae	*Ctenotus schomburgkii*	Barred Wedge-snouted Ctenotus		2				1	4	2	1	2	1			
Scincidae	*Ctenotus serventyi*	North-western Sandy-loam Ctenotus										1				
Scincidae	*Cyclodomorphus melanops*	Spinifex Slender Blue-tongue						1								
Scincidae	*Egernia formosa*	Goldfields Crevice-skink													2	
Scincidae	*Eremiascincus richardsonii*	Broad-banded Sand Swimmer							1	4						
Scincidae	*Lerista jacksoni*	Jackson's Three-toed Slider				1						1				
Scincidae	*Menetia greyii*	Common Dwarf Skink											1			
Scincidae	*Morethia ruficauda*	Fire-tailed Skink				1										
Scincidae	*Proablepharus reginae*	Western soil-crevice skink				1										
Scincidae	*Tiliqua multifasciata*	Central Blue-tongue			1			1	1							
Varanidae	*Varanus acanthurus*	Spiny-tailed Goanna											1		1	

Family	Scientific Name	Common name	Status[1)]	Systematic trap sites										Other sites[2)]		
				S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	Opp	CT	SM4
Varanidae	*Varanus brevicauda*	Short-tailed Pygmy Goanna				3	2	1			1	1				
Varanidae	*Varanus bushi*	Pilbara Mulga Goanna										1				
Varanidae	*Varanus hamersleyensis*	Southern Pilbara Rock Goanna													2	
Varanidae	*Varanus tristis*	Racehorse Goanna												2		
Typhlopidae	*Anilios hamatus*	Northern Hook-snouted Blind Snake			1											
Elapidae	*Brachyurophis approximans*	North-western Shovel-nosed Snake								1	1	1				
Elapidae	*Pseudechis australis*	Mulga Snake													2	
Elapidae	*Pseudonaja modesta*	Ringed Brown Snake					1							1		
Amphibians																
Pelodryadidae	*Cyclorana maini*	Sheep Frog												1		

Footnotes:

1) Status:

VU = Vulnerable under the EPBC Act and BC Act;
P4 = DBCA Priority 4,
MA = Marine under the EPBC Act;
s11 = Introduced species (feral) listed permitted under the Western Australian Organism List (WAOL);
s22(2) = Introduced (feral) species listed as a Declared Pest under the WAOL.

2) Other sites

Opp = Opportunistic records across the survey area
CT = Recorded on camera transects
SM4 = Recorded from bat detectors deployed across the survey area

Appendix VIII Bat call analysis

Lamb Creek, Pilbara WA,

Acoustic Survey of Bat and Night Parrot Activity, April 2020, February 2021.

Prepared for Rapallo Group

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Document Revision History

Issue	Date	Revision History
A	7 May 2020	Initial draft for Rapallo review
1	15 May 2020	First formal issue
2	17 Nov 2020	Second issue with minor corrections
3	15 March 2021	Third issue incorporating Feb 21 data
4	6 April 2021	Fourth Issue incorporating client review comments.
5	10 November 2021	Fifth Issue incorporating further client review comments.

Summary
Bat and Night Parrot (*Pezoporus occidentalis*) presence is reported for seventeen sites at Lamb Creek, in the Pilbara, WA. Rapallo carried out an echolocation-based survey in April 2020 and February 2021. Sixteen sites were surveyed for all bats present including Ghost bat social and ultrasonic calls. Three were surveyed using acoustic detectors set to record Night Parrot and Ghost bat social calls. Bat Call WA has reviewed the recordings made and provided species lists for the bats present.

Seven species of echolocating bats were confirmed present including the Ghost bat (*Macroderma gigas*) (PGb) that is listed as vulnerable under both state and commonwealth legislation. PGb presence was detected at five caves. Multiple calls consistent with at least four diurnally roosting PGb were detected on three nights at Cave 1 in April 2020 and for 2 nights at Cave 5 in February 2021. Calls consistent with a single diurnally roosting PGb were detected on one night at Cave 4 in February 2021. Calls at times consistent with foraging visits were detected at Caves 2 and 3 in April 2020 and at Cave 3 in February 2021. This result is consistent with the known population and dispersal of PGb in the district.

No Pilbara leaf-nosed bats (*Rhinonicteris aurantia*) (PLNb) or Night Parrot calls were detected.

Habitats
The sites for the survey were chosen by Rapallo. Details of the sites are presented in table 1 and caves are described in detail in Appendix A. The bat sites included each type of habitat present in the study area including cave entrances, an incised gully, drainage lines and spinifex plains. All the Night Parrot sites are on spinifex plains with thin shrubland. The locations are shown in relation to local features in figure 1.

Timing, Moon Phase and Weather
The dry season echolocation survey was conducted between 16th to 28th April 2020. The sampling evenings were hot and dry with minimum overnight temperatures between 25 and 30^{O}C. Occasional showers fell during the survey. The moon was between third quarter and new.

The wet season echolocation survey was conducted between 20th to 24th February 2021. The sampling evenings were hot and dry with minimum overnight temperatures between 20 and 25^{O}C. No rain fell during the survey. The moon was between first quarter and full.

Survey Team
Sites were chosen and detectors placed by Rapallo ecologists. Bob Bullen of Bat Call WA completed analysis of audio and echolocation recordings.

Sampling
The bat survey consisted of completing a total of thirty-three overnight ultrasonic bat sound recordings, beginning at twilight, at sixteen locations within the survey area. A total of eight acoustic survey nights were completed at three sites for Night Parrot. The recordings were "continuous" (Hyder *et al.* 2010) made using ultrasonic SM4BAT-FS and acoustic SM4A SongMeter (both by Wildlife Acoustics Inc., USA) detectors. The audio settings used followed the manufacturer's recommendations contained in the user manuals.

For the ultrasonic recordings, once reformatted as .wav files, COOL EDIT 2000 (now available as AUDITION from Adobe Systems Inc.) was used to display each sequence for identification. Calls were identified manually. Only good quality call sequences were used. Details of calls analysed are provided in Table 2 as recommended by Australasian Bat Society (ABS 2006). Reference data for

the species identified are available in Bullen and McKenzie 2002, McKenzie and Bullen 2003 and McKenzie and Bullen 2009.

For the acoustic recordings, each was reviewed both manually and using an automatic scan technique for Night Parrot calls. Candidate calls were compared with the author's confirmed reference calls from two Western Australian arid zone locations.

Survey Limitations
The sites surveyed were accessible on foot and the detectors, using omnidirectional microphones, were set on the ground with the microphone horizontal. Species are unlikely to be under-represented as a result.

Bat species density away from cave or adit entrances is impossible to estimate from echolocation records. Bat activity is therefore substituted as an approximate guide to the relative numbers of each species using the study area.

Results of bat fauna survey
An assemblage of seven echolocating bat species was confirmed as present at the study sites including the PGb, table 4. Species activity levels were low to high, which is expected for the study area habitat and the times of year.

PLNb detections
No PLNb were detected during the survey

PGb detections
Ghost bats were detected ultrasonically at all five cave sites, table 4, figure 1. At least four diurnally roosting PGb were confirmed at Cave 1 in April 20 by the temporal pattern of their recorded calls on three nights. Both social and ultrasonic calls were recorded before dawn followed by similar numbers of calls soon after dusk that day. This was not repeated in February 2021. Calls consistent with diurnally roosting PGb were detected at Caves 4 and 5 in February. Calls consistent with foraging PGb were detected at Caves 2 and 3 on one night each in February and for two nights at cave 3 in February. These records are consistent with the PGb being present in the study area ridges. This result is consistent with the known presence of the PGb across the central Pilbara in general and on the major ridges in the district.

The five caves have been provisionally classified as roost caves of either Category 2, 3 or 4 based on the detected call pattern and the descriptions of their internal complexity, table 4 and Appendix A. Cave 1 is provisionally a Cat 2 while Caves 2, and 3 are provisionally Cat 3. Caves 4 and 5 are known Cat 3 and 2 respectively (authors unpublished data). Caves that are confirmed as Category 2 and groupings of caves that surround them are critical PGb habitat. The categories are described in detail in Appendix B.

Common bat species detections
Four common species, *Chaerephon jobensis*, *Chalinolobus gouldii*, *Taphozous hilli* and *Vespadelus finlaysoni* dominated bat presence in the area.

Taxonomy presented herein is after Reardon *et al.* (2014) and Jackson and Groves (2015).

Results of Night Parrot survey.
No Night Parrot calls were detected.

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Table 1: Microbat site specific details. Coordinates are Zone 50K

	Date	Recording Time & SM unit	Habitat	Easting	Northing
April 2020					
Site 1	20 Apr 20	One overnight recording using SM4U-6479 recording at 384 kbps	Thin woodland	684831	7467776
Site 2	20 Apr 20	One overnight recording using SM4U-6488 recording at 384 kbps	Thin woodland	685101	7468474
Site 3	21 Apr 20	One overnight recording using SM4U-6479 recording at 384 kbps	Shrubland	682905	7471293
Site 4	22 Apr 20	One overnight recording using SM4U-6479 recording at 384 kbps	Spinifex plain	685919	7475392
Site 5	23 Apr 20	One overnight recording using SM4U-6479 recording at 384 kbps	Shrubland	688642	7477107
Site 6	16 to 17 Apr 20	Two overnight recordings using SM4U-6488 recording at 384 kbps	Shrubland	690293	7477134
Site 7	16 to 17 Apr 20	Two overnight recordings using SM4U-6479 recording at 384 kbps	Thin woodland	691388	7476256
Site 8	18 Apr 20	One overnight recording using SM4U-6488 recording at 384 kbps	Thin woodland	692623	7476976
Site 9	19 Apr 20	One overnight recording using SM4U-6488 recording at 384 kbps	Minor drainage line	692959	7477588
Site 10	18 to 19 Apr 20	Two overnight recordings using SM4U-6479 recording at 384 kbps	Minor drainage line	693016	7476648
Site Gully	27 to 28 Apr 20	Detector failed to record	Incised gully	688384	7475295
Cave 1	21 to 24 Apr 20	Four overnight recordings using SM4U-6488 recording at 384 kbps	Cave Entrance	693571	7476273
Cave 2	25 to 26 Apr 20	Two overnight recordings using SM4U-6488 recording at 384 kbps	Cave Entrance	690696	7473764
Cave 3	24 to 27 Apr 20	Four overnight recordings using SM4U-6479 recording at 384 kbps	Cave Entrance	694116	7476556
February 2021					
Cave 1	20 to 22 Feb 21	Three overnight recordings using SM4U-4031 recording at 384 kbps	Cave Entrance	693571	7476273
Cave 3	20 to 22 Feb 21	Three overnight recordings using SM4U-8168 recording at 384 kbps	Cave Entrance	694116	7476556
Cave 4	23 to 24 Feb 21	Two overnight recordings using SM4U-4031 recording at 384 kbps	Cave Entrance	683844	7469750
Cave 5	23 to 24 Feb 21	Two overnight recordings using SM4U-8168 recording at 384 kbps	Cave Entrance	683848	7469788

Table 2: Night Parrot site specific details.

	Date	Recording Time & SM2 unit	Habitat	Easting	Northing
April 2020					
Site A3	20 to 22 April	Three overnight recordings using SM4A-4717	Thin Shrubland	682915	7471272
A-Haul Road	23 to 24 April	Two overnight recordings using SM4A-4717	Spinifex plain	683241	7473176
A-Footprint	25 to 27 April	Three overnight recordings using SM4A-4717	Spinifex plain	691745	7475914

Note 1: Coordinates are Zone 50K

Table 3: Summary of Echolocation call characteristics for microbat species present.

Genus species Authority	Common name	Typical F_{peak} kHz Note 1	Ave. Q Note 1	Typical Duration msec	Typical Call Shape
Chaerephon jobensis (Miller 1902)	Northern free-tailed bat	22	5	8 - 15	Shallow FM
Chalinolobus gouldii (Grey 1841)	Gould's wattled bat	32	10	7 - 11	FM
Macroderma gigas (Dobson 1880)	Ghost bat	20 – 52 variable	2 – 20 variable	variable	Complex FM
Ozimops lumsdenae Reardon *et al*.2014	Northern free-tailed bat	26	10	8 - 13	Shallow FM
Scotorepens greyii (Gray 1843)	Little broad-nosed bat	38	10	7 - 13	FM
Taphozous hilli Thomas 1915	Hills sheath-tailed bat	26	14	9 - 18	CF– shallow FM
Vespadelus finlaysoni (Kitchener, Jones and Caputi 1987)	Inland cave bat	55	14	4 - 8	FM

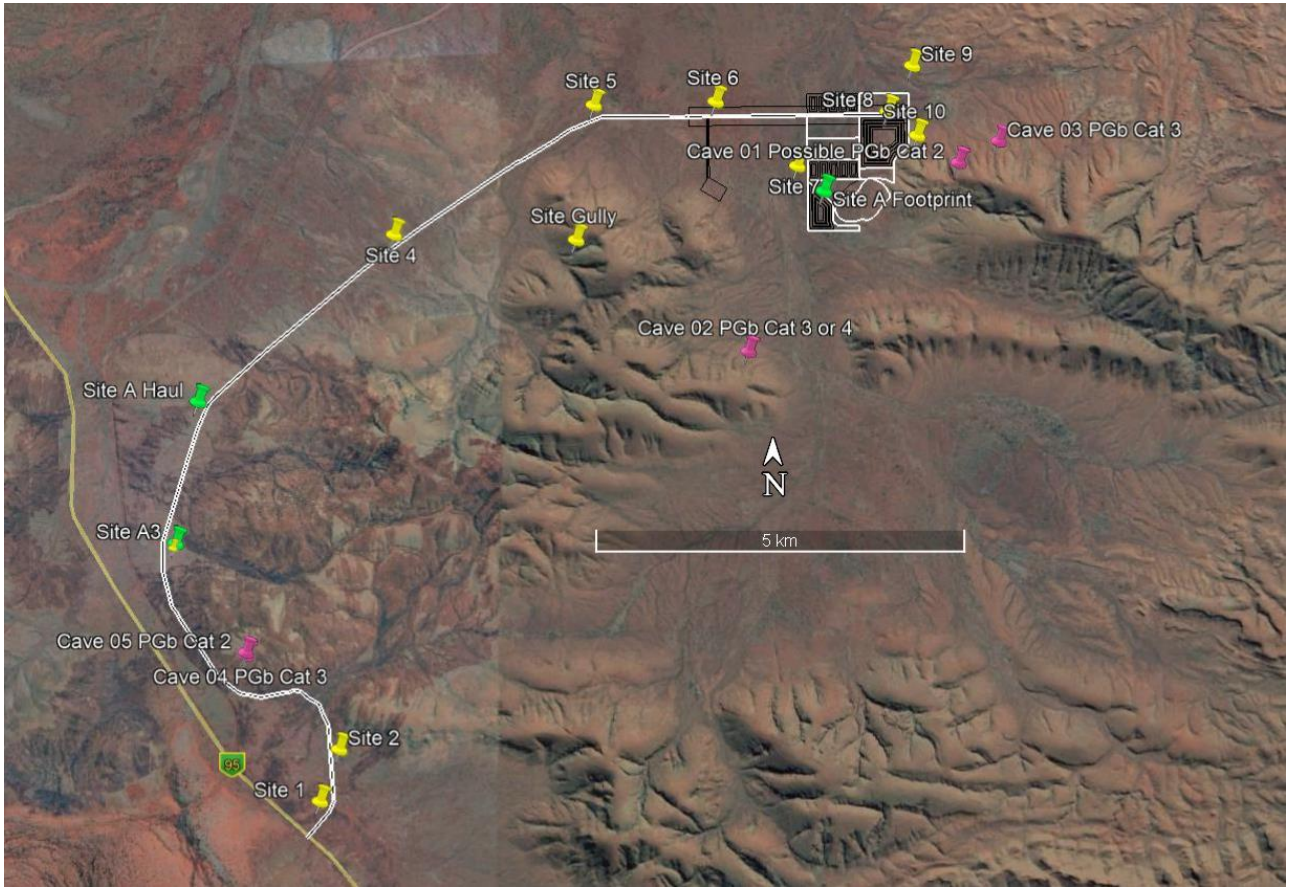
Note 1: Fpeak and Q are defined in McKenzie and Bullen 2003, 2009.
Note 2: Taxonomy follows Jackson and Groves (2015). *O. lumsdenae* was recently *Mormopterus beccarii*.

Table 4: Survey microbat lists presented by site.

Site	*Chaerephon jobensis*	*Chalinolobus gouldii*	*Macroderma gigas*	*Ozimops lumsdenae*	*Scotorepens greyii*	*Taphozous hilli*	*Vespadelus finlaysoni*
April 2020							
Site 1					Yes		Yes
Site 2	Yes				Yes		Yes
Site 3							Yes
Site 4	Yes	Yes			Yes	Yes	Yes
Site 5					Yes	Yes	
Site 7	Yes	Yes			Yes	Yes	Yes
Site 8	Yes	Yes		Yes		Yes	
Site 9	Yes	Yes			Yes		
Site 10	Yes	Yes		Yes	Yes	Yes	Yes
Cave 1	Yes	Yes	Multiple calls consistent with diurnal roosting over multiple days		Yes	Yes	Yes
Cave 2	Yes		Multiple calls consistent with nocturnal foraging on one night			Yes	Yes
Cave 3		Yes	1 call consistent with nocturnal foraging on one night		Yes	Yes	Yes
February 21							
Cave 1	Yes	Yes			Yes	Yes	Yes
Cave 3	Yes		Multiple calls consistent with nocturnal foraging on two nights			Yes	Yes
Cave 4			Multiple calls consistent with diurnal roosting			Yes	Yes
Cave 5	Yes		Multiple calls consistent with diurnal roosting			Yes	Yes

Note: Both *Taphozous* species were detected. The majority of calls were *T. georgianus. T hilli* calls were also present at some sites

Figure 1. Survey sites in relation to features in the study area. The white and black areas are the proposed impact area and the haul road to the GNH. Pink pins denote sites where PGb ultrasonic calls and opportunistic observations were recorded. Yellow pins denote sites where microbat calls were recorded but no PLNb or PGb were detected. Green pins denote sites where acoustic detectors were placed to record Night Parrot and Ghost bat social calls.



Appendix 1. Cave Descriptions.

Descriptions and images provided by Rapallo.

	MGA Zone 50 K		Description	Photograph
	Easting (mE)	Northing (mE)		
Cave 1 **Cat 2.** PGb diurnal roosting detected. 5 PGb observed April 2020 No PGb detected Feb 21	693571	7476273	**Entrance:** 4 m wide x 1.5 m high **Orientation:** South **Internal:** 2 chambers over 10 m deep. **Conditions:** Ghost Bats roosting diurnally in April 20 and middens present.	

	MGA Zone 50 K		Description	Photograph
	Easting (mE)	Northing (mE)		
Cave 2 **Cat 3.** PGb nocturnal visit detected April 2020.	690696	7473764	**Entrance:** 3.5 m wide x 2 m high **Orientation:** East **Internal:** Single chamber 10 m deep. **Conditions:** PGb nocturnal visit detected but no middens present.	

	MGA Zone 50 K		Description	Photograph
	Easting (mE)	Northing (mE)		
Cave 3 **Cat 3.** PGb nocturnal visits detected April 2020 and Feb 21.	694116	7675556	**Entrance:** 4 m wide x 1.5 m high **Orientation:** West **Internal:** Single chamber with a 4 m high dome. **Conditions:** PGb nocturnal visit detected but no middens present.	

	MGA Zone 50 K		Description	Photograph
	Easting (mE)	Northing (mE)		
Cave 4 **Cat 3.** Feb 21. PGb nocturnal visits detected. Possible diurnal roosting	683844	7469750	**Entrance:** 3 m high x 3.5 m wide. **Orientation:** West **Internal:** Inner chamber approx. 2 m high. **Conditions:** Large deep cave with high roof. Inner chamber approx. 2 m high.	

	MGA Zone 50 K		Description	Photograph
	Easting (mE)	Northing (mE)		
Cave 5 **Cat 2.** Feb 21. PGb diurnal roosting detected.	683848	7469788	**Entrance:** 7 m wide x 6 m high. **Orientation:** East **Conditions:** Large deep cave with high roof and complex interior. PGb diurnal roosting detected.	

Appendix B: Ghost bat Cave Habitat Classifications

Each Ghost bat roost cave identified can be categorised according to the following definitions based on usage. These definitions are based on contemporary observations and unpublished data and have been developed from the earlier cave definitions contained in TSSC 2016 and other publications.

Category 1 diurnal roost caves with permanent Ghost bat occupancy.

There are a number of documented permanent roost caves and underground mines in northern Australia, e.g. Tunnel Creek in the Kimberley and Kohinoor adit in the NT. These tend to have large but variable populations, e.g. Kohinoor's colony has grown from 300+ in 1981 to ~1,500 in 1990 and then reduced to 550 in 2013 (Woinarski *et al*. 2014). In the Pilbara, other than a number of historical underground mines e.g. Comet, Klondyke Queen, Lalla Rookh and Bamboo Creek which do have large populations of over 100 Ghost bats, very few such roosts in natural caves are documented. Those natural caves that may be permanently occupied have been observed with variable populations present. One example is a significant cave with a complex surrounding gully in the Robe Valley south-west of Pannawonica that has had Ghost bats present on most, if not all, survey visits. The colony size at this cave has varied from a few to over 70 recorded in April 2017 (Bat Call 2017). Where permanent presence at category 1 sites is proven, they must all be assumed to be maternity caves. These are considered as critical habitat essential for the persistence of the Ghost bat in the Pilbara.

Category 2 diurnal roost caves with regular occupancy.

There are a number of Pilbara caves and adits where Ghost bats have regular, but not continuous, presence over long periods. These tend to be deep caves with ceiling heights in rear chambers of at least 1.5 m allowing multiple roosting opportunities for Ghost bats out of reach of predators. The longest continuous monitoring programs have been at Rio Tinto's West Angelas project and at BHPs Mining Area C and South Flank projects. At all three locations there are a number of caves with roosting Ghost bats records but none of these have had either permanent presence or consistently high numbers present. Numbers have varied between zero and five with very occasional counts of 20 or more (author's unpublished data). Based on recent monitoring of caves using ultrasonic call detectors, these caves have Ghost bats present for 25 to 75% of nights for mid to long periods but then may be abandoned for periods. There is insufficient data at present to see if there are any seasonal trends in these occupancy rates. These caves typically have a

number of other caves, shelters and overhangs within a few hundred meters. Together they make up an "apartment block" grouping (TSSC 2016, Bat Call 2017) that supports the ongoing presence of the bats.

Recent analysis at West Angelas based on genetic sampling at five monitored caves in 2015 and 2017 (Ottwell *et al*. 2018) suggests that some Ghost bats tend to use particular caves regularly over a season or year, but others move between caves in the same period. Their analysis identifies 34 unique individuals at caves over those two years and indicated that the "genetic effective population size" was twelve. Two of the five caves have been shown by the long-term observations to have regular occupancy (Biologic 2016). In all surveys undertaken, Ghost bats have been either roosting in low numbers or there was evidence of recent roosting at the former and, with the exception of one survey, at the latter. The genetic analysis also supports this conclusion with presence of multiple bats over the two years of that study at these caves. Similar occupancy patterns have been recorded at several caves at the BHP projects. There are an increasing number of observations becoming available of pregnant Ghost bats or Ghost bats carrying pups at some of these caves, plus others (e.g. Silvergrass East cave SG-1, Hamersley Iron 1999) although again there is insufficient data to identify any trends other than to say that any cave that has regular occupancy must be assumed to be capable of supporting one or more reproducing females and their offspring. These caves are considered as critical habitat essential for the persistence of the Ghost bat in the Pilbara.

Category 3 roost caves with occasional occupancy.

There are a large number of caves and adits where Ghost bats roost occasionally or rarely in small numbers of one to a few. Many are located nearby higher category roosts, but many are also in isolated locations. Surveys in recent years have identified numerous caves that have Ghost bats scats or small food middens present but either no evidence of roosting bats or with rarely repeated presence observations, e.g. five of the seven monitored caves at West Angelas (Biologic 2016) show such a pattern with occasional Ghost bats present and/or intermittent evidence of recent occupancy. Reproducing females have been reported from at least two caves at West Angelas that ongoing observations indicate fall into this category, but no firm evidence exists that such caves are necessary for successful reproduction. Individually, these are not considered as critical habitat but when they are located nearby one or more category 1 or 2 caves, and are part of an "apartment block" of disturbance refuges or nocturnal feeding sites, they are important for the persistence of the Ghost bat in the local area and the cave grouping becomes critical. Due

to the number of caves across the Hamersley Ranges and the Eastern Pilbara, isolated category 3 caves may only be considered important for the long-range dispersal of the species.

Category 4 nocturnal roost caves, opportunistic usage.

Numerous observations suggest that the majority of caves and adits in the Pilbara are used in at least an opportunistic manner by itinerant Ghost bats. This may be anything from a single foraging visit to a longer visit with a resting period or possibly a feeding session. Evidence of such visits is the widespread presence of small numbers of scats found or occasional echolocation calls recorded during surveys. These visits may or may not be repeated depending whether the bat is passing through a district or is a more permanent resident nearby. These are not considered as critical habitat but when they are located close to higher category caves and are part of an apartment block of refuges, the cave grouping is important for the persistence of the Ghost bat in the local area. Due to the number of caves across the Hamersley Ranges and the Eastern Pilbara, isolated category 4 caves are not considered important for the species.

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Appendix IX Habitat assessment data

Appendix IX Habitat assessment data

Date	Site Name	Habitat	Slope	Shading	Soil	Soil Colour	Soil Comments	Rocks	Litter Depth	Litter Distribution	Large Fallen Logs	Fire History	Disturbance	Drainage	Main_Veget Form	Easting	Northing	Zone
17/02/2021	LC01	Medium Drainage	Negligible	Minimal Shading from topography, Shade only under corymbias	Loam	Red Brown	Some piles of soil but not deep even under trees	Negligible	0-2cm	Patchy Under Trees	None	Within 5 years	Buffel grass	Creek Wide	Open Woodland	691730.6	7477159.8	50
17/02/2021	LC02	Medium Drainage	Negligible	Some shade from vegetation not heavy	Loam	Red Brown			2-5 cm	Patchy Under Trees		Long Unburnt	Buffel grass	Creek Wide	Open Woodland	691751.39	7477231.6	50
17/02/2021	LC03	Medium Drainage	Gentle	Some shading from vegetation	Loam	Red Brown			Gr20cm	Patchy Under Trees	Some	Long Unburnt	Creek choked with buffel grass	Creek Wide	Open Woodland	691483.75	7476658.5	50
17/02/2021	LC04	Mulga/corymbia plain	Negligible	Some shading from patchy vegetation (mulgas)	Sandy Clay Loam	Red Brown	Mostly hard soil except right against trees	Small Rocks	2-5 cm	Patchy Under Trees	Some	Within 5 years	Buffel grass	Sheet flow		691578.66	7476651	50
18/02/2021	LC05	Mulga/corymbia plain	Negligible	Some shading from patchy vegetation (mulgas)	Sandy Clay Loam	Red Brown	Patches of soil mostly shallow 0-5cm		2-5 cm	Patchy Under Trees		Within 10 years	Buffel grass	Sheet flow	Open Woodland	691809.64	7475592	50
18/02/2021	LC06	Mulga/corymbia plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown		Small Rocks	2-5 cm	Patchy Under Trees		Within 10 years	Buffel grass	Sheet flow	Open Woodland	691874.62	7475537.1	50
19/02/2021	LC07	Mulga/corymbia plain	Negligible	Average shading from vegetation	Sandy Clay Loam	Red Brown	Skeletal hard soil between mulga patches	Small Rocks	2-5 cm	Patchy Under Trees	Some	Within 5 years		Sheet flow	Open Shrubland	690726.58	7476079.3	50
19/02/2021	LC08	Mulga/corymbia plain	Negligible	Some shading from patchy vegetation	Loam	Red Brown	Loamy. The mulga patch tending to sandy clay loam out of the patch	Pebbles	5-10 cm	Patchy Under Trees	Some	Within 10 years		Sheet flow	Open Woodland	690772.62	7475978.9	50
19/02/2021	LC09	Mulga/corymbia plain	Negligible	Some shading from patchy vegetation	Loam	Red Brown		Surface sprinkle	2-5 cm	Patchy Under Trees	Some	Within 10 years	Buffel grass	Sheet flow	Open Woodland	692264.79	7477404.7	50
20/02/2021	LC10	Mulga/corymbia plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown		Surface sprinkle	5-10 cm	Patchy Under Trees		Within 10 years	Buffel grass	Sheet flow	Open Woodland	692336.31	7477314.8	50
20/02/2021	LC11	Hillcrest/ hillslope	Gentle	Minimal Shading from topography	No Soil	Red Brown	Skeletal under rocks	Gravel	Negligible		None	Within 10 years		Negligible		694331.16	7476078.3	50
20/02/2021	LC12	Shallow Open Gully	Steep	Some shade from topography	Sandy Clay Loam	Dark Brown			Gr20cm	Patchy against rocks	None	Long Unburnt		gully	Spinifex Grassland	694379.69	7475884.1	50
20/02/2021	LC13	Deep Gully	Steep	Some shade from topography	No Soil	Red Brown	Patches of soil (sandy clay loam) against rocks, not deep	Large Rocks	5-10 cm	Patches of litter under trees and against rocks	None	Long Unburnt		gully	Spinifex Grassland	694389.26	7475797.2	50
20/02/2021	LC14	Shallow Open Gully	Steep	Some shade from topography	No Soil	Red Brown	Patches of soil (sandy clay loam) against rocks, not deep	Large Rocks	5-10 cm	Patches of litter under trees and against rocks	None	Long Unburnt		gully	Spinifex Grassland	694288.2	7475719.9	50
21/02/2021	LC15	Mulga/corymbia plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown	Some soil against trees but not deep	Small Rocks	2-5 cm	Patchy Under Trees	Some	Within 5 years		Sheet flow	Open Shrubland	690264.72	7476809.2	50

Date	Site Name	Habitat	Slope	Shading	Soil	Soil Colour	Soil Comments	Rocks	Litter Depth	Litter Distribution	Large Fallen Logs	Fire History	Disturbance	Drainage	Main_Veget Form	Easting	Northing	Zone
21/02/2021	LC16	Stony Plain	Negligible	Minimal Shading from topography	Clay_loam	Red Brown	Skeletal under rocks	Small Rocks on surface	0-2cm	Patchy Under Trees	None	Within 5 years		Negligible	Spinifex Grassland	692741.5	7477004	50
21/02/2021	LC17	Hillcrest/ hillslope	Gentle	Minimal Shading from topography	Clay_loam	Red Brown	Skeletal	Small Rocks	Negligible		None	Within 10 years		Negligible	Spinifex Grassland	693400.78	7476697.5	50
21/02/2021	LC18	Minor Drainage	Moderate	Minimal Shading from topography	No Soil	Red Brown	Very little soil mostly creek gravel	Gravel	0-2cm			Within 10 years		Creek Narrow	Open Shrubland	693385.61	7476629.3	50
21/02/2021	LC19	Hillcrest/ hillslope	Gentle	Minimal Shading from topography	Clay_loam	Red Brown		Small Rocks, Soil is present under rocks but skeletal	Negligible			Within 5 years		Negligible	Spinifex Grassland	694647.79	7475985.4	50
21/02/2021	LC20	Shallow Open Gully	Moderate	Some shade from topography	Sandy Clay Loam	Dark Brown		Large Rocks	2-5 cm	Patches of litter under trees and against rocks	None	Long Unburnt		gully	Spinifex Grassland	694800.9	7475965.1	50
21/02/2021	LC 21	Deep Gully	Moderate	Some shade from topography	Sandy Clay Loam	Dark Brown		Small Rocks	5-10 cm	Patches of litter in the twist and turns of gullies or gorges	None	Long Unburnt		gully		694883.35	7475947.5	50
22/02/2021	LC22	Stony Plain	Gentle	Minimal Shading from topography	Sandy Clay Loam	Red Brown	Skeletal under rocks	Small Rocks	0-2cm	Patchy Under Trees	None	Within 5 years		Negligible	Spinifex Grassland	687114.4	7476173.8	50
22/02/2021	LC23	Minor Drainage	Gentle	Minimal Shading from topography and vegetation	Sandy Clay Loam	Red Brown	Little bit deeper under trees; patches of loamier soil in places	Gravel	0-2cm	Patchy Under Trees	None	Within 5 years		Creek Narrow	Other	687235.88	7476276.6	50
22/02/2021	LC24B	Stony Plain	Negligible	Minimal Shading from topography and vegetation	Loam	Red Orange		Pebbles	5-10 cm	Patchy Under Trees	None	Within 5 years	Edge of laydown and road	Sheet flow	Open Woodland	692511.24	7476409.2	50
22/02/2021	LC24A	Stony Plain	Negligible	Minimal Shading from topography and vegetation	Loam	Red Orange		Pebbles	5-10 cm	Patchy Under Trees	None	Within 5 years	Next to laydown and road	Sheet flow	Open Woodland	692218.17	7476788.5	50
22/02/2021	LC25	Minor Drainage	Gentle	Minimal Shading from topography and vegetation	No Soil	Red Brown	Skeletal Clay loam under rocks	Small Rocks	0-2cm	Patchy Under Trees	Some	Within 5 years	Exploration disturbance	Creek Narrow	Open Shrubland	692318.72	7476031.6	50
22/02/2021	LC26	Hillcrest/ hillslope	Gentle	Minimal Shading from topography and vegetation	Loam	Red Brown	Skeletal under rocks	Small Rocks	Negligible		None	Within 5 years	Exploration	Negligible	Open Shrubland	692152.09	7475861.3	50
22/02/2021	LC27B	Stony Plain	Gentle	Minimal Shading from topography and vegetation	Sandy Clay Loam	Red Brown	Soil under rocks	Small Rocks	0-2cm	Patchy Under Trees	None	Within 10 years		Negligible	Spinifex Grassland	684003.25	7473771.8	50
22/02/2021	LC27A	Minor Drainage	Gentle	Some shading from vegetation	Sandy Clay Loam	Red Brown	Patches of deeper soil in creekbed but still not that deep	Surface sprinkle	0-2cm	Patchy Under Trees	None	Within 10 years		Creek Narrow	Other	684032.84	7473928.5	50
23/02/2021	LC 28	Stony Plain	Gentle	Minimal Shading from topography and vegetation	Sandy Clay Loam	Red Brown		Surface sprinkle	5-10 cm	Patchy Under Trees	Some	Within 10 years		Creek Narrow	Shrubland	683361.54	7473308.9	50
23/02/2021	LC 29A	Stony Plain	Gentle	Minimal Shading from topography and vegetation	Sandy Clay Loam	Red Brown		Small Rocks	0-2cm	Patchy Under Trees	Some	Within 5 years		Negligible	Spinifex Grassland	683413.49	7473241	50
23/02/2021	LC30	Stony Plain	Gentle	Minimal Shading from topography and vegetation	Sandy Clay Loam	Red Brown		Small Rocks	Negligible	Even	None	Long Unburnt		Negligible	Spinifex Grassland	682956.21	7472197.5	50

Date	Site Name	Habitat	Slope	Shading	Soil	Soil Colour	Soil Comments	Rocks	Litter Depth	Litter Distribution	Large Fallen Logs	Fire History	Disturbance	Drainage	Main_Veget Form	Easting	Northing	Zone
24/02/2021	LC31	Tussock grassland plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown	Quite dry	Surface sprinkle	2-5 cm	Patchy Under Trees	None	Within 10 years			Open Woodland/ grassland	684046.02	7469318.5	50
24/02/2021	LC32	Tussock grassland plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown	Quite dry	Surface sprinkle	2-5 cm	Patchy Under Trees	None	Within 10 years			Open Woodland/ grassland	684130.16	7469366	50
24/02/2021	LC33	Tussock grassland plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown			2-5 cm	Patchy Under Trees	Some	Within 10 years	Buffel grass	Creek Wide	Open Woodland/ grassland	685147.6	7468502.9	50
24/02/2021	LC34	Tussock grassland plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown			2-5 cm	Patchy Under Trees	None	Within 10 years	Buffel grass	Creek Wide	Open Woodland/ grassland	685073.66	7468505.3	50
24/02/2021	LC35	Tussock grassland plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown			2-5 cm	Patchy Under Trees	None	Within 10 years	Buffel grass	Creek Wide	Open Woodland/ grassland	685046.68	7468252.4	50
24/02/2021	LC36	Minor Drainage	Gentle	Minimal Shading from topography and vegetation	No Soil	Red Brown		Gravel	0-2cm	Patchy Under Trees	None	Within 5 years		Creek Narrow	Open Shrubland	683317.24	7470009.9	50
24/02/2021	LC37A	Stony Plain	Gentle	Minimal Shading from topography and vegetation	Sandy Clay Loam	Red Brown		Small Rocks	0-2cm	Patchy Under Trees	None	Within 5 years				683263.51	7470052.9	50
25/02/2021	LC37	Minor Drainage	Gentle	Minimal Shading from topography and vegetation	No Soil	Red Brown		Gravel	Negligible		None	Within 5 years		Creek Wide	Open Shrubland	693722.6	7477914.9	50
25/02/2021	LC38	Hillcrest/ hillslope	Negligible	Minimal Shading from topography and vegetation	Loam	Red Orange		Small Rocks	Negligible	Patchy Under Trees	None	Within 5 years			Spinifex Grassland	693720.91	7477981.9	50
25/02/2021	LC39A	Medium Drainage	Gentle	Some shading from patchy vegetation	Loam	Red Brown			Gr20cm	Patchy Under Trees	Some	Long Unburnt	Creek choked with buffel grass	Creek Wide	Open Woodland	692608.6	7477833.7	50
25/02/2021	LC39	Medium Drainage	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown		Surface sprinkle	5-10 cm	Patchy Under Trees		Within 10 years		Sheet flow	Open Woodland	692440.57	7477837.2	50
25/02/2021	LC40	Stony Plain	Gentle	Minimal Shading from topography and vegetation	Loam	Red Brown	Skeletal under rocks	Small Rocks	Negligible		None	Within 5 years	Exploration rehab	Negligible	Spinifex Grassland	692479.53	7477649.2	50
25/02/2021	LC41	Tussock grassland plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown			2-5 cm	Patchy Under Trees	None	Within 10 years	Buffel grass	Sheet flow	Open Woodland/ grassland	684223.16	7468840.2	50
25/02/2021	LC42	Tussock grassland plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown			2-5 cm	Patchy Under Trees	None	Within 10 years	Buffel grass	Creek Wide	Open Woodland/ grassland	684045.25	7468807.2	50
22/02/2021	LC42A	Minor Drainage	Gentle	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown	Patches of deeper soil in creekbed but still not that deep	Surface sprinkle	0-2cm	Patchy Under Trees	None	Within 10 years		Creek Narrow	Other	684659.52	7474554.3	50
23/02/2021	LC44	Minor Drainage	Gentle	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown		Surface sprinkle	2-5 cm	Patchy Under Trees	None	Within 10 years		Creek Narrow	Shrubland	685150.51	7474776.6	50
22/02/2021	LC43	Minor Drainage	Gentle	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown	Patches of deeper soil in creekbed but still not that deep	Surface sprinkle	0-2cm	Patchy Under Trees	None	Within 10 years		Creek Narrow	Other	684796.95	7474492.7	50
23/02/2021	LC45	Minor Drainage	Gentle	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown		Surface sprinkle	2-5 cm	Patchy Under Trees	None	Within 10 years		Creek Narrow	Shrubland	685087.82	7474822.8	50
23/02/2021	LC29B	Minor Drainage	Gentle	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown		Surface sprinkle	2-5 cm	Patchy Under Trees	None	Within 10 years		Creek Narrow	Shrubland	683019.84	7472195.7	50

Report No. J020969

Baseline Short-range Endemic Invertebrate Survey of the Lamb Creek Iron Ore Project

Prepared for: Mineral Resources Limited
Date: 1 February 2022

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Executive Summary

The Lamb Creek Iron Ore Project comprises a proposed mining area and an associated haul road, located approximately 130 kilometres (km) north-west of Newman in the Pilbara region of Western Australia.

A desktop assessment, comprising searches of the Western Australian Museum Invertebrate databases yielded a total of 8894 records of SRE category taxa (i.e. taxa belonging to taxonomic groups prone to shortrange endemism). Of these records, six taxa were assessed to be SRE and 376 were assessed as potential SRE. The remainder were assessed as widespread.

Seventy-eight records of potential SRE taxa were collected from within ten kilometres of the survey area (central point). Thirteen records of potential SRE taxa were collected from the survey area from the pseudoscorpion and scorpion groups. No confirmed SRE taxa records occurred from the survey area.

During the February 2021 survey, 51 sites from the following habitats were surveyed via foraging and litter sampling.

- stony plain
- mulga shrubland patches
- spinifex grassland dominated hillcrest/hillslopes
- deep gullies
- shallow open gullies
- minor drainage
- medium drainage
- tussock grassland plain

The 2021 field survey yielded a total of 119 SRE invertebrate category specimens, representing 25 different taxa, collected from 23 sites. When combined with the SRE category taxa collected from the 2020 vertebrate fauna survey, a total of 159 invertebrate specimens from SRE target groups, representing 30 different taxa have been collected over a two-year period. The data set is made up of three mygalomorph spider taxa, seven pseudoscorpions, five scorpions, seven soil centipedes, two millipedes, one snail and five isopod taxa.

Of these taxa, 24 are classified as potential SRE with 23 regarded as data deficient due to known distribution and one assessed as data deficient due to limited taxonomic resolution. The remaining six taxa collected from the survey area are regarded as widespread.

There are fourteen potential SRE taxa collected from the survey area that have not been recorded regionally. Of these taxa, six were recorded from the proposed 2021 disturbance footprint only

- Austrostrophus 'Clade M'
- Cryptops 'LCr02'
- Indolpium 'LCr03'
- Indolpium 'LCr05'
- Mecistocephalus 'LCr01'
- Orphnaeus 'LCr01'

Three taxa were collected from adjacent to the proposed disturbance footprint only (within 100 metres). Of these taxa, two had not been recorded regionally.

- Austrochthonius 'LCr01'
- Mecistocephalus 'LCr02'

Potential SRE taxa were collected from all habitats. The mulga shrubland patches within the mulga/corymbia plain habitat yielded the highest abundance and species richness followed by stony plain, although survey effort was not uniform across habitats.

On a macro scale there is connectivity of all habitats to the surrounding landscape, accordingly, it is unlikely that the Potential SRE taxa collected would be restricted to survey area habitats especially where the survey area is narrow (haul road portion). As with all SRE invertebrate surveys, there are limitations to using broad habitat to predict whether a species is restricted and only more surveying, sequencing and greater public access to sequencing data will confirm whether a species is restricted.

Disruption to sheet flow could impact the mulga patches within the mulga/corymbia plain habitat outside of the survey disturbance footprint and if so, it is recommended that planning incorporate drainage design to minimise alterations to sheet flow.

1 Introduction

1.1 Project overview

Mineral Resources Limited (MRL) commissioned Rapallo Environmental (Rapallo) to conduct a single-phase, baseline short-range endemic (SRE) invertebrate survey of the Lamb Creek Iron Ore Project (Lamb Creek). The field survey was completed in February 2021, with supplementary data collected during a detailed vertebrate fauna survey in April 2020.

The project comprises a proposed mining area and an associated haul road, located approximately 130 kilometres (km) north-west of Newman in the Pilbara region of Western Australia.

The Lamb Creek project area as well as the proposed footprint have undergone several changes since the SRE survey was completed. The current project area (Figure 1.1) as per December 2021 comprises retention licence R47/19 (pending conversion into mining lease M47/1592) and miscellaneous licences L47/736, L47/974, and L47/1008. Together these tenements cover an area of 2199 hectares. There is significant overlap between the tenements hence this number is not cumulative.

The SRE survey area comprised retention licence R47/19, miscellaneous licence L47/736 and an additional alternative haul road section adjacent to the Great Northern Highway (intersection version B) as shown in Figure 1.2. The total size of the survey area was 1645 hectares (75% of the project area).

1.2 Scope and objectives

The scope of the SRE survey was to:

- conduct a desktop assessment of SRE invertebrate fauna likely to occur within and within the vicinity of the survey area;
- conduct a SRE invertebrate fauna survey to determine the occurrence of SRE invertebrates within the survey area and document associated habitat.

The objective of the survey was to provide SRE invertebrate fauna data to inform environmental planning and environmental impact assessment of the project, to support approval applications. An indicative disturbance footprint was provided by MRL prior to the survey, in early 2020. Note as the disturbance footprint is subject to change, this report focuses predominately on survey area as defined in section 1.3.

1.3 Survey area

The survey area was 1645 hectares in size and comprised R47/19, L47/736, and intersection version B. A proposed disturbance footprint (footprint V1) was provided by MRL in March 2020, and this footprint formed the basis for survey planning and site selection. Footprint V1 comprised a mine pit, stock piles, infrastructure, and a camp within R47/19, and a haul road alignment within L47/736.

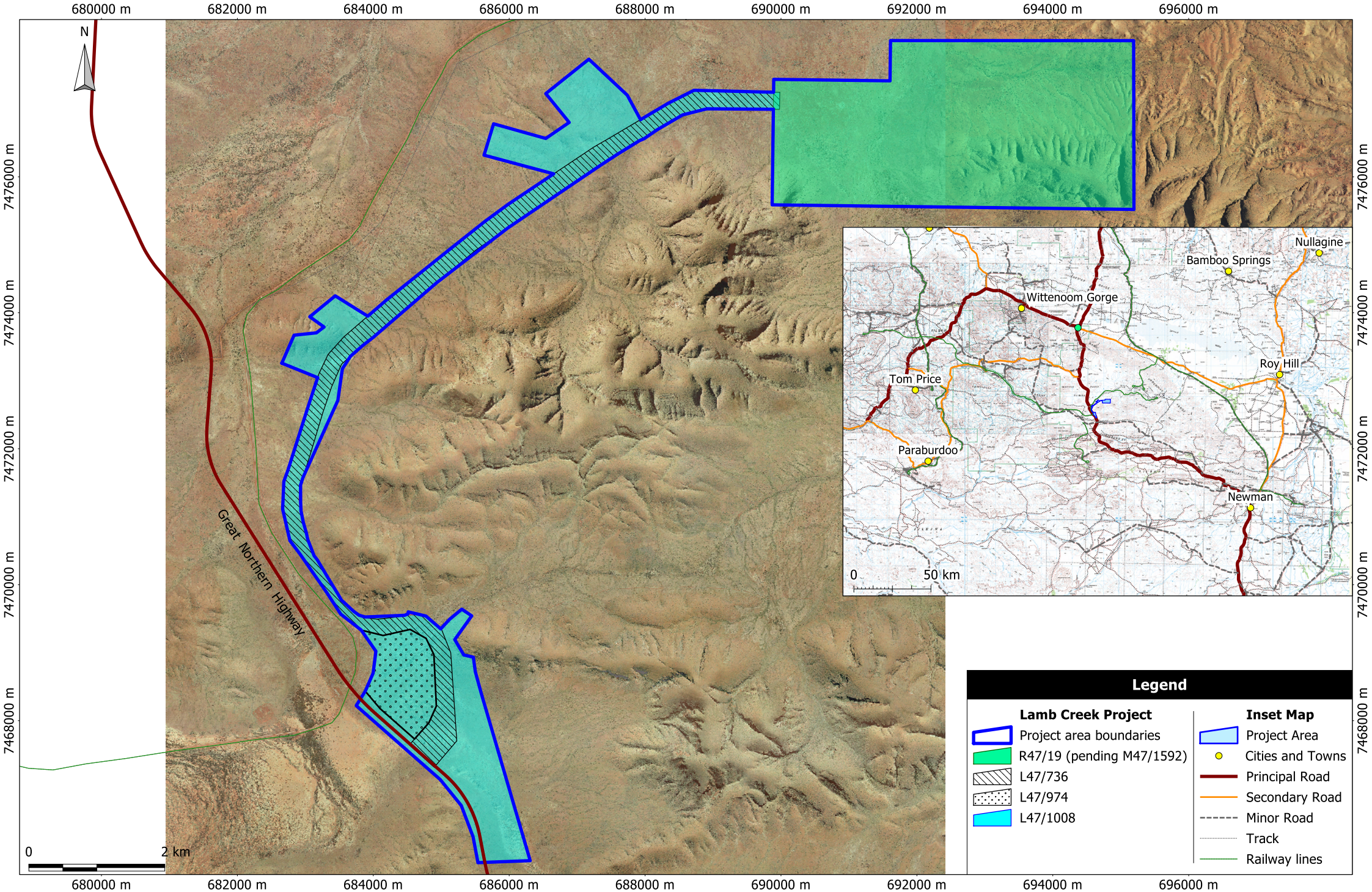
Two new footprints have been provided since the surveys were completed. The current footprint V3 was provided in December 2021. Footprint V3 is 657 hectares in size, and extends outside the survey area by 24 hectares (4% of total footprint), with most of the unsurveyed area comprising the southern section of the proposed haul road (Figure 1.2).

1.4 Definitions

To aid interpretation of this report and associated mapping, Table 1.1 provides explanation of the various components of the Lamb Creek project and associated survey areas, as mapped in Figure 1.1.

Table 1.1 Project and survey area definitions

Component	Description
Project area	Project area as per December 2021, comprising tenements R47/19 (pending M47/1592), L47/736, L47/974, and L47/1008. The project area has a total size of 2199 hectares. There is significant overlap between the tenements, so this number is not cumulative.
Survey area	The survey area as per February 2021, which includes R47/19 (resource area), L47/736 (haul road corridor) and intersection version B. Total size of the survey area is 1645 hectares.
Resource area	General description of R47/19 (pending M47/1592) in which the proposed mine pit and associated infrastructure will be located, as well as the northernmost section of the proposed haul road.
Haul road corridor	General description of the area in L47/736 in which most of the proposed haul road will be located.
Great Northern Highway intersection (GNHI)	General name given to the area where the proposed haul road intersects the Great Northern Highway.
Intersection version B	Alternative intersection of the haul road and the Great Northern Highway, investigated during flora and fauna assessments, but to date not used for any of the footprints.
Footprint V1	Proposed disturbance footprint provided by MRL in March 2020 and used to develop the initial survey area as defined in section 1.3.
Footprint V2	Revised disturbance footprint provided by MRL in July 2021, which has now been superseded by footprint V3.
Footprint V3	Revised disturbance footprint provided by MRL in December 2021 and used to describe localities of recorded target species and potential impacts.
Adjacent to footprint V3	Within 100 metres of the December 2021 disturbance footprint (footprint V3).



Rapallo environmental

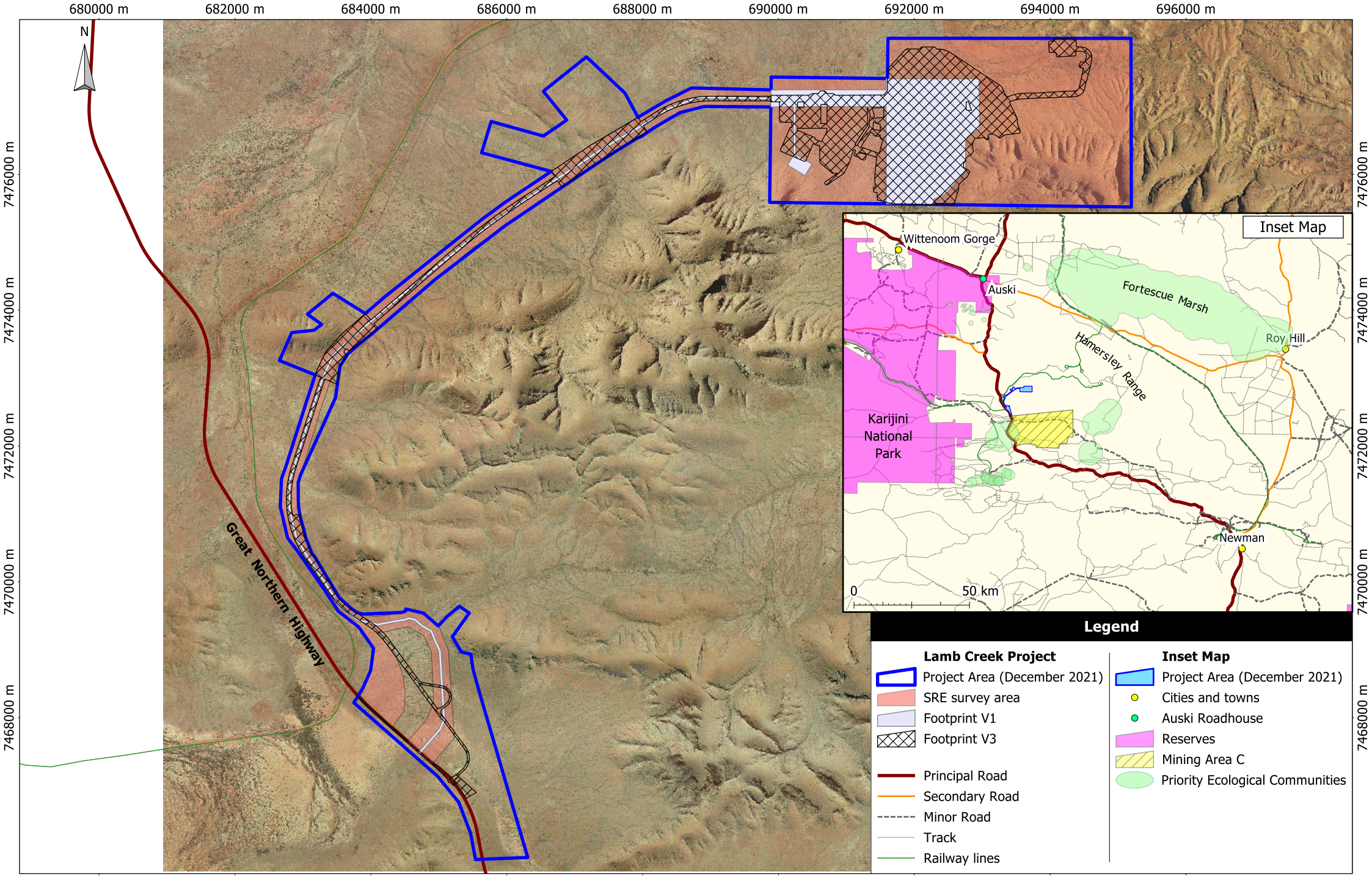
Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
SRE survey

Original Size: A4 Scale: 1:70,000
Datum: MGA94 Zone 50
0 2 km

Figure 1.1

Tenements of the Lamb Creek Iron Ore project area as per December 2021



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
Short Range Endemic Survey

Original Size: A4 Scale: 1:65,000
Datum: MGA94 Zone 50
0 2000 m

Figure 1.2

Location of the Lamb Creek project and delineation of the survey area

2 Regional context

2.1 Climate and weather

The Pilbara bioregion has a semi-desert to tropical climate, with rainfall occurring sporadically throughout the year, mostly during summer (Thackway & Cresswell 1995). Summer rainfall is usually the result of tropical storms in the north or tropical cyclones that impact upon the coast and move inland. Winter rainfall is generally lighter and is the result of cold fronts moving north easterly across the state (Leighton 2004). The average annual rainfall ranges from 200-350 mm, although there are significant fluctuations between years (Bureau of Meteorology 2021), with up to 1,200 mm falling in some locations in some years (McKenzie et al. 2009).

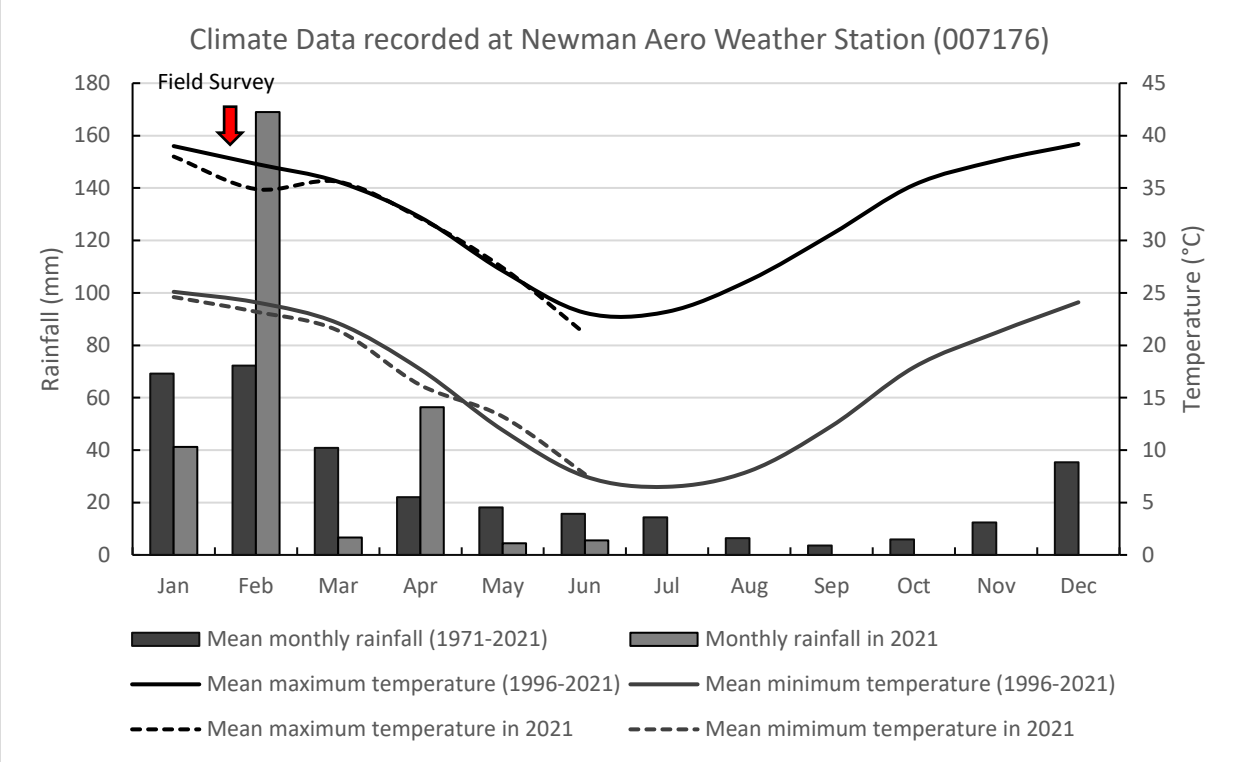


Figure 2.1 Weather graph (source BOM 2021)

Table 2.1 Rainfall and temperature over the survey period (Source BoM 2021)

Survey date	Rainfall (mm)	Maximum Temperature (°C)	Minimum Temperature (°C)
16 February 2021	0	33.5	24.3
17 February 2021	0	37.7	26.5
18 February 2021	0	37.9	26.7
19 February 2021	34.6	32.8	22.3
20 February 2021	0.2	36.7	24.2
21 February 2021	0	38.1	26.3
22 February 2021	0	37.7	25.2
23 February 2021	0	37.6	25.5
24 February 2021	0	37.4	24.6
25 February 2021	0	37.2	20.7

Rainfall over the three months preceding the survey was low, with February (the month of the survey) experiencing the largest amount of rainfall within 12 months.

Daily maximum temperatures during the survey ranged from 33.5°C to 38.1°C. Daily minimum temperatures ranged from 20.7°C to 26.7°C.

2.2 Biogeography

2.2.1 IBRA bioregions

The bioregions of Australia are described in the Interim Biogeographic Regionalisation for Australia (IBRA) (Thackway & Cresswell 1995). Bioregions are large, geographically distinct areas of land with common characteristics such as geology, landform patterns, climate, ecological features and plant and animal communities. The latest version, IBRA7, classifies Australia's landscapes into 89 large geographically distinct bioregions and 419 subregions (DoE 2012).

The survey area is located within the Pilbara Bioregion, characterised by vast coastal plains and inland mountain ranges with cliffs and deep gorges (Thackway & Cresswell 1995). Vegetation is predominantly mulga low woodlands or snappy gum over bunch and hummock grasses (Bastin 2008).

The survey area is located in the Hamersley (PIL3) subregion of the Pilbara bioregion. The Hamersley subregion comprises the southern section of the Pilbara Craton. It is a mountainous area of Proterozoic sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite). Geographically it is synonymous with the Hamersley vegetation system as described by Beard (1990). The dominant vegetation is mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* (snappy gum) over *Triodia brizoides* on skeletal soils of the ranges. Regional vegetation is further described in section 2.3.

2.2.2 Land System

The land systems of the Pilbara region are classified according to similarities in landform, soil, vegetation, geology and geomorphology, following van Vreeswyk et al. (2004). Five land systems occur on the survey area, as listed in Table 2.2 below and displayed in Figure 2.2. The dominant land system within the survey area is the Boolgeeda land system, characterised by stony plains and lower slopes supporting spinifex grasslands or mulga shrublands.

Table 2.2 Land Systems of the survey area

Name	Land type	Description	Extent in survey area	Total Area
Boolgeeda Land System	Stony plains with spinifex grasslands	Stony lower slopes, stony plains below hills, and narrow sub-parallel drainage floors. Supports hard and soft spinifex grasslands or mulga shrublands. Often occurs below hill systems such as Newman and Rocklea	1036 ha	511442 ha
McKay Land System	Hills and ranges with spinifex grasslands	Hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands. Relief up to 100 m	44 ha	153286 ha

Name	Land type	Description	Extent in survey area	Total Area
Newman Land System	Hills and ranges with spinifex grasslands	Rugged high mountains, ridges and plateaux with near vertical escarpments of jaspilite, chert and shale, supporting hard spinifex grasslands. Relief up to 400 m.	340 ha	1141628 ha
Platform Land System	Stony plains with spinifex grasslands	Stony upper plains, dissected slopes and drainage floors, supporting hard spinifex grasslands. Erosional surfaces formed by partial dissection of the old tertiary surface. The gently inclined upper plains have extensive marginal dissection zones with gently inclined to steep slopes. Floors incised up to 30 m with steep stable marginal slopes becoming wider downslope.	198 ha	188829 ha
Wannamunna Land System	Wash plains on hardpan with mulga shrublands	Hardpan plains and internal drainage tracts supporting mulga shrubland and woodlands, and occasionally eucalypt woodlands. Depositional surfaces, level hardpan wash plains subject to overland sheet flow. Broad internal drainage flats receiving run-on from adjacent hardpan surfaces; rare, channelled tracts but mostly not organised through drainage. Relief up to 5 m.	27 ha	62648 ha

2.2.3 Hydrology

Within the Hamersley (PIL3) subregion drainage runs into either the Fortescue River to the north, the Ashburton river to the south, or the Robe river to the west (Kendrick 2001). The majority of the survey area falls within the Fortescue River Upper Catchment with a smaller portion occurring within the Ashburton River Catchment. Nine intermittent creek lines bisect the survey area, draining into the larger Marillana Creek, and ultimately into Weeli Wooli Creek within the Fortescue River basin.

2.2.4 Topography

The survey area occurs within the central Hamersley Ranges which dominate the sub-region (Thorne & Tyler 1997). The topography of the region is highly mountainous comprising three smaller ranges: Packsaddle Range in the centre, Jirrpalpur Range in the south and the Hancock Range to the north. The uplands of the survey area fall within the western edge of the Hancock Range.

The haul road portion of the survey area skirts the western edge of the Hancock Range, with the survey area predominantly characterised by plain and valley floor. The south-eastern corner of the survey area contains significant rocky landforms associated with the Hancock Range.

2.2.5 Geology

The survey area is located in the south-west corner of the Roy Hill 1:250,000 Geological Survey Sheet (SF50-12: Thorne & Tyler 1997). The geology of the survey area is generally defined by the assemblage

of prehnite, pumpellyite, epidote, actinolite. Basement rocks comprise the early Proterozoic Brockman Iron Formation and Weeli Wolli Formation. The Brockman Iron Formation consists of banded iron formation (BIF) and shale, while the Weeli Wolli formation consists of BIF separated by shale and siltstone bands, with younger dolerite sills that intersect the sedimentary sequence.

Regionally, the fresh basement rocks are typically overlain by weathered basement rocks which occur as lateritic and basal gravel and/or conglomerate deposits. These weathered deposits underlie early Tertiary Channel Iron Deposits (CID), which are the dominant economic-grade iron deposits in the region. The CID is typically overlain by younger alluvial and colluvial gravels and sediments (Thorne & Tyler 1997). The survey area overlies the following geological units (Thorne & Tyler 1997).

- Brockman Iron Formation (PLHB): banded iron-formation, chert, and pelite;
- Quaternary Alluvium (Qa): unconsolidated silt, sand, and gravel; in drainage channels and on adjacent floodplains;
- Quaternary Alluvium and Colluvium (Qw): red-brown sandy and clayey soil; on low slopes and sheetwash areas; and
- Cainozoic Colluvium (Czc): partly consolidated quartz and rock fragments in silt and sand matrix; old valley-fill deposits.

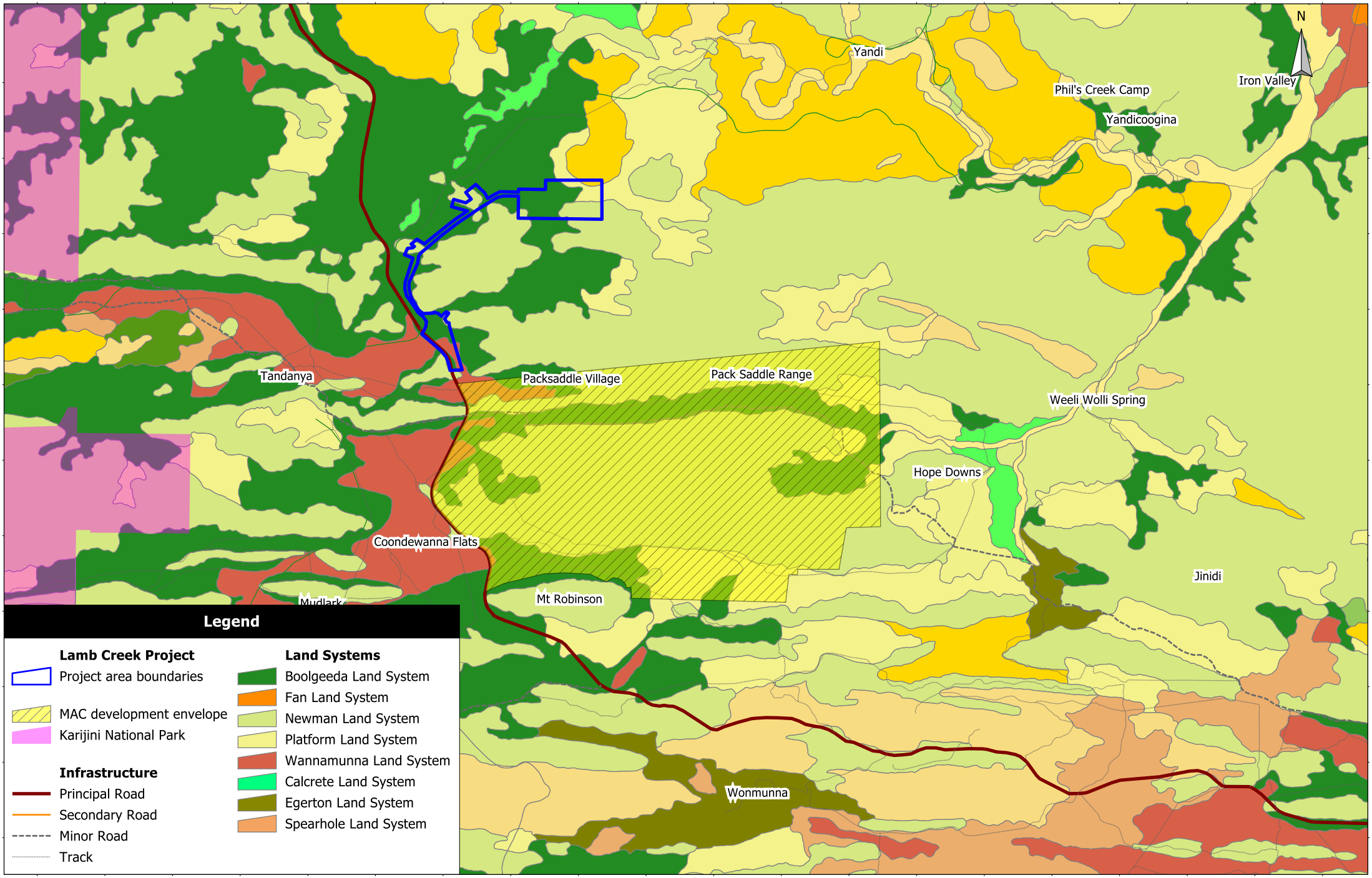
2.2.6 Soils

The survey area is located within the Fortescue botanical district of the Pilbara region (Beard 1990). This region is mountainous, with soils ranging from shallow, stony sandy loams along slopes, to cracking clays, stripped hardpans and calcareous loams along active waterways (Beard 1990).

The landforms of the survey area are typical of the eastern Pilbara with rocky hills, small gorges, mostly seasonal watercourses, and gravelly loam valleys. The soils are typified by hard red alkaline soils on plains, pediments and alluvial areas, while shallow, skeletal soils are common on ranges that rise to 1,250 m (Beard 1990). The southern part of eastern Pilbara region is characterised by earthy loams underlain by red-brown hardpan (Beard 1975, 1990).

The survey area has two distinct soil and landform assemblages. The majority of the haul road corridor and the edges of the mine tenement are characterised as soil unit Fa13. The central part of the mine tenement and small portion of the potential haul road alignment is characterised as soil unit Fb3. These are defined as follows (CSIRO Australia 2018):

- Fa13 – Ranges of banded jaspilite and chert along with shales, dolomites, and iron ore formations with some areas of ferruginous duricrust as well as occasional narrow winding valley plains and steeply dissected pediments. This unit is largely associated with the Hamersley and Ophthalmia Ranges. The soils are frequently stony and shallow and there are extensive areas without soil cover: chief soils are shallow stony earthy loams (Um5.51) along with some (Uc5.11) soils on the steeper slopes. Associated are (Dr2.33, Dr2.32) soils on the limited areas of dissected pediments, while (Um5.52) and (Uf6.71) soils occur on the valley plains; and
- Fb3 – High-level valley plains set in extensive areas of unit Fa13. There are extensive areas of pisolitic limonite deposits: principal soils are deep earthy loams (Um5.52) along with small areas of (Gn2.12) soils.



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
SRE Survey

Original Size: A4 Scale: 1:300,000
Datum: MGA94 Zone 50
0 10 km

Figure 2.2

Land System Mapping and Regional localities

2.3 Regional vegetation

2.3.1 Botanical district

The survey area is located in the Fortescue botanical district of the Pilbara region (Beard 1990), which forms part of the Eremaean Botanical Province. The Pilbara region receives a slightly higher than average rainfall than most of the Eremaean Province, due to the prevalence of cyclones off the coast, but this is not enough to modify the essentially desert appearance of the plant cover (Beard 1990).

The Fortescue botanical district consists predominantly of tree and shrub steppe communities with *Eucalyptus* trees, Acacia shrubs and spinifex grasses including *Triodia pungens* and *T. wiseana* (Beard 1975). Mulga (species of the *Acacia aneura* complex) occurs in valleys, and short-grass plains may be present on alluvial soils (Beard 1990).

2.3.2 Vegetation system association

Digital maps (spatial data) of pre-European vegetation communities, based on state-wide mapping by J.S. Beard at 1:250,000 scale, are published by the Department of Primary Industries and Regional Development (DPIRD) (Beard 2018).

Vegetation of the Hamersley (PIL3) IBRA subregion is generally low Mulga woodland over bunch grasses on fine textured soils in the valleys with snappy gums (*Eucalyptus leucophloia*) over *Triodia brizoides* on skeletal soils of the ranges (Kendrick 2001). The mountain tops and gorges of the Hamersley subregion provide refugia for humidophile and/or fire intolerant flora, and support a diversity of range-restricted species (Kendrick 2001).

The survey area falls within two Beard (2018) vegetation system-associations: Hamersley 18: Low woodland of *Acacia aneura*, and Hamersley 82: Hummock-grass (*Triodia wiseana*) steppe with irregularly scattered *Eucalyptus brevifolia* trees.

Table 2.3 Pre-European vegetation within the survey area

Beard Vegetation System and Association	Extent in survey area	Current extent in Australia (ha) [1)]	Pre-European extent remaining (%) [1)]
Hamersley 18	982.5 ha	575 852 ha	99.2%
Hamersley 82	662.7 ha	2 157 841 ha	99.4%

Footnotes: 1) Numbers from 2018 Statewide Vegetation Statistics (DBCA 2019)

2.4 Habitat

Seven broad fauna habitats were identified in the Lamb Creek survey area (as defined Table 1.1) during a detailed vertebrate fauna survey, as reported in Rapallo (2022), and listed in Table 2.4.

Table 2.4 Broad Fauna Habitats

Broad fauna habitat	Area (hectares)
Gorges, gullies and rocky breakaways	54.7
Hill crests and hill slopes	319
Stony plain	518
Medium drainage lines	113
Minor drainage lines	211
Mulga/Corymbia plain	292
Tussock grassland plain	137
Road – Bitumen (not a habitat)	0.83
	1645

2.4.1 Stony plain

A habitat of the lower slopes, undulating and level plains, the stony plain habitat often occurs in shallow valleys below hill systems. This habitat typically has a low habitat complexity due to low diversity of microhabitat and minimum shading from vegetation and landform dependent on surrounding topography and outcropping.

At Lamb Creek the stony plain habitat is the most extensive habitat on the survey area (518 hectares), covering most of the retention licence and haul road corridor on the lower valley sides to valley floor. At Lamb Creek this habitat is characterised by little to no overstorey aside from scattered trees or patches of mixed shrubs often regenerating from fire. *Eucalyptus leucophloia* often occurs on the slopes, *Eucalyptus gamophylla* on the valley floor and lower slopes and Corymbia grades into drainage. Within the survey area the stony plain typically has low habitat complexity with microhabitats restricted to infrequent rocky outcrops and limited shade provided by vegetation.

Stony plain habitat is a common habitat in the Pilbara particularly in the Boolgeeda Land System. Aerial photography and visual assessment from a helicopter confirm that this broad habitat occurs outside of the survey area (Rapallo 2022).

2.4.2 Hillcrests and hillslopes

Hillcrests and hillslopes are the rocky crest and slopes of the large hills and ranges. This habitat typically has a low habitat complexity due to low diversity of microhabitat and minimum shading from vegetation and landform dependent on surrounding topography and outcropping (Rapallo 2022).

At Lamb Creek this habitat is confined to the higher elevation areas (centre and south-east corner of the retention licence) and falls within the Newman Land and Boolgeeda Land System. There are no high elevation south-facing slopes and outcropping with cracks and crevices predominately occurs in the adjacent gorge, gully and rocky breakaway habitat. Hill crests and hill slopes formed the second most extensive habitat within the survey area, covering 319 hectares. Vegetation is characterised by a *Triodia*

hummock grassland with scattered *Eucalyptus leucophloia* trees and mallee, and acacia and grevillea shrubs. Aerial photography, helicopter visuals and ground-truthing as part of vertebrate fauna surveying (Rapallo 2022) confirmed that this habitat extends outside of the retention licence, to the south of the haul road corridor. In a regional context, rocky spinifex dominated hillcrests and hillslopes habitats of the Pilbara are common.

2.4.3 Gorges, gullies and rocky breakaways

Gorges are deeply incised, with vertical cliff faces, while gullies are more open and shallower. Breakaways refer to rugged slopes with vertical fall on the edge of a hill or range. This habitat can support caves and semi-permanent rock pools and has a moderate to high habitat complexity largely dependent on landform and aspect (Rapallo 2022).

At Lamb Creek this habitat is confined to the higher elevation areas and falls within the Newman Land System. This habitat bisects the hillcrest/hillslopes of the high elevation areas and contains caves, deep cracks/crevices, and shaded microhabitats from both vegetation and landform shadow. The more open, shallow gullies have lower habitat complexity with microhabitats occurring within the rocky substrate and partial shade provided by vegetation and landform. The deepest gorge on the retention licence has northern-facing slope and there are no south facing gorges or deep gullies. Despite extensive use of helicopter in 2012, 2020 and 2021 for baseline surveys, to date there have not been permanent or semi-permanent pools recorded in this habitat (Rapallo 2022).

This habitat occurs as two deep gorges and two smaller gorges in the centre and south-east corner of the retention licence and is typically vegetated with spinifex hummock grassland with mixed shrubland patches with occasional figs (*Ficus* sp.) occurring in shaded locations and occasional *Eucalyptus leucophloia*. The gorge, gully and rocky breakaway habitat does not occur on the haul road corridor.

The gorge, gully and rocky breakaway habitat is the smallest habitat in the survey area due to its narrow features (54.7 hectares). Aerial photography, helicopter visuals, and ground-truthing for vertebrate fauna survey (Rapallo 2022) confirmed that this habitat extends outside of the retention licence, bisecting the high elevation areas to the south of the haul road corridor. In a regional context, the gorges, gully and rocky breakaway habitats of the Pilbara are restricted to the Chichester and Hamersley IBRA subregions but are well represented. Locally this habitat occurs at Mining Area C (Biologic 2017) and within Karijini National Park.

2.4.4 Medium drainage lines

Medium drainage is defined as the narrow gravelly drainage channels that become wider on the lower plains of the valley. This drainage is made up of minor tributaries that feed into the major creek lines of the catchment. Medium drainage is often fringed by *Corymbia hamersleyana*. Medium drainage habitat typically exhibits a moderate habitat diversity with some tree hollows and woody debris (logs and leaf litter) and typically does not contain semi-permanent/ permanent pools or the large fringing river gums (Rapallo 2022).

At Lamb Creek this habitat occurs on the valley floor of the retention licence as wide loamy drainage channels to undefined drainage (gravelly) containing occasional emergent *Corymbia hamersleyana* over patches of low mixed shrubs over buffel grass and tussock grass dominated understory on low relief. Contains very occasional mulga stands in loamy soils as the habitat transitions into Mulga/Corymbia plain habitat (Rapallo 2022).

This habitat provides higher protection than the surrounding stony plain habitat due to partial shading from vegetation and some leaf litter and woody debris, however it was noted in 2020 and 2021 that detritus and litter within this habitat was sparse or in piles without accumulated soil - indicating recent fast flow and little opportunity for soil and fine detritus to accumulate. This habitat typically has deeper loamier soils than the surrounding stony plain, therefore greater potential to retain moisture.

The medium drainage habitat although small in area (113 hectares) due to narrow features is relatively common throughout the Pilbara. Aerial photography and helicopter visuals confirm that this habitat occurs outside of the survey area aligning with the Lamb Creek that feeds into Marillana Creek (Rapallo 2022).

2.4.5 Minor drainage lines

Minor drainage represents the small drainage channels that originate from the hillcrest/ hillslope habitats and bisect the stony plain habitat. Minor drainage typically exhibits a low-moderate habitat complexity, with some shading from vegetation but low soil moisture levels, low accumulated litter, and generally gravelly soils (Rapallo 2022).

At Lamb Creek this habitat occurs throughout the survey area and represents the smaller drainage channels and shallow gullies. Typically, vegetation can be denser than the surrounding habitat of stony plain or hill slopes and hill crests, consisting of mixed open shrubland to shrubland often over tussock grass and herbs with occasional fringing trees (scattered *Eucalyptus leucophloia, Corymbia hamersleyana or Eucalyptus gamophylla*). The substrate can be sandy in places but generally consists of a skeletal loam gravel or stone. This broad habitat although small in area (210 hectares) is relatively common throughout the Pilbara. Aerial photography and helicopter visuals confirm that this habitat occurs outside of the survey area (Rapallo 2022).

2.4.6 Tussock grassland plain

The tussock grassland plain habitat (137 hectares) is defined as tussock grassland dominated drainage plain (hardpan) containing open mulga woodland stands or scattered mulga individuals on brown sandy clay loam to loams with surface mantles of very few to few pebbles of ironstone (Rapallo 2022).

This habitat occurs at the southern end of the haul road corridor within the Wannamunna and Boolgeeda land systems. This habitat receives run-on from adjacent hills and surrounding stony plain and much of the drainage is undefined. The tussock grassland broad habitat is not widespread throughout the Pilbara, compared with the adjacent spinifex stony plain and hillcrest/hillslope habitats and aligns broadly with the groves landform unit of the Boolgeeda Land System, the hardpan plains landform unit of the Wannamunna Land System and 'valley floor mulga' as described by Kendrick (2001). Grove-intergrove mulga and valley floor mulga are threatened by water shadow from linear infrastructure (Kendrick 2001). Disruption to sheet flow could impact this habitat.

Aerial photography suggests that this habitat continues south east from the survey area parallel to the Great Northern Highway, aligning with the mulga habitat found at Area C (Biologic 2017), approximately three kilometres to the south-south west of the survey area.

2.4.7 Mulga/Corymbia plain

The mulga/corymbia plain habitat is defined as level plain subject to sheet flow containing mulga woodland patches adjacent to run-on zones of stonier plain (Rapallo 2022).

At Lamb Creek this habitat occurs on the valley floor adjacent to medium drainage primarily in the retention licence and also in the northern section of the haul road corridor covering 292 hectares. Vegetation is broadly open mulga shrubland patches over spinifex or tussock grassland surrounded by run - on zones of stonier plain of open spinifex/tussock grassland under very open mulga/ *Corymbia deserticola* shrubland. Soils are loams to sandy clay loam (Rapallo 2022).

The mulga/corymbia plain habitat exhibits a moderate habitat complexity. Mulga stands provide shade; however, the stands are not extensive or thick, therefore the shade is patchy as is the accumulated litter and associated patches of moister soil. Within the mulga patches this habitat provides loamier soil for burrowing species, however the substrate in adjacent run-on areas is predominantly hard and stony (Rapallo 2022).

This habitat aligns broadly with the stony lower plains and narrow drainage floors, channels land landform unit of the Boolgeeda Land System (van Vreeswyk et al. 2004) and 'valley floor mulga' as described by Kendrick (2001).

Boolgeeda is a common system in shallow valleys below hill systems such as the Newman and Rocklea Land system ((Van Vreeswyk *et al.* 2004). Aerial photography and helicopter visuals suggest that this habitat occurs outside of the survey area however ground truthing has not verified the extent of individual mulga patches beyond 50 metres south of the survey area. Grove-intergrove mulga and valley floor mulga are threatened by water shadow from linear infrastructure (Kendrick 2001). Disruption to sheet flow could impact this habitat.

2.4.8 Disturbance

Some habitats have been disturbed via selective clearing for tracks, drill pads and laydown associated with exploration activities, particularly within the stony plain habitat of the retention licence. A large portion of the survey area has been burnt multiple times over recent years resulting in a mosaic of post fire ages (NAFI 2021, Rapallo 2022).

3 Methods

3.1 Desktop study

3.1.1 Database Searches

Searches from within the Western Australian Museum's (WAM) invertebrate databases were conducted with interpretation by Dr Erich Volschenk. At the time of report preparation there is limited taxonomic support or screening for SRE invertebrate fauna. Database search results for arachnids (pseudoscorpions, scorpions, and spiders) and myriapods (centipedes and millipedes) consisted of ALL records from within the database search area, as WAM do not provide SRE filtered results that reflect the rapidly evolving taxonomy of this group. Database search results were edited and filtered prior to assessment to align the different WAM departmental databases and remove non-target data such as subterranean fauna. Search parameters, filter methodology and SRE status justification are located with the WAM database results in Appendix I.

3.1.2 Historical Data

The desktop study focused on records of specimens lodged within the WAM. Unpublished reports for projects carried out within the search area are required to have all voucher specimens lodged with the WAM (Environmental Protection Authority 2009); therefore, WAM records provide the best consolidated and up to date source of information regarding SRE candidates previously recorded from within a search area. Records from previous reports also represent static taxonomic interpretations, therefore the names of taxa in these reports may no longer be current if they are revised in the intervening period. WAM records are largely maintained and incorporate contemporary taxonomy. Records of SREs from other sources cannot be verified and are therefore of limited or questionable value if the original specimen is not available.

3.2 Field Survey

3.2.1 Timing and Site Selection

The SRE field survey was completed between 16 and 25 February 2021. The survey area was accessed by a combination of four-wheel drive vehicle using existing tracks, and by helicopter, and was surveyed on foot.

Survey locations were selected prior to the field survey, in consultation with Dr Volschenk from aerial imagery. Areas of vegetation along drainage lines, deep gullies, shaded topography and patches of dense vegetation were targeted. At Lamb Creek, and regionally some SRE groups have been sampled from habitats typically thought to be unsuitable for SREs (trapdoor spiders, scorpions, pseudoscorpions and isopods). For this reason, survey effort included landscapes previously regarded as unconducive for SREs such as stony spinifex plain and slopes. Foraging sites were also selected in accordance with the preliminary disturbance footprint outline (dated March 2020) that was available in February 2021.

The disturbance footprint has changed with advanced mine and haul road planning, with the current disturbance footprint V3 provided in December 2021, after all fieldwork had been completed. At the time of report preparation, footprint V3, there were 27 SRE foraging sites located within the proposed disturbance footprint V3 and 24 located outside of the proposed disturbance footprint. Of the out of

impact sites, 13 foraging sites are within 100 metres of proposed footprint V3 proposed disturbance footprint (eight sites proximal to the proposed haul road and five sites proximal to the mining area). Survey sites relative to broad fauna habitats and disturbance footprint V3 are mapped in Figure 3.1.

3.2.2 Habitats

Table 2.2 shows examples of representative habitats sampled with habitat data located in Appendix II. Note habitats sampled for SRE generally align with broad vertebrate habitats as described in section 2.4 and mapped Figure 3.1, however there are differences in scale for SRE invertebrate habitat versus broad habitat.

Table 3.1 Examples of Habitats Surveyed

Habitat	Representative Photo
Stony Plain Plains and lower slopes of spinifex hummock grasslands (or in small patches, tussock grass) on red sandy clay loam to loam soil. Typically, with a mantle of gravel (less so on the valley floor adjacent to drainage, where soils are loamier). Little to no overstory aside from scattered trees or patches of mixed shrubs often regenerating from fire. Generally, *Eucalyptus leucophloia* occurs on the slopes, *Eucalyptus gamophylla* on the valley floor and lower slopes and *Corymbia* is typically associated with drainage). Sites[1]: LC16, LC22, LC24B, LC24A, LC27B, LC28, LC29A, LC30, LC37A, LC40, LCS08*, LCS03* LCS04*	

[1] Asterisk denotes site was a vertebrate fauna trapping site surveyed in April 2020

Habitat	Representative Photo
Mulga shrubland patches Open mulga shrubland patches over spinifex or tussock grassland on loams to sandy clay loam occurring in areas of sheet flow drainage. The mulga patches are surrounded by run-off zones of stonier plain of open spinifex/tussock grassland under very open mulga/ *Corymbia deserticola (*shrubland). Sites: LC04, LC05, LC06, LC07, LC08, LC09, LC10, LC15, LC17, LCS06*	
Spinifex grassland dominated hillcrest/hillslopes Slopes and hill crests of the higher elevation areas. Spinifex hummock grassland dominated with scattered *Eucalyptus leucophloia* trees and mallee, and acacia and grevillea shrubs on rocky, red skeletal soils (loams to clay/loam). Sites: LC11, LC17, LC19, LC38, LC26, LCS10*	

Habitat	Representative Photo
Deep Gullies The deep rocky gullies that bisect the hillcrest/hillslopes of the high elevation areas containing caves, deep cracks, and crevices. Spinifex hummock grassland with mixed shrubland patches or ficus occurring in shaded locations or occasional *Eucalyptus leucophloia.* Sites: LC13, LC21	
Shallow Open Gullies The shallow rocky gullies that bisect the hillcrest/hillslopes of the high elevation areas. Spinifex hummock grassland with scattered *Eucalyptus leucophloia.* Occasional fig trees (*Ficus* sp.) Sites: LC12, LC14, LC20	

Habitat	Representative Photo
Minor Drainage The smaller narrow drainage channels and shallow gullies that bisect the stony plain habitat and hill slopes, forming flow zones on the valley floor. Mixed open shrubland to shrubland often over tussock grass and herbs with occasional fringing trees (scattered *Eucalyptus leucophloia, Corymbia or Eucalyptus gamophylla)* Sites: LC18, LC23, LC25, LC27A, LC36, LC37, LC42A, LC44, LC43, LC45, LC29B	

Habitat	Representative Photo
Medium Drainage Wide loamy drainage channels to undefined drainage (gravelly) containing occasional *Corymbia* over patches of low mixed shrubs over buffel grass and tussock grass dominated understory on low relief. Contains very occasional mulga stands in loamier soils. Sites: LC01, LC02, LC03, LC39, LC39A, LCS07*, LCS09 *	

Habitat	Representative Photo
Tussock grassland plain Tussock grass (*Aristida inaequiglumis*, *A. contorta*, *Themeda triandr*a) dominated largely undefined drainage plain. Contains occasional open mulga woodland stands or scattered mulga individuals on brown sandy clay loam to loams. Contains patches of spinifex. Sites: LC31, LC32, LC33, LC34, LC35, LC41, LC42, LCS01*, LCS02*	
* 2020 Vertebrate Fauna trapping sites	

3.2.3 Survey Methods

Habitat assessment, spider/scorpion burrow searching, and foraging occurred at all sites. Foraging methods included turning rocks, logs, peeling bark, raking leaf litter, and searching under vegetation. If no leaf litter was present, then litter sifting could not be conducted as was the case at sites LC11, LC17, LC18, LC26, LC37, LC38 AND LC40). Black lighting (nocturnal searches) did not occur due to logistics as per client safety protocol.

Litter sifting utilised a series of sieves (32 cm diameter), each sieve being progressively finer (top-bottom: 17 mm, 11 mm, and 3 mm mesh) through which leaf litter (and surface soil below the leaf litter) was sieved. The finest particles passing through the sieves into a receiving pan. Where possible, leaf litter was collected from the southern sides of a shady tree or shrub and from close to its trunk.

At each site, where litter was present, a minimum of six sifts were carried out, each one targeting a different tree or patch of litter. During each sift, approximately 5 litres of leaf litter and surface soil were sieved. The retained litter from each sieve and the receiving pan were examined separately and targeted invertebrates were picked using forceps or an aspirator.

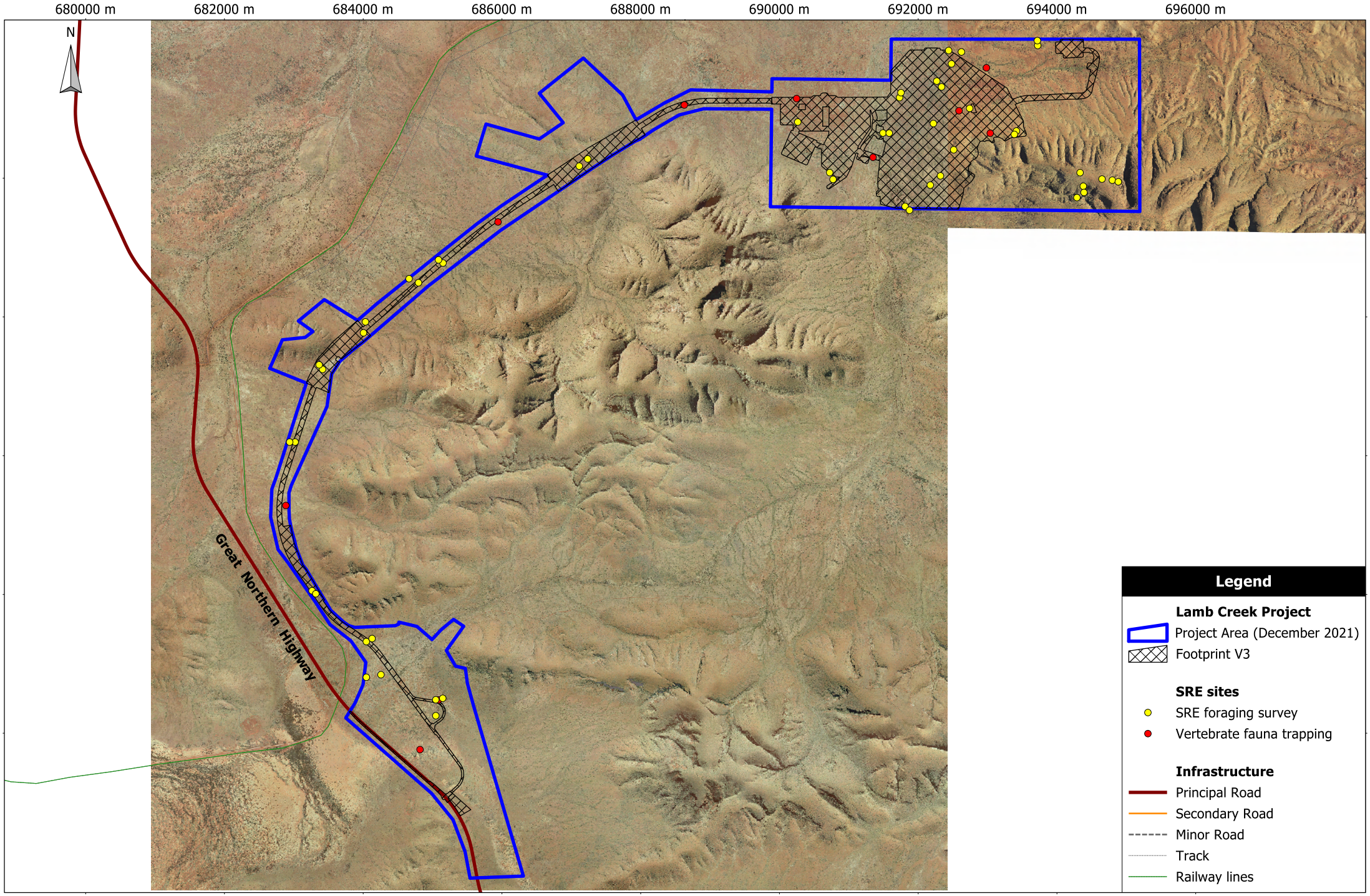
A handheld blower was used to aid spider burrow searching. Opportunistic collection and observations were also made during the field survey.

A minimum of 1.5 person-hours occurred at each site (independent of time spent litter sifting).

In addition to the February 2021 collections, potential SRE specimens were also collected as bycatch to vertebrate fauna surveying (April 2020). These specimens were also sequenced and are discussed in this report. Seven of the ten vertebrate trap sites are considered to be within footprint V3.

3.2.4 Sample curation and lodgement

All specimens were initially preserved in >95% ethanol. After fixing, tissues (usually a leg) were removed from appropriate specimens and stored separately under refrigeration. The remainder of the specimens were transferred to 75% ethanol to better facilitate morphological identification since samples preserved in 100% ethanol are often very brittle and fragile. At the completion of the project, morphological samples will be deposited to the WAM for inclusion in the state's biological collection, in accordance with requirements of EPA Technical Guidance for sampling SREs (EPA 2016).



Rapallo environmental

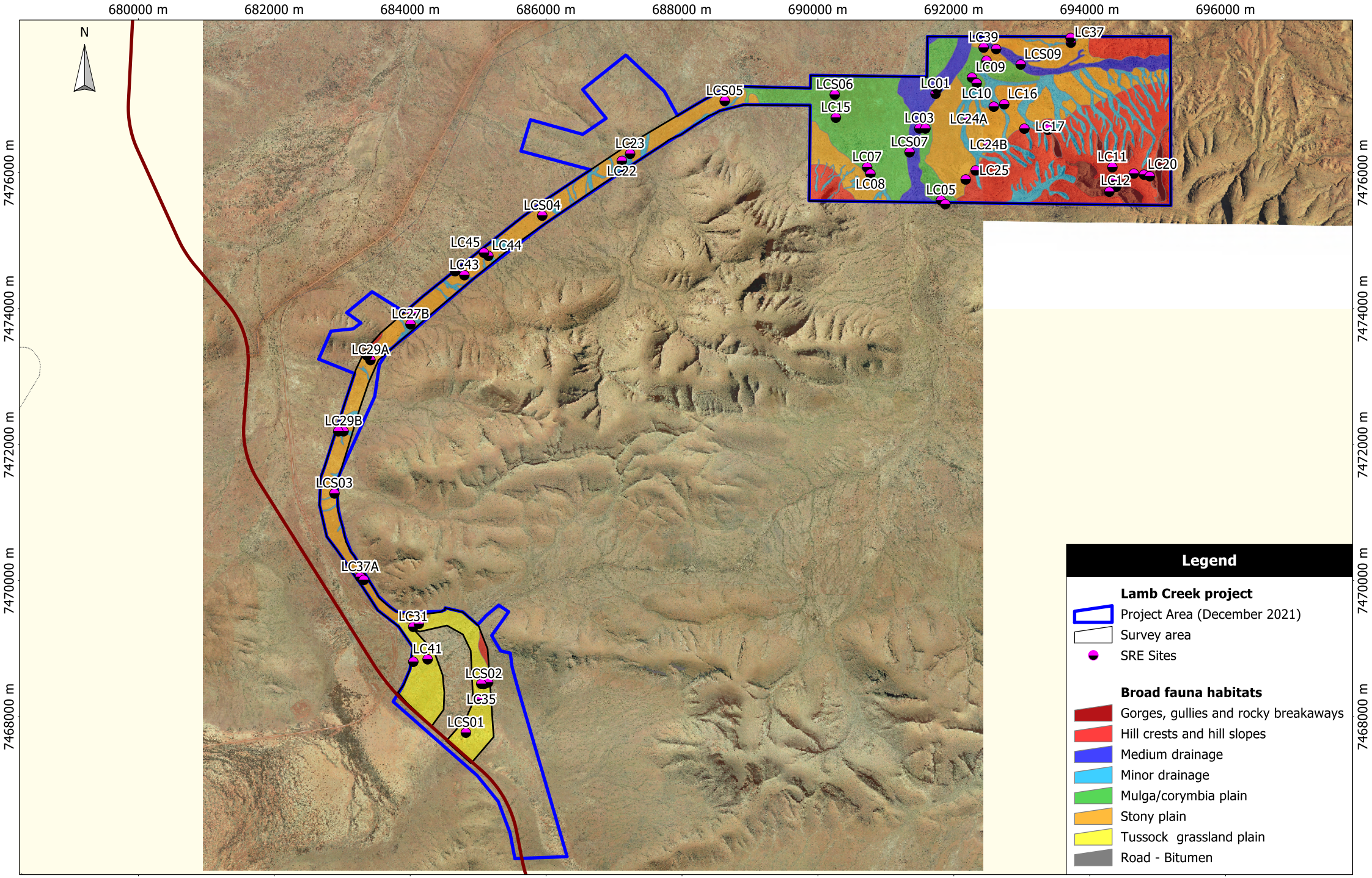
Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
SRE Survey

Original Size: A4 Scale: 1:70,000
Datum: MGA94 Zone 50
0 2000 m

Figure 3.1

Field survey effort - SRE survey sites relative to footprint V3



Rapallo environmental

Mineral Resources Limited
Lamb Creek Project

Lamb Creek Iron Ore Project
SRE Survey

Original Size: A4 Scale: 1:70,000
Datum: MGA94 Zone 50
0 2 km

Figure 3.2

Field survey effort - SRE survey sites relative to broad fauna habitats

3.2.5 Personnel and licensing

The personnel involved in the field survey, data entry and analysis, and the preparation of this report are listed in Table 3.2. The field survey was conducted under Fauna Taking (Biological Assessment) Licence BA27000239 issued under Regulation 17 of the *Biodiversity Conservation Regulations 2018.* As part of the license conditions, a list of species recorded in the survey will be forwarded to the DBCA.

Table 3.2 Personnel

Name	Position	Survey	Analysis	Reporting
Kate George	Principal Environmental Scientist	•		•
Marieke Weerheim	Senior Environmental Scientist		•	•
Jari Cornelis	Ecologist	•		•
Jon-Paul Emery	Ecologist		•	•
Molly George	Ecologist		•	

3.2.6 Morphological identifications, taxonomic nomenclature and statistics

Morphological identifications and SRE assessment of scorpions, pseudoscorpions, trapdoor spiders, centipedes, millipedes and snails were carried out by Dr Erich Volschenk of Alacran Environmental Science (Alacran). Dr Simon Judd contributed information and identification of isopods. References used for species determination and taxonomic nomenclature of invertebrates are detailed in Table 3.3.

Morphospecies designations follow the parataxonomy of the scientist(s) working on the group; these informal names are written between single quotation marks rather than being italicised as they are not valid under the International Code of Zoological Nomenclature (International Commission on Zoological Nomenclature 1999). Morphospecies is defined as per the "Phylogenetic Species Concept" (Cracraft 1983): "A species is the smallest diagnosable cluster of individual organisms within which there is a parental pattern of ancestry and descent."

Table 3.3 General references and collections used to assist with morphospecies designations

Order	Taxonomic Reference	Morphospecies and reference collection
Araneae (Mygalomorphae)	Raven *et al*. 2002; Framenau & Leung 2013 Harms & Framenau 2013; Miglio et al. 2014; World Spider Catalog 2014; Framenau & Hudson 2017; Framenau & Harms 2017; Rix et al. 2017; Harvey et al. 2018; Huey *et al.* 2019	W.A. Museum reference collection.
Pseudoscorpiones	Harvey 1992; Murienne *et al.* 2008;Harvey *et al*. 2012, Harvey 2013	W.A. Museum reference collection.
Scorpiones	Glauert 1925, a; Acosta 1990; Kovařík 1977; Fet *et al.* 2000; Volschenk *et al*. 2000; Volschenk & Prendini 2008; Volschenk et al. 2010)	Morphospecies designation by Dr Erich S Volschenk, W.A. Museum reference collection.
Chilopoda	Colloff *et al*. 2005	W.A. Museum reference collection.
Isopoda	Judd *et al.* 2003; Schmalfuss 2003; Judd 2004; Schmidt & Leistikow 2004; Schotte *et al.* 2008;	Morphospecies designation by Dr Simon

Order	Taxonomic Reference	Morphospecies and reference collection
	Judd *et al.* 2013; Javidkar et al. 2015 ;Javidkar et al. 2016; Javidkar et al. 2017; Javidkar *et al*. 2017)	Judd. Reference collection at the W.A. Museum and with Dr Simon Judd.
Eupulmonata	Solem 1985, Solem 1988, Solem 1997; Whisson & Köhler 2012; Whisson & Kirkendale 2014; Stanasic et al. 2017	W.A. Museum reference collection.

Fifty-eight specimens (Appendix III) representing unidentifiable and or ambiguously identified taxa were sequenced for the gene Cytochrome C Oxidase subunit I (COI) for the purpose of species delimitation (DNA barcoding). A total of fifty-six yielded sequences. Sequence fragments of the COI gene were amplified from muscle tissues obtained from specimens fixed and preserved in >95% ethanol or from samples fixed in propylene glycol and later preserved in >95% ethanol. Sequence generation from tissues was undertaken by Genotyping Australia Pty Ltd and AGRF Perth (Alacran 2021a).

Phylogenetic analyses, species delimitation and SRE status was determined by Alacran (2021a) utilising Alacran and GenBank reference sequences for the majority of sequences. Figures 5.1 to 5.15 of Appendix III show Bayesian phylogeny of each SRE category taxon. Query taxa (Lamb Creek specimens) are highlighted in coloured text and conspecific species 'groups' are denoted in bold text.

First pass species delimitation was based on an 8% sequence divergence threshold for most taxa (Hebert *et al*. 2003; Hebert, Ratnasingham, *et al*. 2003; Barret & Hebert 2005; Robinson *et al.* 2009). For trapdoor spiders, the delimiting threshold of 9.5 % was used (Castalanelli *et al.* 2014); (Huey e*t al*. 2019) and 5% was used for scorpions (Volschenk unpublished data). For *Austrostrophus* millipedes the WAM Museum clade identification system was used to identify specific clades; however, the divergence between these clades is often very low suggesting strong sexual selection may be present.

Where there was no match with Alacran or GenBank sequences, or where there was outstanding ambiguity, the Lamb Creek sequences were assessed against various datasets derived from WAM research projects via the Western Australian Museum Molecular Systematics Unit (WAM MSU). The sequences for 14 specimens that did not have matches with GenBank or Alacran reference sequences were BLASTED against WAM MSU data sets (Appendix V). Extraneous primers sequences were removed prior to analysis. The top 10 blast hits for each major taxon were gathered, duplicates removed, and analysed with a Maximum Likelihood phylogenetic analysis using a GTR+G model of evolution and 100 bootstraps (RAxML). Distances were calculated via tree-based estimates of identical bases in Geneious Prime 2020.2.5.

To avoid confusion, where the WAM MSU assigned a WAM code for a morphospecies (Appendix V) this replaces the designation given by (Alacran 2021a) which is referred to in the text of this report as the Alacran Preliminary ID. Where there is no code system for this group, then the Alacran designation remains.

For further detail on Genomic Identification (DNA Barcoding) refer to Appendix III and Appendix V.

The species accumulation curve was generated using EstimateS software version 9.1.0 (copyright R.K. Colwell) (Colwell 2016). The analysis was conducted using presence-absence data of the 25 taxa of SRE category specimens (i.e. both potential SRE and widespread) recorded through foraging, from the 23

sites that yielded SRE category specimens. Predicted species richness was calculated using the Chao2 estimator (Gotelli and Colwell 2011).

3.2.7 Assessment Of Short-Range Endemism

There are no published systems for assessing the SRE potential for a species. The WAM previously employed the following system to assess SRE-status of invertebrates:

- **Confirmed SRE**: This category applies when the identity of the taxon is unambiguous and its distribution is less than 10 000 km^2 based on publicly available vouchered records. Supporting data can be either genomic (from DNA sequences) or morphological, ideally both.
- **Potential SRE**: This category applies to situations where there are knowledge gaps for the taxon. The following sub-categories further elucidate this status:
    - **Data Deficiency (DD)**: This category covers taxa for which there is insufficient data available to determine SRE status. Factors that fall under this category include:
    - insufficient geographic information, and/or
    - inappropriate life stages prevent identification to species level.
    - **Habitat Indicators (H)**: This category employs habitat characteristics to evaluate SRE status when habitats are known to support SRE taxa. For example, many species sampled from subterranean habitats are known to be range restricted; a new species discovered from such habitat therefore has greater potential to be range restricted (i.e. a SRE) than widespread.
    - **Morphological Evidence (M)**: This category uses one or more morphological characters that are characteristic of SRE taxa inhabiting restricted environments, e.g. the specialised morphological features of animals adapted to subterranean habitats, including body markings that are absent or significantly paler than surface dwelling relatives, eyes that are absent or significantly reduced, and/or longer appendages (legs and antennae) than surface relatives.

- **Unpublished Research & Expertise (U):** This category relies on unpublished research or expertise to develop SRE status.
- **Widespread (not an SRE)**: This category applies when vouchered evidence demonstrates a distribution greater than 10,000 km^2.

SRE assessment and classification of field specimens and WAM database records was conducted by Dr Erich Volschenk.

4 Results

4.1 Desktop

The search area yielded a total of 8894 records of SRE category taxa (i.e., taxa belonging to taxonomic groups prone to shortrange endemism). Of these records, six taxa were assessed to be SRE and 376 were assessed as potential SRE (Table 4.1 and Table 4.2). The remainder were assessed as widespread (Appendix I). .

Seventy-eight records of potential SRE taxa were collected from within ten kilometres of the survey area (central point) (Table 4.3). Thirteen records of potential SRE taxa were collected from the survey area from the pseudoscorpion and scorpion groups (Table 4.3). No confirmed SRE taxa records occurred from the survey area.

Table 4.1 Summary statistics of desktop results (status SRE)

Higher Level Classification	Number of Taxa	Number of Records
Araneae (selenopid spiders)	2	4
Pseudoscorpiones (pseudoscorpions)	2	13
Schizomida (schizomids)	1	5
Scorpiones (scorpions)	1	2
Grand Total	6	24

Table 4.2 Summary statistics of desktop results (potential SRE)

Higher Level Classification	Number of Taxa*	Number of Records*
Araneae (mygalomorph spiders)	100	1058
Araneae (oonopid spiders)	1	1
Araneae (theraphosid spiders)	2	3
Araneae (selenopid spiders)	6	232
Pseudoscorpiones (pseudoscorpions)	83	2406
Scorpiones (scorpions)	46	750
Opiliones (Harvestmen)	5	16
Palpigrades (micro-whip scorpions)	1	1
Myriapoda (flat back millipedes, round back millipedes , centipedes, symphyla)	65	653
Isopoda (Isopods)	43	650

Higher Level Classification	Number of Taxa*	Number of Records*
Gastropoda (snails)	24	538
Grand Total	**376**	**6308**
* Indicative numbers only: contains undescribed morphospecies and ambiguous identifications		

Table 4.3 Desktop results (potential SRE) within 10 kilometres of the Lamb Creek Survey Area. Records from the survey area are highlighted

Taxon	Reg No
Araneae (mygalomorph spiders)	
Aname sp.	T113643
Aname sp.	T113644
Aname sp.	T113647
Aname sp.	T113652
Aname sp.	T136487
Aurecocrypta 'MYG246'	T113641
Barychelidae sp.	T114809
Conothele 'MYG282'	T113649
Conothele 'MYG282'	T113667
Conothele 'MYG282'	T137333
Conothele 'MYG282'	T137443
Idiosoma sp.	T122816
Idiosoma sp.	T122818
Kwonkan 'MYG323'	T113633
Kwonkan 'MYG324'	T113627
Kwonkan 'MYG324'	T113640
Kwonkan 'MYG324'	T122817
Kwonkan 'MYG378'	T113638
Kwonkan 'MYG653'	T113639
Kwonkan 'MYG653'	T113646
Kwonkan 'MYG653'	T113650
Kwonkan 'MYG654'	T113628
Kwonkan 'MYG654'	T113630
Kwonkan 'MYG654'	T113632
Kwonkan 'MYG683'	T113631
Kwonkan 'MYG683'	T113635
Kwonkan 'MYG683'	T113651
Mygalomorphae sp.	T144521
Pseudoscorpiones (pseudoscorpions)	

Taxon	Reg No
Austrohorus sp.	T122186
Beierolpium '8/2'	T118346
Beierolpium '8/2'	T118351
Beierolpium '8/3'	T118349
Beierolpium '8/3'	T122193
Beierolpium sp.	T118343
Beierolpium sp.	T118344
Beierolpium sp.	T118347
Beierolpium sp.	T118348
Beierolpium sp.	T122188
Euryolpium sp.	T122189
Euryolpium sp.	T122190
Euryolpium sp.	T122191
Euryolpium sp.	T122195
Oratemnus sp.	T118345
Oratemnus sp.	T122179
Oratemnus sp.	T122181
Oratemnus sp.	T122182
Oratemnus sp.	T122184
Oratemnus sp.	T122185
Oratemnus sp.	T122187
Oratemnus sp.	T122192
Oratemnus sp.	T122194
Xenolpium sp.	T122180
Scorpiones (scorpions)	
Lychas 'harveyi complex'	T114310
Lychas 'harveyi complex'	T114311
Lychas 'harveyi complex'	T114314
Lychas 'harveyi complex'	T114315
Lychas 'harveyi complex'	T114316
Lychas 'harveyi complex'	T114317
Lychas sp.	T114307
Lychas sp.	T114308
Urodacus 'SCO031'	T113670
Urodacus 'SCO031'	T113671
Myriapoda (flat back millipedes, round back millipedes , ground centipedes)	

Taxon	Reg No
Antichiropus 'DIP006, Area C, species1'	T146788
Antichiropus 'DIP173, danberrin5'	T144512
Antichiropus 'DIP173, danberrin5'	T146787
Antichiropus pendiculus	T144510
Antichiropus pendiculus	T144513
Antichiropus pendiculus	T144514
Antichiropus pendiculus	T144515
Antichiropus sp.	T144516
Antichiropus sp.	T144517
Antichiropus sp.	T144519
Polyzoniida sp.	T144518
'Trigoniulidae?' sp.	T118342
Isopoda (Isopods)	
Buddelundia '16'	C49825
Buddelundia '16'	C49827
Gastropoda (snails)	
Bothriembryon 'Pilbara'	S83523

4.2 Field survey results

4.2.1 Summary

Fifty-one sites were sampled during the February 2021 survey (Figure 3.1). Field data is presented in Appendix II.

The 2021 field survey yielded a total of 119 invertebrate specimens from SRE target groups, representing 25 different taxa. When combined with the SRE category taxa collected in 2020 from dry pitfall traps and litter sampling (Rapallo 2022), a total of 159 invertebrate specimens from SRE target groups, representing 30 different taxa have been collected over a two-year period from the Lamb Creek survey area.

Of this combined dataset of SRE category taxa, 24 taxa are classified as potential SRE with 23 regarded as data deficient due to known distribution (DDG) and one assessed as potential SRE owing to limited taxonomic resolution (DDT). The remaining six taxa were assessed as widespread (Alacran 2021a).

Eight potential SRE taxa were linked with existing sequenced, undescribed species (Bothriembryon BOT065, Buddelundiinae (Armadillidae) 'ISOP009', Kwonkan MYG324, Olpiidae 'LCr02', Lychas 'bituberculatus complex', Lychas 'multipunctatus complex' , Lychas 'hairy tail complex') and Buddelundia '10ma'.

Lychas 'harveyi complex' was identified by Alacran on the basis of morphology. This taxon is considered a potential SRE because it is a species complex containing potential SRE. The Lychas 'harveyi complex' specimens were not sequenced as the taxa was previously believed to be widespread, however information from WAM in October 2021 indicated a change of status to potential SRE (Volschenk unpublished data provided by Alacran).

One potential SRE taxon (Buddelundia '13') was identified via morphology and not linked with reference sequences because at the time of report writing no reference sequences were available through either GenBank, Alacran, or WAM MSU.

Ten potential SRE taxa were identified as a new undescribed or previously unsequenced species (Austrochthonius 'LCr01', Austrostrophus 'Clade M' , Cryptops 'LCr01', Cryptops 'LCr02', Euryolpium 'LCr01', Indolpium 'LCr03', Indolpium 'LCr04', Indolpium 'LCr05', Mecistocephalus 'LCr01' and Mecistocephalus 'LCr02')

Two potential SRE taxa sequences (Sepedonophilus 'LCr01' (AES210156 and AES210143)) and Orphnaeus 'LCr01 (AES210206) were not run against the WAM MSU database because there were no reference sequences available.

No confirmed SRE invertebrate taxa were collected from the survey area.

Figure 4.1 gives abundance records, for SRE category taxa (potential SRE and widespread) and Figure 4.2 presents the number of sites SRE category taxa were recorded from. Table 4.5 and Table 4.6 summarises the abundance, species richness and number of sites sampled per habitat type.

Table 4.4 Summary of the field survey results; bold text identifies species identifications confirmed using DNA sequences. Refer to Barcoding report (Appendix III) for detail and sequence divergence. Note Buddelundia species were sequenced for reference and identified via morphology.

Class	Order	Family	SRE category taxa	Matched with reference sequence?	SRE status (Alacran 2021a)	Reason for status/Comments
Arachnida	Araneae	Anamidae	Aname mellosa	Yes (GenBank reference sequences)	Widespread	Harvey et al 2012, WAM database
Arachnida	Araneae	Anamidae	Kwonkan 'MYG324'	Yes, (WAM MSU reference sequences)	Potential SRE: DDG	WAM database
Arachnida	Araneae	Barychelidae	Synothele 'MYG311'	Yes (GenBank and Alacran reference sequences)	Widespread	WAM database
Arachnida	Pseudoscorpiones	Atemnidae	Oratemnus 'WA1'	Yes (GenBank and Alacran reference sequences)	Widespread	T149473 (AES190320) a sequence match to the Lamb Creek specimen was collected ca 30 km to the south-southeast of Lamb Creek (unrelated project/client) and identified by WAM MSU as Oratemnus 'WA1' (Volchenck pers com). T149473 (AES190320) is recorded within the WAM database.
Arachnida	Pseudoscorpiones	Chthoniidae	Austrochthonius 'LCr01'	No	Potential SRE: DDT	A new undescribed or previously unsequenced species (Wilson & Harvey 2021).
Arachnida	Pseudoscorpiones	Olpiidae	Euryolpium 'LCr01'	No	Potential SRE: DDG	A new undescribed or previously unsequenced species (Wilson & Harvey 2021).
Arachnida	Pseudoscorpiones	Olpiidae	Indolpium 'LCr03'	No	Potential SRE: DDG	A new undescribed or previously unsequenced species (Wilson & Harvey 2021).
Arachnida	Pseudoscorpiones	Olpiidae	Indolpium 'LCr04'	No	Potential SRE: DDG	A new undescribed or previously unsequenced species (Wilson & Harvey 2021).
Arachnida	Pseudoscorpiones	Olpiidae	Indolpium 'LCr05'	No	Potential SRE: DDG	A new undescribed or previously unsequenced species (Wilson & Harvey 2021).

Class	Order	Family	SRE category taxa	Matched with reference sequence?	SRE status (Alacran 2021a)	Reason for status/Comments
Arachnida	Pseudoscorpiones	Olpiidae	Olpiidae 'LCr02'	No	Potential SRE: DDG	A new undescribed or previously unsequenced species (Wilson & Harvey 2021).
Arachnida	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	Yes	Potential SRE: DDG	Volschenk unpublished data provided by Alacran
Arachnida	Scorpiones	Buthidae	Lychas 'hairy tail complex'	Yes (GenBank reference sequences)	Potential SRE: DDG	Volschenk unpublished data provided by Alacran
Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	N/A	Potential SRE: DDG	Volschenk unpublished data provided by Alacran
Arachnida	Scorpiones	Buthidae	Lychas 'SCO046' (multipunctatus complex)	Yes (GenBank and Alacran reference sequences)	Potential SRE: DDG	Volschenk unpublished data provided by Alacran
Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	N/A	Widespread	Volschenk unpublished data provided by Alacran
Chilopoda	Geophilomorpha	Chilenophilidae	Sepedonophilus 'LCr01'	No	Potential SRE: DDG	No reference sequence match, potentially a new undescribed or previously unsequenced species.
Chilopoda	Geophilomorpha	Mecistocephalidae	Mecistocephalus 'LCr01'	No	Potential SRE: DDG	A new undescribed or previously unsequenced species (Wilson & Harvey 2021).
Chilopoda	Geophilomorpha	Mecistocephalidae	Mecistocephalus 'LCr02'	No	Potential SRE: DDG	A new undescribed or previously unsequenced species (Wilson & Harvey 2021).
Chilopoda	Geophilomorpha	Oryidae	Orphnaeus 'LCr01'	No	Potential SRE: DDG	No reference sequence match, potentially a new undescribed or previously unsequenced species.
Chilopoda	Scolopendromorpha	Cryptopidae	Cryptops 'LCr01'	No	Potential SRE: DDG	A new undescribed or previously unsequenced species (Wilson & Harvey 2021).
Chilopoda	Scolopendromorpha	Cryptopidae	Cryptops 'LCr02'	No	Potential SRE:	A new undescribed or previously

Class	Order	Family	SRE category taxa	Matched with reference sequence?	SRE status (Alacran 2021a)	Reason for status/Comments
					DDG	unsequenced species (Wilson & Harvey 2021).
Chilopoda	Scolopendromorpha	Scolopendridae	Arthrorhabdus mjobergi	N/A	Widespread	(Koch 1984)
Diplopoda	Spirobolida	Trigoniulidae	Austrostrophus 'Clade A'	Yes (GenBank reference sequences	Potential SRE: DDG	WAM database
Diplopoda	Spirobolida	Trigoniulidae	Austrostrophus 'Clade M'	No	Potential SRE: DDG	A new undescribed or previously unsequenced species (Wilson & Harvey 2021).
Malacostraca	Isopoda	Armadillidae	Buddelundia '10ma'	Yes, matched with specimen collected from a different MRL site.	Potential SRE: DDG	Judd unpublished data provided by Alacran
Malacostraca	Isopoda	Armadillidae	Buddelundia '13'	No	Potential SRE: DDG	Judd unpublished data provided by Alacran
Malacostraca	Isopoda	Armadillidae	Buddelundia '15'	Yes	Widespread	Judd unpublished data provided by Alacran
Malacostraca	Isopoda	Armadillidae	Buddelundia '16'	N/A	Potential SRE: DDG	W.A. Museum assessment provided by Alacran
Malacostraca	Isopoda	Armadillidae	Buddelundiinae (Armadillidae) 'ISOP009'	Yes, WAM MSU sequence database match	Potential SRE: DDG	This specimen falls in a clade that represents a known but undescribed species *Armadillidae* with a code from GenBank ISOP009 (2.13% divergent) (Wilson & Harvey 2021).
Gastropoda		Bothriembryontidae	Bothriembryon 'BOT065'	Yes, WAM MSU sequence database match	Potential SRE: DDG	There are 44 records of Bothriembryon 'BOT065' held by WAM MSU extending 170 kilometres from Prairie Downs west of Newman to near Tom Price (WAM unpublished data supplied by Alacran).

4.2.2 Abundance

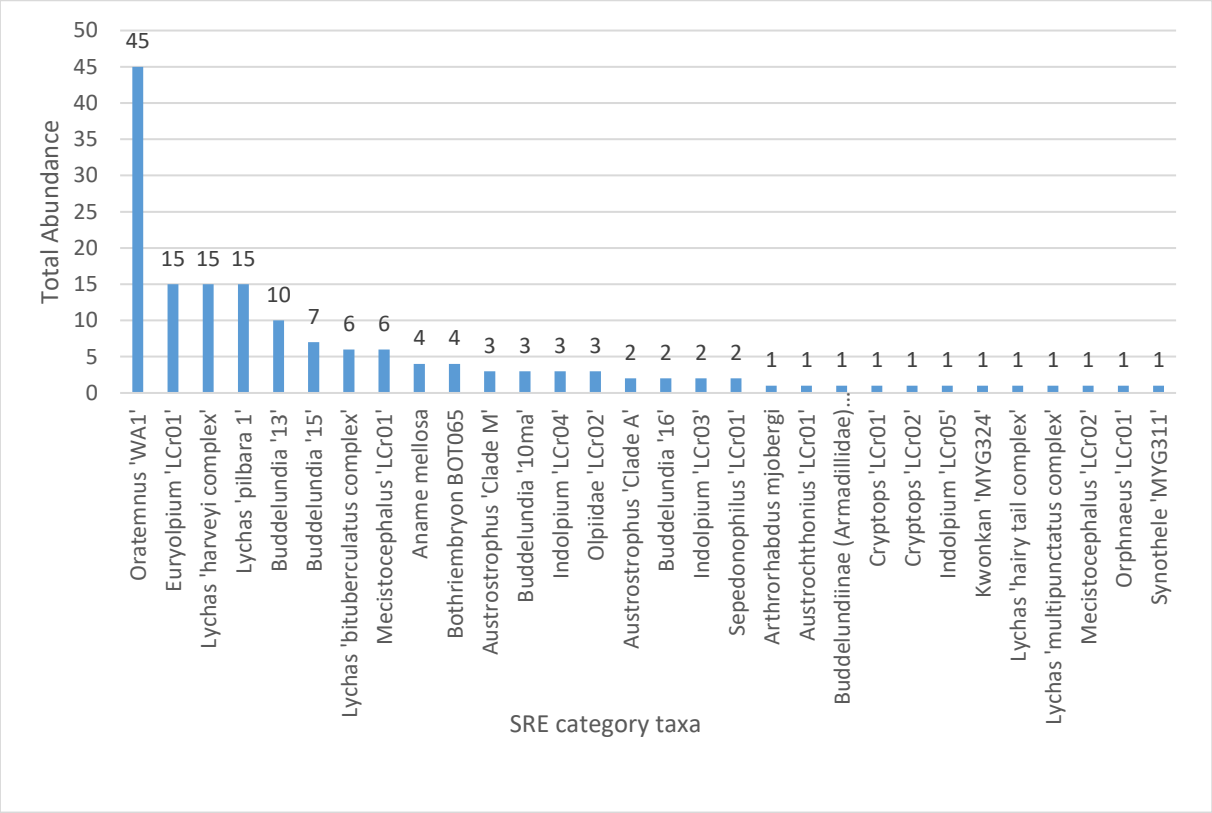


Figure 4.1 Abundance of SRE category taxa collected from Lamb Creek (2020 and 2021).

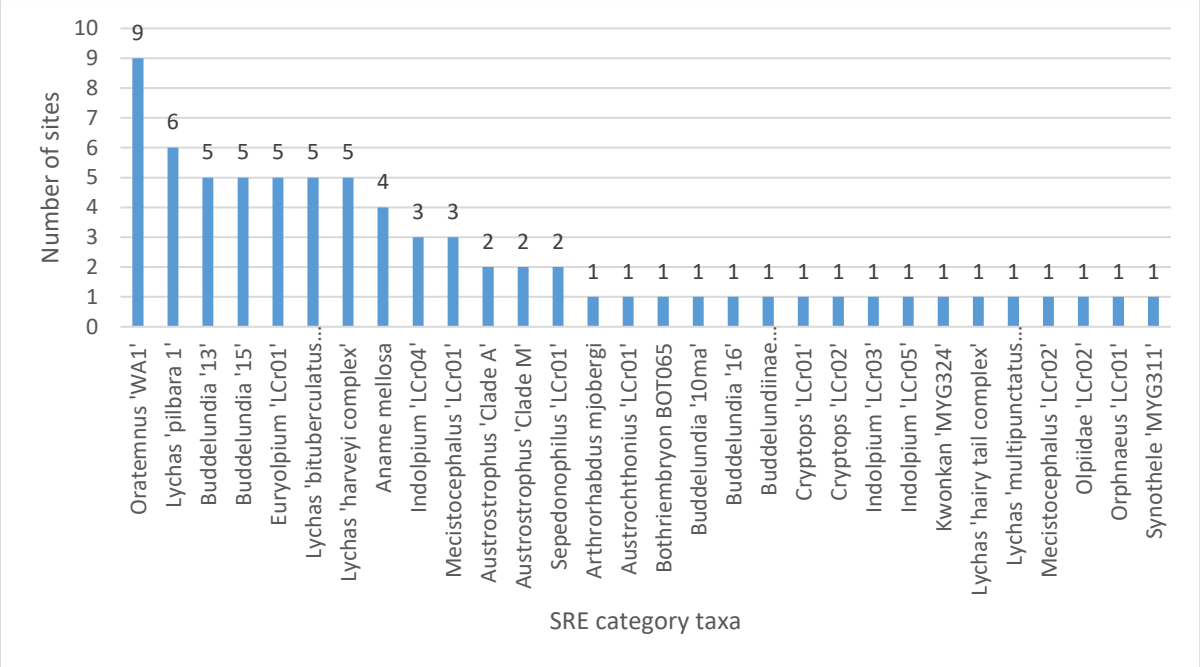


Figure 4.2 Number of sites within the survey area that SRE category taxa were collected from (2020 and 2021).

4.2.3 Species richness estimates

To provide an indication of survey completeness the software program EstimateS (Version 9.1.0) (Colwell 2013) was used to generate species accumulation curves and to calculate predicted species richness. Species accumulation curves represent a theoretical model of the relationship between survey effort and species accumulation: as the number of specimen captures or sites foraged increases, the accumulation of invertebrate taxa decreases until the curve reaches an asymptote (Gotelli & Colwell 2011).

Since models can only be generated from data collected through (the same) systematic methods, the species accumulation curve and predicted species richness was calculated using the 2021 foraging data. Analyses were conducted on presence-absence data of the 25 taxa of SRE category specimens (i.e. both potential SRE and widespread taxa) recorded through foraging in 2021, from the 23 sites that yielded SRE category specimens. The analysis was run using the default settings, with the following exceptions:

- Accumulations (runs) were randomised 10,000 times without replacement.
- Upper abundance limit for rare or infrequent species was set to 5.

The species accumulation curve is presented in Figure 4.3 plotting number of SRE category taxa (y-axis) against the number of foraging sites sampled. Observed species richness is presented as a sample-based rarefaction curve, computing the mean expected number of SRE category taxa (S(est)) over all possible combinations of 1, 2, and up to 23 sites sampled (Colwell et al. 2012). The Chao2 estimator (which is a robust estimator of minimum species richness for incidence-based data) was used to calculate predicted species richness (Gotelli and Colwell 2011).

The Chao 2 estimator gave a predicted species richness of 48.41 taxa, which indicates that the survey recorded 52% of the (estimated) total SRE category species richness in the survey area that could have been recorded through foraging. This relatively low percentage is reflected in the species accumulation curve which by the end of the survey had not commenced towards an asymptote (Figure 4.3).

The total number SRE category taxa recorded in the Lamb Creek survey area to date (including the 2020 dry pitfall trapping by-catch) was 30 taxa. Hence, even when taking into account additional taxa collected as by-catch during the vertebrate fauna survey, only 62.5% of the (estimated) total species richness of the survey area has been collected to date. Additional survey work completed under favourable climatic conditions is highly likely to capture additional taxa.

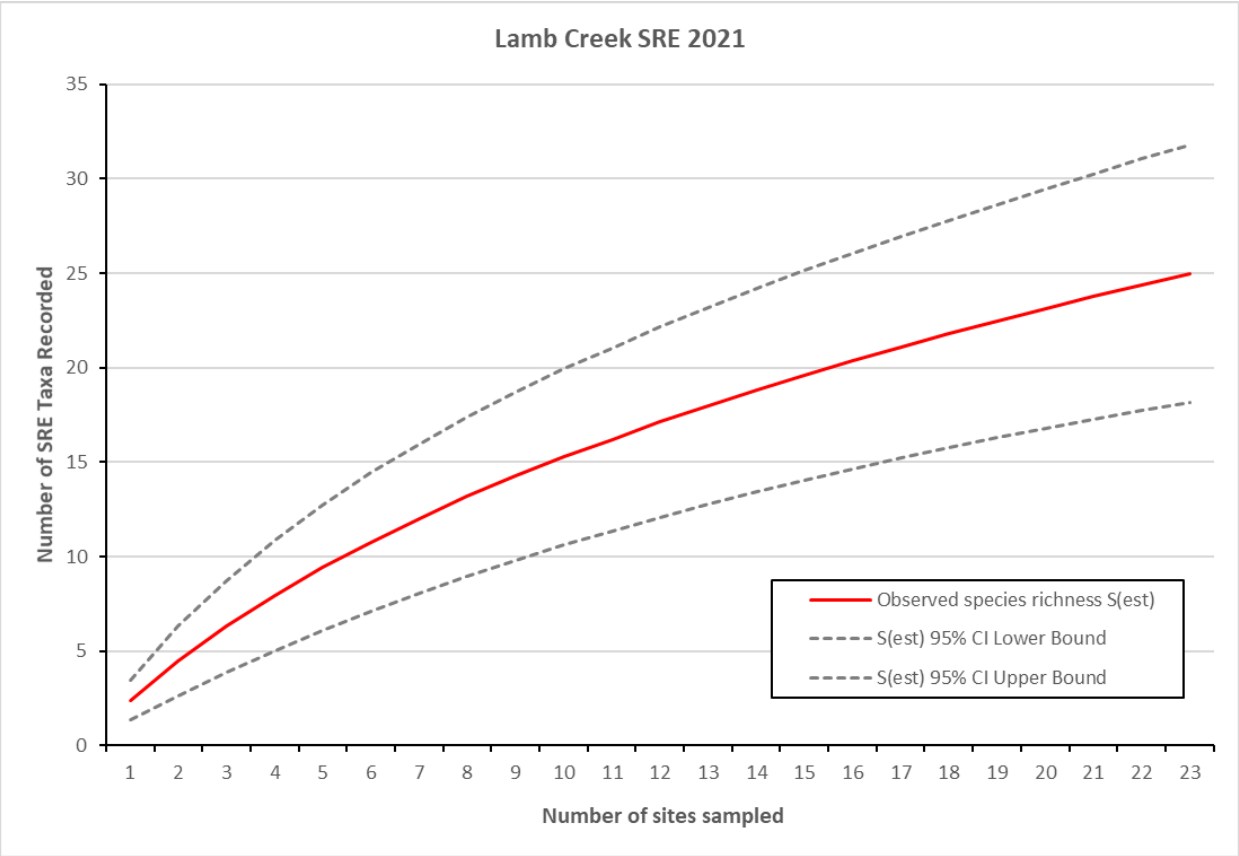


Figure 4.3 Species accumulation curve

4.2.4 SRE category taxa per habitat type

All eight habitat types surveyed yielded invertebrates belonging to SRE category taxa (Table 4.5). Of those eight habitats mulga shrubland patches supported the greatest species richness of taxa from SRE groups. Interestingly minor drainage, with a high foraging effort comparable to stony plain, and mulga shrubland patches yielded only one taxon from SRE groups.

Table 4.5 Summary of short-range endemic category taxa, abundance, species richness and number of sites sampled per habitat type

	Deep Gullies	Shallow Open Gullies	Hillcrest /hillslopes	Medium Drainage	Minor Drainage	Mulga shrubland patches	Stony Plain	Tussock grassland
Abundance	**12,** (12), (N/S)	**17,** (17), (N/S)	**6,** (0), (6)	**22,** (18), (4)	**1**, (1), (N/S),	**48, (**31), (17)	**38,** (29), (9)	**15,** (11), (4)
Species Richness	**5**, (5), (NS)	**5**, (5), (NS)	**3**, (0), (3)	**7**, (5), (2)	**1**, (1), NS	**15,** (11), (4)	**9**, 7, (4)	**6,** (4), (2)
Number of sites sampled	**2**, (2), (0)	**3**, (3), (0)	**6,** (5), (1)	**7,** (5), (2)	**11**, (11), (0)	**9,** (8), (1)	**14,** (11), (3)	9, (7), (2)
Site Code	LC13, LC21	LC12, LC14, LC20	LC11, LC19, LC17, LC38, LC26, LCS10*	LC01, LC02, LC03, LC39, LC39A, LCS07*, LCS09*	LC18, LC23, LC25, LC27A, LC36, LC37, LC42A, LC44, LC43, LC45, LC29B	LC04, LC05, LC06, LC07, LC08, LC09, LC10, LC15, , LCS06*	LC16, LC22, LC24B, LC24A, LC27B, LC28, LC29A, LC30, LC37A, LC40, LCS08*, LCS03*, LCS04*, LCS05*	LC31, LC32, LC33, LC34, LC35, LC41, LC42, LCS01*, LCS02*

Bold = Total, first parenthesis is 2021 foraging data, second parenthesis is 2020 data (vertebrate survey), NS=not sampled * = 2020 vertebrate survey sites

Table 4.6 presents each SRE category taxa per broad habitat type as described in Table 2.4. Nine SRE category taxa were sampled from 2 or more different habitats. Eighteen taxa belonging to SRE groups were found in only one habitat type, of which, sixteen SRE category taxa were also sampled from single sites.

Table 4.6 Short-range endemic category taxa per broad habitat type and sample sites.

Short-range endemic category taxa	No of foraging sites taxa sampled from (2021)	No of broad habitat types taxa sampled from (2021)	No of sites taxa sampled from (2020)	No of broad habitat types taxa sampled from (2020)	Broad Habitats
Aname mellosa	3	2	1	2	Mulga, Stony Plain
Arthrorhabdus mjobergi	1	1	0	1	Mulga
Austrochthonius 'LCr01'	1	1	0	1	Mulga
Austrostrophus 'Clade A'	2	2	0	2	Mulga, Gully/Gorge

Short-range endemic category taxa	No of foraging sites taxa sampled from (2021)	No of broad habitat types taxa sampled from (2021)	No of sites taxa sampled from (2020)	No of broad habitat types taxa sampled from (2020)	Broad Habitats
Austrostrophus 'Clade M'	2	2	0	2	Mulga, Stony Plain
Bothriembryon 'BOT065'	1	1	0	1	Mulga
Buddelundia '10ma'	1	1	0	1	Stony Plain
Buddelundia '13'	5	3	0	3	Hillcrest/hillslope, medium drainage, mulga,
Buddelundia '15'	5	3	0	3	Medium Drainage, Mulga, Tussock Grassland
Buddelundia '16'	1	1	0	1	Deep Gully
Buddelundiinae (Armadillidae) 'ISOP009'	1	1	0	1	Medium Drainage
Cryptops 'LCr01'	1	1	0	1	Gully/Gorge
Cryptops 'LCr02'	1	1	0	1	Stony Plain
Euryolpium 'LCr01'	5	1	0	2	Gully/Gorge
Indolpium 'LCr03'	0	1	1	1	Hillcrest/hillslope
Indolpium 'LCr04'	3	2	0	2	Gully/Gorge
Indolpium 'LCr05'	1	1	0	1	Minor Drainage
Kwonkan 'MYG324'	1	1	0	1	Mulga
Lychas 'bituberculatus complex'	2	2	3	2	Mulga, Stony Plain
Lychas 'hairy tail complex'	1	1	0	1	Gully/Gorge
Lychas 'harveyi complex'	0	0	5	4	Mulga shrubland Patches, Medium Drainage, Stony Plain, Tussock grassland plain
Lychas 'multipunctatus complex'	0	0	1	1	Tussock grassland plain
Lychas 'pilbara 1'	0	0	6	4	Hillcrest/Hillslope, Medium Drainage, Mulga Shrubland Patches, Stony Plain
Mecistocephalus 'LCr01'	3	2	0	2	Mulga, Stony Plain

Short-range endemic category taxa	No of foraging sites taxa sampled from (2021)	No of broad habitat types taxa sampled from (2021)	No of sites taxa sampled from (2020)	No of broad habitat types taxa sampled from (2020)	Broad Habitats
Mecistocephalus 'LCr02'	1	1	0	1	Tussock Grassland
Olpiidae 'LCr02'	0	1	1	1	Hillcrest/hillslope
Oratemnus 'WA1'	9	4	0	4	Medium Drainage, Mulga, Stony Plain, Tussock Grassland
Orphnaeus 'LCr01'	1	1	0	1	Medium Drainage
Sepedonophilus 'LCr01'	2	1	0	1	Gully/Gorge
Synothele 'MYG311'	1	1	0	1	Tussock Grassland

5 Discussion

5.1 Summary of SRE status and collections relative to the disturbance footprint

Table 5.1 summarises the potential SRE taxa collected from the survey area with regards to occurrence relative to footprint V3 and regional records. The taxa that were sampled from the disturbance footprint V3, that were not found elsewhere on the survey area or known to have regional records are highlighted. Section 5.2 discusses each potential SRE taxa individually and habitats are discussed in section 5.3.

There are fourteen potential SRE taxa collected from the survey area that have not been recorded regionally. Of these taxa, six were recorded from within footprint V3 only (highlighted blue in Table 5.1).

- Austrostrophus 'Clade M'
- Cryptops 'LCr02'
- Indolpium 'LCr03'
- Indolpium 'LCr05'
- Mecistocephalus 'LCr01'
- Orphnaeus 'LCr01'

Three taxa were collected from adjacent to the proposed disturbance footprint V3 only (within 100 metres). Of these taxa, two taxa had not been recorded regionally (highlighted in orange in Table 5.1).

- Austrochthonius 'LCr01'
- Mecistocephalus 'LCr02'

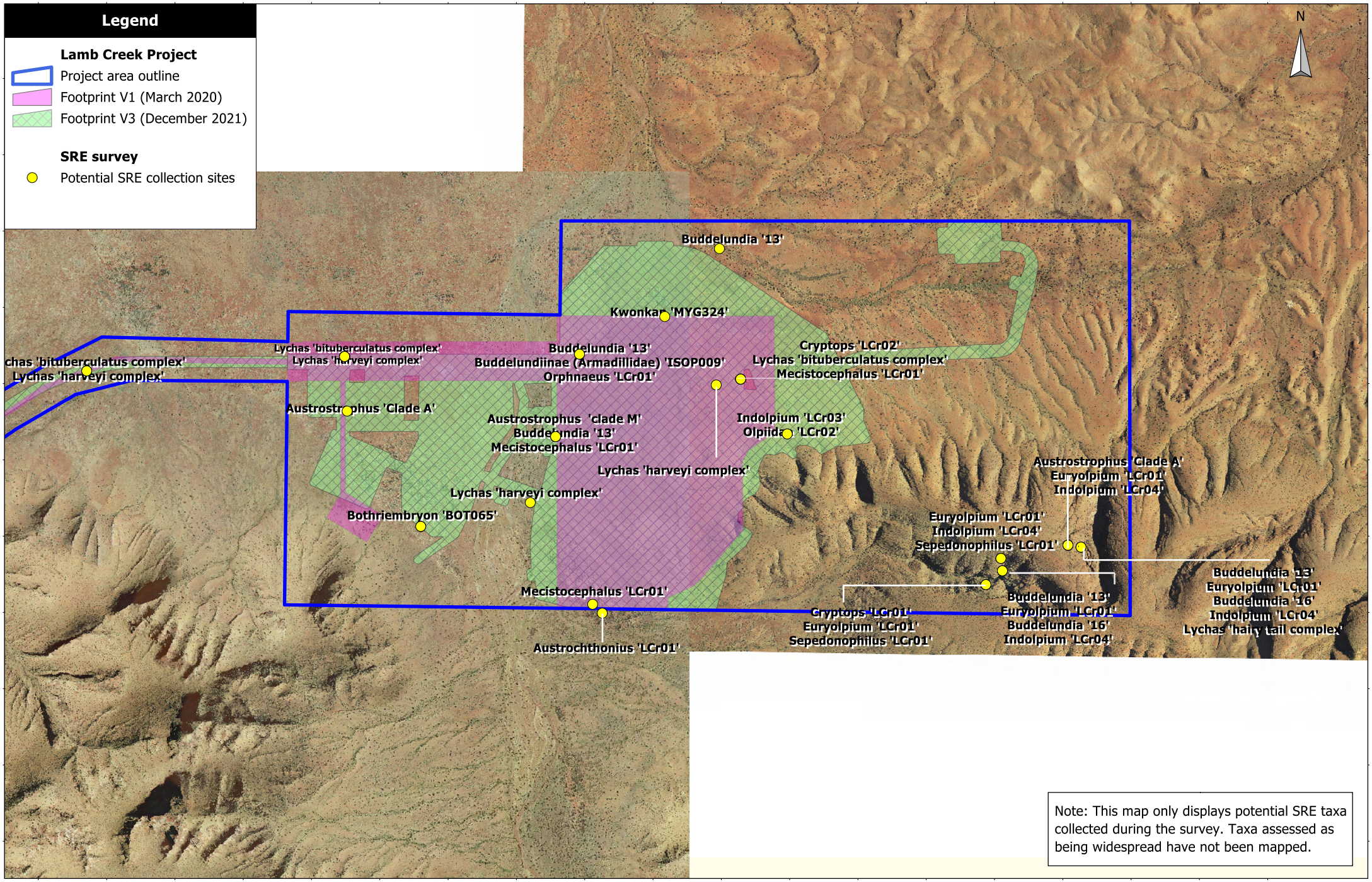
Figure 5.1 to Figure 5.3 show the collection locations of potential SRE taxa across the survey area. Note that SRE category taxa assessed to be widespread have not been mapped.

Table 5.1 Location of sampled potential short-range endemic taxa relative to disturbance footprint V3 and regional records.

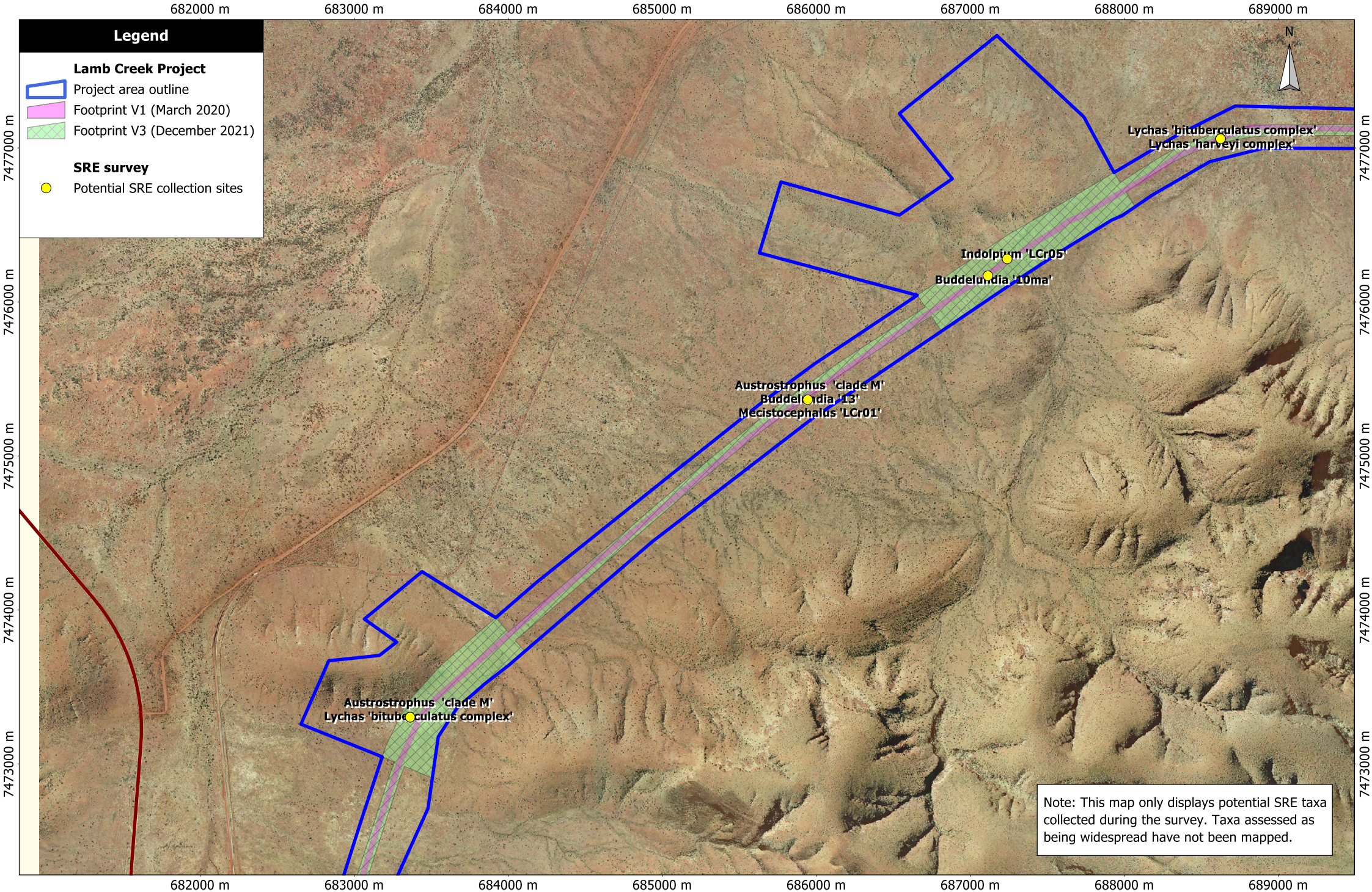
Taxon name	SRE status	Survey area collections relative to footprint V3 [2]			Regional records?
		In footprint V3	Within 100 m of footprint V3	More than 100 m outside V3	
Austrochthonius 'LCr01'	Potential SRE: DDT		1		No
Austrostrophus 'Clade A'	Potential SRE: DDG	1		1	Yes , undisclosed sampling location accessed via GenBank
Austrostrophus 'Clade M'	Potential SRE: DDG	2			No
Bothriembryon BOT065	Potential SRE: DDG	1			Yes, unpublished WAM MSU data (Section 5.2.7).
Buddelundia '10ma'	Potential SRE: DDG	1			Yes from 53 km NE of Lamb Creek (Alacran 2021c)
Buddelundia '13'	Potential SRE: DDG	2	1	2	No. There are WAM database records of Buddelundia '13' however no sequenced specimen data publicly available or available via WAM MSU.
Buddelundia '16'	Potential SRE: DDG			1	There are WAM database records of Buddelundia '16' however no sequenced specimen data
Buddelundiinae (Armadillidae) 'ISOP009'	Potential SRE: DDG	1			Yes, 124 km NW (Wilson & Harvey 2021) and NE of Lamb Creek (Alacran 2021c)
Cryptops 'LCr01'	Potential SRE: DDG			1	No
Cryptops 'LCr02'	Potential SRE: DDG	1			No
Euryolpium 'LCr01'	Potential SRE: DDG			7	No
Indolpium 'LCr03'	Potential SRE: DDG	1			No
Indolpium 'LCr04'	Potential SRE: DDG			3	No
Indolpium 'LCr05'	Potential SRE: DDG	1			No

[2] Numbers in this column represent the number of unique collection locations (sites) and not the number of individual specimens collected.

Taxon name	SRE status	Survey area collections relative to footprint V3 [2]			Regional records?
		In footprint V3	Within 100 m of footprint V3	More than 100 m outside V3	
Kwonkan 'MYG324'	Potential SRE: DDG	1			Yes, records from Karijini and Juna Downs (Wilson & Harvey 2021)
Lychas 'bituberculatus complex'	Potential SRE: DDG	4	1		Yes, record from approx. 30km , south south-east of Lamb Creek (Alacran reference sequence)
Lychas 'hairy tail complex'	Potential SRE: DDG			1	Yes, undisclosed sampling locations accessed via GenBank
Lychas 'harveyi complex'	Potential SRE: DDG	3	1	1	No matches with sequenced specimen as Lychas 'harveyi complex' was not sequenced (previously believed to be widespread). as Lychas 'harveyi complex' was collected during the 2012 fauna survey of Lamb Creek.from Nearest regional specimen of Lychas 'harveyi complex' is from Area C ca. 14 km to SE.
Lychas 'multipunctatus complex'	Potential SRE: DDG			1	Yes record from approx. 30km, south of Lamb Creek (Alacran reference sequence)
Mecistocephalus 'LCr01'	Potential SRE: DDG	3			No
Mecistocephalus 'LCr02'	Potential SRE: DDG		1		No
Olpiidae 'LCr02'	Potential SRE: DDG	1			Yes, two WAM lodged specimens collected approximately 7 kilometres north of the Lamb Creek specimen (Wilson & Harvey 2021)
Orphnaeus 'LCr01'	Potential SRE: DDG	1			No
Sepedonophilus 'LCr01'	Potential SRE: DDG			2	No



Rapallo environmental	Mineral Resources Limited	Lamb Creek Iron Ore Project SRE Survey	Original Size: A4 Scale: 1:30,000 Datum: MGA94 Zone 50 0 1 km	**Figure 5.1** Potential SRE recorded in the survey area (map 1 of 3)



Rapallo environmental

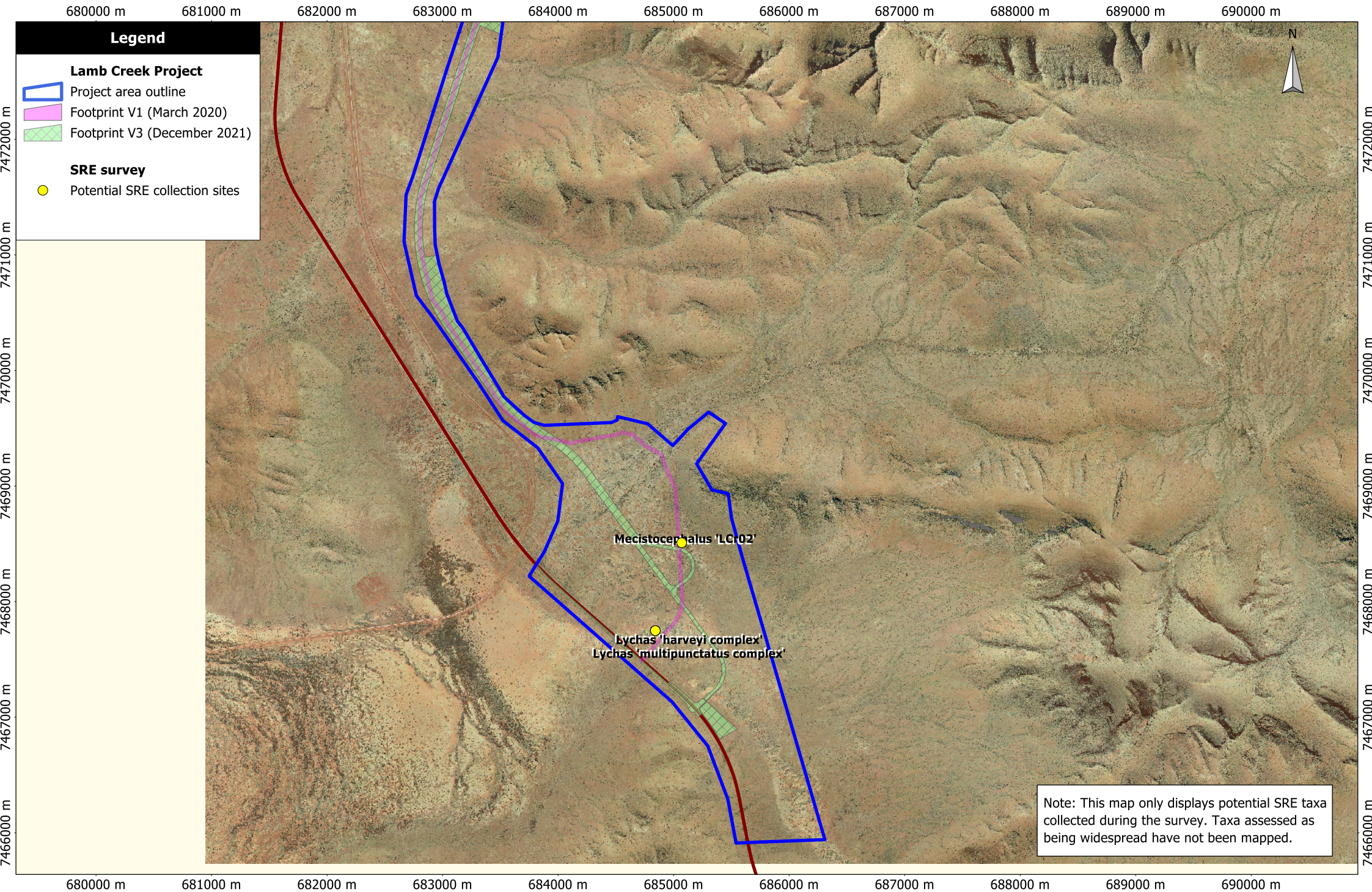
Mineral Resources Limited

Lamb Creek Iron Ore Project
SRE Survey

Original Size: A4 Scale: 1:30,000
Datum: MGA94 Zone 50
0 1 km

Figure 5.2

Potential SRE recorded in the survey area (map 2 of 3)



Rapallo environmental

Mineral Resources Limited

Lamb Creek Iron Ore Project
SRE Survey

Original Size: A4 Scale: 1:40,000
Datum: MGA94 Zone 50
0 1 km

Figure 5.3

Potential SRE recorded in the survey area (map 3 of 3)

5.2 SRE invertebrate category fauna assemblage

This section discusses the SRE category taxa collected from the survey area, SRE status classification, distribution (where known), and site information. Habitats are discussed in section 5.3.

5.2.1 Arachnida (spiders)

Australia's spiders are broadly divided into two groups, the Araneomorphae (modern spiders) and the Mygalomorphae (trapdoor spiders). Typically, most modern spiders have large distributions and achieve this through 'ballooning'; a process where a spiderling creates and releases a long strand of silk into the wind. The silk strand eventually becomes able to 'catch the wind' and lift the spiderling into the wind to be deposited elsewhere, potentially many kilometres from its original site.

In Western Australia, the modern spiders currently considered to contain SRE's are members of the family Selenopidae (wall crab spiders) (Crews & Harvey 2011, Crews 2013); and some members of the family Archiidae (assassin spiders Rix & Harvey 2011, Rix & Harvey 2012). Additionally, salt lake specialist Lycosidae (wolf spiders) have the potential to be range restricted cryptic species (Hudson & Adams 1996; Framenau & Hudson 2017).

Most of Western Australia's SRE spiders are trapdoor spiders. In Western Australia, 10 trapdoor spider species are listed in the Wildlife Conservation (Specially Protected Fauna) Notice 2017 (Western Australian Government 2018).

Anamidae (Open-hole trapdoor spiders)

Anamidae is a diverse family of trapdoor spiders that are broadly characterised by building burrows without trapdoors. Most of this family was previously referred to as Nemesiidae prior to the global revision by Opatova *et al.* (2019). The higher level systematics of the Australasian representatives (as Nemesiidae) was revised by Harvey *et al*. (2018). Anamidae includes the genera Aname, Chenistonia, Hesperonatalius, Kwonkan, Merredinia, Namea, Pseudoteyl, Swolnpes, Teyl, Teyloides and Yilgarnia and all except for Namea are represented in Western Australia.

This survey sampled five specimens of Anamidae belonging to the genera Aname and Kwonkan.

Three taxa from the family Anamidae: Aname sp., Kwonkan sp. and c.f. Aname mellosa. Aname sp. (two samples) and Kwonkan sp. (one sample) were represented by adult female specimens and could not be identified to species using morphology. For species level taxonomic resolution, these specimens required assessment using DNA sequences.

Aname mellosa

Three samples that were loosely assigned to one morphospecies of Aname on the basis of morphology were matched to each other using DNA sequences. These sequences were grouped with seven GenBank reference sequences of undisclosed locations. (Figure 5.1 of Appendix III). A fourth male specimen had been previously identified on the basis of morphology as *Aname mellosa*.

Aname mellosa represents a species complex with two representatives in the Pilbara and several from the Midwest and Murchison regions. While the Pilbara forms appear to be widespread (Harvey et al. 2012), those collected from outside of the Pilbara appear to be potential SRE (WAM unpublished data provided by Alacran). The WAM database search returned 339 records of *Aname mellosa* (WAM 2020).

Four specimens of *Aname mellosa* were collected from the survey area, comprising three adult females and one male) from mulga shrubland and stony plain habitats.

Kwonkan 'MYG324', (Alacran Preliminary ID: Kwonkan 'LCr01')

Sequencing: one sample that was identified as Kwonkan sp. on the basis of morphology was not grouped with GenBank or Alacran reference sequences (Figure 5.2 of Appendix III). The specimen did match with WAM MSU sequences and was placed in a clade known as MYG324 which is a known but undescribed species (Wilson & Harvey 2021).

Kwonkan 'MYG324' is regarded as Potential SRE owing to geographical data deficiencies (Alacran 2021a).

The specimen of Kwonkan 'MYG324' collected from the survey area (one adult female) was from mulga shrubland habitat (LC09, Table 3.1 and Appendix II). Kwonkan 'MYG324' was collected within the disturbance footprint V3 (Table 5.1). Sequenced specimens from the WAM MSU database are known from Karijini as well as the Juna Downs area (Wilson & Harvey 2021, Appendix V).

Barychelidae (Brush-Footed Spiders)

The family Barychellidae is diverse in Western Australia where it is represented by the genera Aurecocrypta, Synothele and Idiommata. They are characterised by distinctive foot pads. There are many undescribed species from Western Australia with a high proportion being potential SRE and only known from limited numbers of specimens.

***Synothele* 'MYG311'**

Sequencing: one sample that was loosely assigned to the genus of *Synothele* on the basis of morphology was grouped with six GenBank and one Alacran reference sequences of *Synothele* 'MYG311' (Figure 5.3 of Appendix III). With collections of *Synothele* 'MYG311' from Jinayri, Mudlark, Hope Downs, Koodaideri and Area C (WAM 2020), the taxon is regarded as widespread (Alacran 2021a).

The specimen of *Synothele* 'MYG311' collected from the survey area was from tussock grassland habitat (LC33 Table 3.1 and Appendix II).

5.2.2 Pseudoscorpiones (pseudoscorpions)

In Western Australia pseudoscorpions are represented by 19 families (Harvey 2013). They occur in most undisturbed terrestrial habitats but are easily unobserved due to their small size and cryptic behaviour. The Western Australian pseudoscorpion fauna is poorly known with only a few groups receiving taxonomic attention since the turn of the century and these are primarily focussed on subterranean species (Harvey & Edward 2007; Harvey & Volschenk 2007; Edward & Harvey 2008; Harvey & Leng 2008). The epigean (surface dwelling) fauna flagged as SREs or Potential SREs are largely undescribed.

FAMILY ATEMNIDAE

Most representatives of this family collected from Western Australia represent species in the genus Oratemnus. The taxonomy of Oratemnus is not well known and numerous undescribed species have been identified on the basis of their DNA sequences. In many baseline studies, Oratemnus sp. was regarded as being widespread; however, unpublished molecular data (WAM unpublished cited in Alacran 2021b) indicate that this genus is more complex and has greater diversity than is currently recognised.

***Oratemnus* 'WA1'**

Sequencing: six samples of Oratemnus sp. were matched to each other using DNA sequences and grouped with five GenBank reference sequences and one Alacran reference sequence (AES190320; T149473) (Figure 5.4 of Appendix III).

T149473 (AES190320) was collected ca 30 km to the south-southeast of Lamb Creek (unrelated project/client) and identified by WAM MSU as Oratemnus 'WA1' (E. Volschenk *pers. comm.*). Oratemnus 'WA1' is not considered SRE (E. Volschenk *pers. comm.*).

Forty-five specimens of Oratemnus 'WA1' were collected from the survey area (18 adult males, 13, adult females and 14 juveniles) from stony plain, tussock grassland drainage, mulga shrubland and medium drainage habitats (LC28, LC42, LC05, LC15, LC06, LC32, LC01, LC02, LC35, LC28) (Table 3.1 and Appendix II).

FAMILY CHTHONIIDAE

Chthoniidae represents a family of fairly primitive pseudoscorpions and in the Pilbara they are mostly represented by troglobitic species in the genera Tyrannochthonius and Lagynochthonius. Epigean (surface) chthoniids are known from the Pilbara and are representatives of the genera Tyrannochthonius and Austrochthonius. Only one epigean species is described, *Tyrannochthonius aridus*; however, that species is known to represent a species complex (E Volschenk pers comm).

Austrochthonius 'LCr01'

Sequencing: this morphospecies could not be matched to a GenBank or Alacran reference sequence at species level and was found to be cogeneric with Austrochthonius 'Australia'- EU559513 and Austrochthonius sp.- EU559512 (Figure 5.5 of Appendix III). WAM MSU concluded the specimen represented a new undescribed or previously un-sequenced species (Wilson & Harvey 2021, Appendix V).

The taxon is regarded as a potential SRE owing to limited taxonomic resolution (Alacran 2021a).

Austrochthonius 'LCr01'was represented by a single collection from the survey area (one male), sampled from mulga shrubland habitat (LC06). The site was within 100 meters of footprint V3 in R47/19 (Table 5.1, Figure 5.1, Appendix II).

FAMILY OLPIIDAE

Olpiidae is diverse in Western Australia; however, most of that diversity is undescribed and represented by genetically determined cryptic species (E Volschenk pers comm).

Sequencing determined the identity of 12 samples that were loosely assigned to five morphospecies of the genera Indolpium (three morphospecies), Euryolpium (one morphospecies) and one morphospecies from an unknown genus.

Euryolpium 'LCr01'

Six samples of Euryolpium were grouped together according to DNA sequences. This taxon could not be matched to a known species or morphospecies from GenBank, Alacran or WAM MSU sequence databases (Appendix III, Appendix V).

Fifteen specimens of Euryolpium 'LCr01' were collected from the survey area (three adult males, six adult females and six juveniles) from deep gully and shallow open gully habitats, corresponding to areas of high elevation (LC21, LC20, LC14, LC12, LC13) all outside of footprint V3 (Table 5.1 and Appendix II).

Beyond Lamb Creek, this taxon is not currently known to occur elsewhere, representing a new undescribed or previously unsequenced species (Wilson & Harvey 2021). Euryolpium 'LCr01' is a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a).

Indolpium 'LCr04'

Three samples of Indolpium 'LCr04' were grouped together according to DNA sequences. The taxon could not be matched to a known species or morphospecies from GenBank, Alacran or WAM MSU sequence databases (Figure 5.7 of Appendix III, Appendix V).

WAM MSU do not have a good grasp of typical species level divergences in this group, so it is unclear if the queried taxa is conspecific with others or not (Wilson & Harvey 2021). This species is a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a).

Three specimens of Indolpium 'LCr04' were collected from the survey area (one adult male, one adult female and one juvenile) from deep gully and shallow open gully habitats, corresponding to areas of high elevation (LC21, LC20, LC14, LC12, LC13) all outside of footprint V3 (Table 5.1, Figure 5.1, Figure 5.2, Figure 5.2, Appendix II).

Indolpium 'LCr05'

This taxon could not be matched to a known species or morphospecies from GenBank, Alacran or WAM MSU sequence databases (Figure 5.7 of Appendix III, Appendix V).

The Lamb Creek specimen is 12.82% divergent from its nearest relative in the tree (WAM T114698). WAM MSU do not have a good grasp of typical species level divergences in this group, so it is unclear if the queried taxa is conspecific with others or not (Wilson & Harvey 2021). This species is a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a).

One specimen of Indolpium 'LCr05' was collected from the survey area (one adult female) from a minor drainage habitat (LC23) within footprint V3 (Table 5.1, Figure 5.2, Appendix II).

Indolpium 'LCr03'

Three samples of Indolpium 'LCr03' were grouped together according to DNA sequences. This taxon could not be matched to a known species or morphospecies from GenBank, Alacran or WAM MSU reference sequences (Figure 5.7 of Appendix III, Appendix V).

The Lamb Creek specimen is 10.38% divergent from its nearest relative in the tree (WAMT149362). WAM MSU do not have a good grasp of typical species level divergences in this group, so it is unclear if the queried taxa is conspecific with others or not (Wilson & Harvey 2021). This species is a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a).

Two specimens of Indolpium 'LCr03' were collected from the survey area during the 2020 vertebrate pitfall trapping (one adult female and one adult male) from hillcrest/hillslope habitat (LCS10) within footprint V3 (Table 5.1, Figure 5.1 of Appendix II). Indolpium 'LCr03 was not recollected during the 2021 foraging survey.

Olpiidae 'LCr02'

Three samples of Indolpium 'LCr02' were grouped together according to DNA sequences. This taxon could not be matched to a known species or morphospecies from GenBank or Alacran sequences (Figure 5.6 in Appendix III) but was matched with specimens WAMT122180 and T122190 that were collected approximately seven kilometres north of the Lamb Creeks specimen (Wilson & Harvey 2021, Appendix V). Olpiidae 'LCr02' represents a known but undescribed species (Wilson & Harvey 2021) and is a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a).

Three specimens of Olpiidae 'LCr02' were collected from the survey area (one adult female and one juvenile) from hillcrest/hillslope habitat during the 2020 vertebrate fauna survey within footprint V3 (LCS10) (Table 5.1, Figure 5.1, Appendix II). Olpiidae 'LCr02' was not re-collected during the 2021 foraging survey.

5.2.3 Scorpiones (scorpions)

Scorpions are represented by four families from Western Australia. Short-range endemic species are known from the families Buthidae, Urodacidae and Hormuridae. Australian scorpion fauna is poorly understood with as much as 85% suspected of being undescribed (Volschenk et al. 2000; (Volschenk & Prendini 2008; Volschenk et al. 2010; (Volschenk et al. 2012; (Harvey 2014).

In Western Australia, the family Buthidae is represented by three genera, Lychas, Isometroides and Isometrus. Representatives of Lychas are frequently collected in surveys within Western Australia and current investigations on the genus Lychas by the WAM indicates the presence of several species' complexes, some of which appear to contain SREs (Alacran 2021b).

The family Urodacidae is represented by two genera, Urodacus and Aops, the latter *Aops oncodactylus* is only known from a single specimen from Barrow Island (Volschenk & Prendini 2008). Most species of Urodacus appear to be relatively widespread, but are often patchily distributed, such as their distribution does not equate to their area of occupation (Volschenk et al. 2010). Several Urodacus species are also known to be SREs including the described species *Urodacus planimanus* and *Urodacus koolanensis* as well as several undescribed species from the Pilbara.

Thirty-three specimens were collected during the vertebrate fauna survey (2020), and three specimens were collected during the 2021 survey period, all from the *Lychas* genera (Buthidae).

Lychas 'bituberculatus complex'

The *Lychas* 'bituberculatus complex' is a known species complex that supports multiple cryptic species (E. Volschenk unpublished data provided by Alacran). Five samples that were assigned to the morphospecies of '*Lychas* 'bituberculatus complex' on the basis of morphology, were matched according to DNA sequences. The Lamb Creek collections were grouped with seven reference sequences (GenBank and Alacran) (Figure 5.8 of Appendix III).

This species is a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a).

Specimens of '*Lychas* 'bituberculatus complex')13 adult males, 1 adult female and 2 juveniles) were collected from five sites within the survey area, from mulga shrubland and stony plain habitat. The taxon has been collected from five sites, with the majority (LC16, LC28, LCS05, LCS06) within footprint

V3 and one site (LCS04) adjacent to footprint V3 (Table 5.1, Figure 5.1, Figure 5.2, Figure 5.3, and Appendix II).

Specimen AES190065 (WAM 149489) from the Alacran sequence library that matched with the Lamb creek specimen (Appendix III) was collected approximately 30 km to the south south-east of Lamb Creek.

Lychas 'multipunctatus complex'

The Lychas 'multipunctatus complex' is a known species complex that support multiple cryptic species (Volschenk unpublished data provided by Alacran). One sample that was assigned to the morphospecies of Lychas 'multipunctatus' was grouped with three reference sequences (Figure 5.8, Appendix III) with two reference sequences closely matching the Lamb Creek specimen (Lychas SCO046 (multpunctatus cmpx)-MW078434 and Lychas SCO046 (multpunctatus cmpx) – AES190080).

This taxon is a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a).

One adult male was sampled from the survey area during the 2020 vertebrate fauna survey from tussock grassland habitat outside of footprint V3 (LCS01) (Table 5.1, Figure 5.3, Appendix II). Lychas 'multipunctatus' was not recollected during the 2021 foraging survey.

Specimen AES190080 (WAM 149497): from the Alacran sequence library that matched with the Lamb creek sequence (Appendix III) was collected from approximately 30 km to the south of Lamb Creek.

Lychas 'hairy tail complex'

The *Lychas* 'hairy tail complex' is a known species complex that supports multiple cryptic species (E. Volschenk unpublished data). One specimen that was assigned to the morphospecies of Lychas 'hairy tail complex' was grouped with five GenBank reference sequences with undisclosed locations (Figure 5.8 of Appendix III).

This taxon is a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a). One juvenile was sampled from deep gully habitat (LC21) outside of footprint V3 (Table 5.1, Figure 5.1, Appendix II).

Lychas 'pilbara 1'

Fifteen specimens of *Lychas* 'pilbara 1' were collected from the vertebrate fauna survey (2020) from mulga shrubland, medium drainage, stony plain and hillcrest/hillslope habitats (LCS06, LCS09, LCS05, LCS04, LCS10, LCS08).

Lychas 'pilbara 1' was identified by Alacran on the basis of morphology and is considered a widespread species (E. Volschenk unpublished data provided by Alacran).

Lychas 'harveyi complex'

Fifteen specimens of *Lychas* 'harveyi complex' were collected during the vertebrate fauna survey (2020) from medium drainage, stony plain, tussock grassland and mulga shrubland habitats (LCS07, LCS05, LCS01, LCS06 and LCS08) (Figure 5.1, Figure 5.2, Figure 5.3) Lychas 'harveyi complex' was collected during the 2012 Lamb Creek fauna survey from a variety of habitats.

Lychas 'harveyi complex' was identified by Alacran on the basis of morphology. This taxon is considered a potential SRE because it is a species complex containing potential SRE (Volschenk unpublished data provided by Alacran).

The *Lychas* 'harveyi complex' specimens were not sequenced with the other specimens, as they were believed to be widespread at the time. The change in status only came into effect in October 2021 (E. Volschenk pers. comm. 22 October 2021). The nearest WAM database record of Lychas 'harveyi complex' is from Area C ca. 14 kilometres to the south east. Only sequencing will confirm if all the individuals collected from Lamb Creek are the same species as each other and the same species as those collected from Area C or those collected in 2012. Regardless, given the taxon was collected from four habitats in 2021, it does appear (based on morphology) that *Lychas* 'harveyi complex' occurs across multiple habitats in the survey area.

5.2.4 Chilopoda (centipedes)

Two orders of centipedes from Western Australia are known to contain SREs: Geophilomorpha (Soil Centipedes) and members of the family Cryptopidae from the order Scolopendromorpha. Geophilomorphs and cryptopids are blind and strongly associated with habitats characterised by numerous rocks or boulders, and habitats with deep leaf litter, usually encountered when turning over rocks or larger pieces of fallen wood/logs. Members of both groups are also frequently collected in subterranean fauna surveys where their presence as troglofauna or soil fauna is debated. Regardless of their specific ecophysiological requirements, unpublished genetic studies on Pilbara cryptopids and geophilomorphs, both terrestrial and subterranean, indicates highly localised genetic species. For this reason, species occurring in arid or semi-arid environments may be considered SRE (E. Volschenk *pers. comm.*).

5.2.4.1 Geophilomorpha (Soil Centipedes)

Geophilomorpha represents the largest (most speciose) of centipede orders but it is also the most taxonomically challenging owing to their highly reduced mouth parts, features heavily relied on for diagnosing species in other centipede orders. The recent application of DNA sequencing to this group of centipedes has exposed numerous species and most appear to be SRE (E Volschenk pers comm).

The survey collected representatives of three taxa belonging to three families: Sepedonophilus sp. (Chilenophilidae); Mecistocephalus sp. (Mecistocephalidae) and Oryidae sp. (Oryidae). For species level taxonomic resolution, all specimens required assessment using DNA sequences (Appendix III) and publicly available sequences are lacking.

FAMILY CHILENOPHILIDAE

Sepedonophilus 'LCr01'

Two samples of this taxon were matched to each other using DNA sequences. This taxon could not be grouped with GenBank or Alacran reference sequences (Figure 5.9 of Appendix III). Sepedonophilus 'LCr01' is a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a). The sequences were not run against the WAM MSU sequence databases because WAM advised at the time of the request that there was no applicable sequence data available (E. Volschenk *pers. comm.*).

Two specimens of Sepedonophilus 'LCr01' were collected from the survey area from shallow open gully habitats outside of the footprint V3 (LC14 and LC12) (Table 5.1, Figure 5.1, Appendix II).

FAMILY MECISTOCEPHALIDAE

Mecistocephalus 'LCr01'

Six samples of this taxon were matched to each other using DNA sequences. This taxon could not be grouped with GenBank, Alacran or WAM MSU reference sequences (Figure 5.10 of Appendix III, Appendix V).

Six specimens of Mecistocephalus 'LCr01' were sampled from the survey area from mulga shrubland and stony plain habitats within disturbance footprint V3 (LC05, LC04, LC16) (Table 5.1, Figure 5.1, Appendix II).

Beyond Lamb Creek, this taxon is not currently known to occur elsewhere, representing a new undescribed or previously unsequenced species (Wilson & Harvey 2021). Mecistocephalus 'LCr01' is regarded as a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a).

Mecistocephalus 'LCr02'

One sample was delineated as separate and given the morphospecies name of Mecistocephalus 'LCr02'. This taxon could not be matched to a known species or morphospecies from GenBank , Alacran or WAM MSU sequence databases (Figure 5.10 of Appendix III, Appendix V).

One specimen of Mecistocephalus 'LCr02' was sampled from the survey area from a tussock grassland habitat (LC34) adjacent to disturbance footprint V3 (Table 5.1, Figure 5.3, Appendix II).

Beyond Lamb Creek, this taxon is not currently known to occur elsewhere, representing a new undescribed or previously unsequenced species (Wilson & Harvey 2021). Mecistocephalus 'LCr02' is regarded as a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a).

FAMILY ORVIDAE

Orphnaeus 'LCr01'

This taxon could not be matched to a known species or morphospecies from GenBank or Alacran sequences (Figure 5.11 of Appendix III) and is regarded as a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a). The sequence was not run against the WAM MSU sequence databases because WAM advised at the time of the request that there was no applicable sequence data available (E. Volschenk *pers. comm.*).

One specimen was collected from the survey area from a medium drainage habitat within disturbance footprint V3 (LC01) (Table 5.1, Figure 5.1, Appendix II). This taxon is not currently known to occur elsewhere.

Scolopendromorpha

Scolopendromorph centipedes represent the largest centipedes and are the ones most commonly encountered native centipedes. The order is represented by two families, Scolopendridae and Cryptopidae, both present in Western Australia. Scolopendridae is relatively well known taxonomically in Western Australia where most epigean (surface) species in this family appear to be widespread. Accordingly, several non-target species were collected from the survey area but were assessed to be widespread or not from groups known to be SRE (*Arthrorhabdus mjobergi, Cormocephalus aurantiipes, Cormocephalus westangelasensis, Scolopendra laeta, Scolopendra morsitans*).

Collections were also made from the order Scutigeromorpha that were also deemed to be non-target, widespread species.

FAMILY CRYPTOPIDAE

Cryptopidae is poorly known and in Western Australia and in the Pilbara they are known mostly from subterranean SRE (troglobitic) species, none of which are described (Volschenk pers comm). Epigean cryptopids are rare in the Pilbara and molecular species delimitation indicates that they are also SREs Volschenk unpublished data provided by Alacran).

Cryptops 'LCr01'

This taxon could not be grouped with reference library sequences from GenBank, Alacran or WAM MSU (Figure 5.12 of Appendix III, Appendix V) and is regarded as a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a).

One specimen was sampled from the survey area from a shallow open gully habitat (LC14) located outside of disturbance footprint V3 (Table 5.1, Figure 5.1, Appendix II). This taxon is not currently known to occur elsewhere and represents a new undescribed or previously unsequenced species (Wilson & Harvey 2021).

Cryptops 'LCr02'

This taxon could not be grouped with GenBank, Alacran or WAM MSU reference sequences (Figure 5.12 of Appendix III, Appendix V) and is regarded as a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a).

One specimen was sampled from the survey area from a stony plain habitat (LC16) located within disturbance footprint V3 (Table 5.1, Figure 5.1, Appendix II).

This taxon is not currently known to occur elsewhere and represents a new undescribed or previously unsequenced species (Wilson & Harvey 2021).

5.2.5 Diplopoda (millipedes)

In Western Australia, millipedes are diverse and are often short-range endemic fauna. Five orders are known to contain epigean (surface dwelling) SREs: Polydesmida (Car & Harvey 2013; (Car, Short, et al. 2013; (Car, Wojcieszek, et al. 2013; Car & Harvey 2014), Polyzoniida (Harvey 2002; Moir & Harvey 2008; Harvey et al. 2011), Spirobolida (Harvey 2002; Harvey et al. 2011) Spirostreptida (Edward & Harvey 2010) and Sphaerotheriida (Harvey 2002; Moir & Harvey 2008; (Harvey et al. 2011).

In the Pilbara, Paradoxosomatidae are represented by two described genera Antichiropus and Boreohesperus, both of which contain SRE representatives and Spirobolis likely harbour significant undescribed species diversity (Harvey pers comm cited in Alacran (2018); (WAM 2021)).

The orders Polyzoniida (sucking millipedes) and Spirostreptida are poorly known from the Pilbara; however, based on investigations of the fauna of south western Australia (Harvey 2002; Moir et al. 2009; Edward & Harvey 2010; Harvey et al. 2011), it is likely that most Pilbara representatives are SRE.

5.2.5.1 Spirobolida (Roundback millipedes)

Until recently, the Pilbara spirobolida was thought to be represented by a single widespread species *Austrostrophus stictopygus* (Hoffman 2003) and the troglobitic genus Speleostrophus (Hoffman 1994). Molecular investigations into this group by the WAM indicate significant variation between some Pilbara populations of *Austrostrophus stictopygus* which are consistent with species level divergences (Harvey pers comm cited in Alacran (2018); (WAM 2021)). *Austrostrophus stictopygus* therefore appears to represent a complex of species, some of which may be SREs.

Four spirobolids (Trigoniulidae) were collected from the survey area and for species level taxonomic resolution, all specimens required assessment using DNA sequences.

Austrostrophus 'Clade A'

Two samples were matched using DNA sequences and grouped with 12 reference sequences from GenBank of undisclosed sampling location (Figure 5.13 of Appendix III). This taxon is a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a).

Two specimens of Austrostrophus 'Clade A' were sampled from the survey area from mulga shrubland and the shallow open gully habitat (LC15, LC20) both within and outside of disturbance footprint V3 (Table 5.1, Figure 5.1, Appendix II).

Austrostrophus 'Clade M', (Alacran Preliminary ID: Austrostrophus 'Clade Lc01')

Two Lamb Creek samples were matched to each other using DNA sequencing. This taxon could not be grouped with reference library sequences (Figure 5.13 of Appendix III, Appendix V) and is recognised that there are few publicly available reference sequences of Austrochthonius available to enable confident species delimitation (Alacran 2021a).

Wilson & Harvey (2021) found the Lamb Creek specimen was at least 6.08% divergent from its nearest relative in the tree (WAMT100193). Based on the topology of the tree, which places this specimen on a branch that falls between known clades (Wilson & Harvey 2021). Wilson and Harvey (2021) allocated this taxon a new clade name (M) where clade names approximate species level clades i.e.. Austrostrophus 'clade M', represents a new undescribed or previously unsequenced species. This taxon is a potential SRE owing to taxonomic data deficiency (Alacran 2021a).

Two specimens of Austrostrophus 'Clade M' were sampled from stony plain and mulga shrubland habitats (LC28, LC04) (Table 5.1, Figure 5.1, Appendix II). Both collection sites were within disturbance footprint V3.

5.2.5.2 Polyxenida (pincushion millipedes)

The order Polyxenida (pincushion millipedes) contains mostly widespread epigean (surface dwelling) species (Short & Huynh 2011, 2013).

Polyxenidae sp.

Three pincushion millipede specimens were collected from the survey area (LC12, LC01 and LC04) but were assessed to be widespread and not from groups known to be SRE.

5.2.6 Isopoda (slaters)

The Western Australian terrestrial isopod fauna is largely undescribed and is diverse (Judd & Horwitz 2003; Judd & Perina 2013). Isopods have poor dispersal capabilities and often have specific habitat preferences, making them target SRE taxa.

Four samples of the genus Buddelundia and one Buddelundiinae of the family Armadillidae were sequenced to determine species level taxonomic resolution. Additional representatives of Buddelundia (identified on morphology) were also sequenced as additional reference taxa for comparison with the unidentified taxa.

Buddelundia '13'

Buddelundia '13' is a relatively small morphospecies belonging to a complex found in the Pilbara region likely to contain numerous species (S Judd unpublished data provided by Alacran). Two Lamb Creek samples identified as Buddelundia '13' via morphology were matched using DNA sequences (Figure 5.14 of Appendix III) but were not grouped with reference sequences as reference sequences were not available for the species. Buddelundia '13' is a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a).

Ten specimens of Buddelundia '13' (four adult males, two adult females and four juveniles) were collected from the survey area from deep gullies, medium drainage and mulga shrubland habitats (LC21, LC01, LC13, LC39A, LC04) from within and outside of disturbance footprint V3 (Table 5.1, Figure 5.1, Figure 5.2, Figure 5.3, Appendix II).

The WAM database search yielded twenty-two regional collections of Buddelundia '13' from locations such as Cloudbreak, Wonmunna, Christmas Creek and Turee Syncline (Reg No: 62079, 62078, 62077, 62076, 62081, 62082, 62083, 62729, 62963, 63269, 62965, 62964, 62080, 48222, 48228, 48227, 48225, 48224, 48223, 48221, 48226, 51859) (WAM 2020). The closest regional collections to the survey area are from Wonmunna, ca. 40 kilometres to the south-east.

At the time of report preparation there were no publicly available reference sequences or WAM MSU reference sequences available for comparison with the Lamb Creek specimens and the WAM database does not indicate if the specimens lodged in the WAM have been sequenced.

There were specimens initially identified on morphology as Buddelundia '13' collected from a different MRL site to the north-west. Sequencing found that the Lamb Creek specimens (AES210142, AES210215) did not match with these specimens (AES210628, AES210616, AES210571) (Alacran Environmental Science 2021b), confirming there is more than one clade in this complex and there is limited value to compare WAM database search results to the Lamb Creek results.

Buddelundia '10ma'

Two Lamb Creek samples were matched together using DNA sequences verifying the morphological identification as Buddelundia '10ma'. Samples were not grouped with reference sequences as reference sequences were not available for the taxon (Figure 5.14 of Appendix III). Buddelundia '10ma' has a limited distribution and is considered a potential SRE (S Judd unpublished data provided by Alacran).

Three specimens of Buddelundia '10ma' (one adult male and two adult females) were collected from the survey area from stony plain habitat (LC22). This site falls within disturbance footprint V3 (Table 5.1, Figure 5.2, Appendix II).

Regionally, Buddelundia '10ma' has been collected from another MRL site approximately 53 kilometres to the north-east of Lamb Creek, and sequencing found that specimens AES210603A, AES210576, AES210608, AES210602, AES210644, AES210622 matched with the sequenced Lamb Creek specimen (AES210193) (Alacran 2021c).

Buddelundia '15'

Buddelundia '15' is a relatively widespread Hamersley Range species and not considered SRE (S Judd unpublished data provided by Alacran).

Four Buddelundia '15' samples were sequenced to provide a reference for other isopod taxa and all Buddelundia '15' samples were grouped together using DNA sequences verifying the morphological identification. Samples were not grouped with reference sequences as reference sequences were not available for the taxon (Figure 5.14 of Appendix III)., however at a later date, one specimen of Buddelundia '15'(AES210562) collected from a separate MRL site, approximately 53 kilometres to the north-east of Lamb Creek was matched via sequencing ((Alacran Environmental Science 2021b), confirming the widespread status.

Seven specimens of Buddelundia '15' (three adult males, one adult female and three juveniles) were collected from the survey area from mulga shrubland, medium drainage and tussock grassland habitats (LC06, LC15, LC05, LC06, LC39A, LC42) (Figure 5.1, Figure 5.2, Figure 5.3, Appendix II).

***Buddelundia* '16'**

This morphospecies has been collected extensively in numerous other projects in the area and was regarded as widespread (S Judd unpublished data provided by Alacran), however the WAM assessment is potential SRE. There are WAM database records of Buddelundia '16' however no sequenced specimen data to prove that all specimens currently lodged under that name represent the same species. Because it was considered widespread, this taxon was not sequenced.

Two specimens of Buddelundia '16' 1 adult male, 1 adult female) were collected from the survey area from deep gully habitats located off the V3 disturbance footprint (LC13) (Appendix II).

Buddelundiinae (Armadillidae) 'ISOP009'

The specimen collected from the survey area belongs to an undescribed genus closely related to *Buddelundia* which is mostly found in the Pilbara region. This type of isopod lacks the morphological characters used to determine *Buddelundia* and it is, therefore, difficult to determine morphospecies (S Judd pers comm provided by Alacran).

One sample of this taxon was matched with one of the reference isopod taxon on GenBank (MT902625) (Figure 5.14 of Appendix III).

Morphologically the Lamb Creek specimen was unusual and differed from other specimens of this genus in a couple of obvious morphological characters, the taxa are much less common than *Buddelundia* and all are potential SRE species (S Judd unpublished data provided by Alacran). Consequently, Buddelundiinae (Armadillidae) 'ISOP009' is a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a).

One specimen was collected from the survey area from medium drainage habitat (LC01) within disturbance footprint V3 (Table 5.1, Figure 5.1, Appendix II).

The Lamb Creek specimen falls within a clade that represents a known but undescribed species of Armadillidae with a code from GenBank ISOP009 (2.13% divergent). That specimen was collected 124 kilometres north-west of this target specimen (Wilson & Harvey 2021, Appendix V). A second collection of Buddelundiinae (Armadillidae) 'ISOP009' was made from a different MRL site to the northwest and matched via sequencing (AES210609, AES210594). (Alacran Environmental Science 2021b).

5.2.7 Gastropoda (Snails)

FAMILY BOTHRIEMBRYONITIDAE

Bothriembryontidae is represented by the genus Bothriembryon, which is endemic to Australia. The genus is represented by 31 described species in Western Australia, many of which are SREs.

Bothriembryon 'BOT065', (Alacran Preliminary ID: Bothriembryon 'Pilbara')

Three live samples of Bothriembryon were collected from the survey area, all from a single site (LC07) within the mulga/Corymbia plain broad fauna habitat. The specimens were collected under spinifex clumps during a period of significant rainfall (34.6 mm was recorded on 19th March at Newman Aerodrome). The sampling location was within disturbance footprint V3 (Table 5.1, Figure 5.1, Appendix II).

Based on traditional morphological analysis this morphospecies was thought to be widespread in the eastern and central Pilbara (Alacran 2021a), distributed across most of the Hamersley Range, from Gregory Gorge at the north-western end, intermittently through to Roy Hill at the south-eastern end of the Hamersley Range. There is considerable variation in the shell characters of specimens from the Hamersley Range, and it is not known whether one or more species exists (Durrant 2011).

DNA barcoding assessment by WAM MSU assigned the Lamb Creek specimen to a clade known as BOT065, representing a known but undescribed species of Bothriembryon. (Wilson & Harvey 2021, Appendix V). There are 44 records of Bothriembryon 'BOT065' held by WAM MSU extending 170 kilometres from Prairie Downs west of Newman to near Tom Price (WAM unpublished data supplied by Alacran).

Bothriembryon 'BOT065' is regarded as a potential SRE owing to data deficiency concerning its distribution limits (Alacran 2021a).

FAMILY SUBULINIDAE

Eremopeas interioris

This species is native to the warmer areas of Australia, being recorded in Western Australia from the North West Cape area to the Kimberley, and through the Northern Territory to western Queensland. In the Pilbara Region it has been found in the areas of Roy Hill, Port Hedland, and across much of the Hamersley Range (Durrant 2011).

Eremopeas interioris is regarded as widespread and non-target . One specimen was collected from the survey area (LC13) from deep gully habitat (Whisson & Kirkendale 2014).

5.3 Habitat

On a macro scale there is connectivity of all habitats to the surrounding landscape, accordingly, it is unlikely that the Potential SRE taxa collected would be restricted to survey area habitats especially where the survey area is narrow (haul road portion). As with all SRE invertebrate surveys, there are limitations to using broad habitat to predict whether a species is restricted and only more surveying, sequencing and greater public access to sequencing data will confirm whether a species is restricted.

Potential SRE taxa collected from each of the seven broad fauna habitats are summarised in Table 5.2

Table 5.2 Potential SRE taxa collected across broad fauna habitats in the survey area

Potential SRE Taxon	Broad vertebrate fauna habitats *						
	STPL	HCHS	GGRB	MEDR	MIDR	MCPL	TGPL
Austrochthonius 'LCr01'						x	
Austrostrophus 'Clade A'			x			x	
Austrostrophus 'clade M'	x					x	
Bothriembryon 'BOT065'						x	
Buddelundia '10ma'	x						
Buddelundia '13'			x	x		x	
Buddelundia '16'			x				
Buddelundiinae (Armadillidae) 'ISOP009'				x			
Cryptops 'LCr01'			x				
Cryptops 'LCr02'	x						
Euryolpium 'LCr01'			x				
Indolpium 'LCr03'		x					
Indolpium 'LCr04'			x				
Indolpium 'LCr05'					x		
Kwonkan 'MYG324'						x	
Lychas 'bituberculatus complex'	x					x	
Lychas 'hairy tail complex'			x				
Lychas 'harveyi complex'	x			x		x	x
Lychas 'multipunctatus complex'							x
Mecistocephalus 'LCr01'	x					x	
Mecistocephalus 'LCr02'							x
Olpiidae 'LCr02'		x					
Orphnaeus 'LCr01'				x			
Sepedonophilus 'LCr01'			x				

*Footnotes: * Habitats: STPL = Stony plain; HCHS = Hill crests and hill slopes; GGRB = Gullies, gorges and rocky breakaways; MEDR = Medium drainage lines; MIDR = Minor drainage lines, MCPL = Mulga/Corymbia plain; TGPL = Tussock grassland plain.*

5.3.1 Stony plain

The stony plain habitat generally has skeletal soils with loamier patches adjacent to drainage and sparse to patchy vegetation (mainly Triodia hummock grassland) with various overstory that provides minimal to some shading and patchy litter. On the survey area within this habitat there are no areas of continuous shade occurring due to topography. Within the survey area this habitat type is continuous not isolated. Suitability for SRE is medium to low suitability based on low - medium protection and low isolation. This broad habitat type is not restricted to the survey area.

Six potential SRE category taxa were collected from this habitat over 2020 and 2021 combined. In 2021 five potential SRE category taxa were collected from this habitat type: Austrostrophus 'Clade M', Buddelundia '10ma', Cryptops 'LCr02', Lychas 'bituberculatus complex' and Mecistocephalus 'LCr01'. In 2020 Lychas 'bituberculatus complex' was collected from dry pitfall traps within the stony plain habitat.

Cryptops 'LCr02, and Buddelundia '10ma' have been collected from this habitat type only.

5.3.2 Hill crests and hill slopes

The hillcrest/hill slope habitat generally has skeletal soils and sparse vegetation (mainly Triodia hummock grassland) that provides little if any protection from exposure and no leaf litter or woody debris accumulation (Appendix II). Steep, south-facing hill slopes can provide a degree of protection; however, within the survey area there are no areas of high elevation that are steep, south facing and constantly shaded. Within the survey area this habitat type is continuous (not isolated). Suitability for SRE is low based on low protection and low isolation and this broad habitat type is not restricted to the survey area.

In 2021 no potential SRE category taxa were collected from this habitat type. Indolpium 'LCr03' and Olpiidae 'LCr02' were collected from litter sifts that occurred during the 2020 vertebrate fauna survey and have not been collected from other habitat types.

5.3.3 Gorges, gullies and rocky breakaways

Within this habitat protection is medium to high dependent on orientation and gully depth where the majority of the gullies on the survey area are shallow and offer low protection. In the deepest gullies on the survey area leaf litter accumulation was common and areas of partial to full shade (deep cracks) were recorded as were Ficus (Appendix II). No areas of permanent or semi permanent water or seeps have been found on the survey area to date. In the deep gullies after rain small rockpools form but dry out due to evaporation.

The deepest gullies on the project area occur on the south eastern corner of the survey area within a north-west and northern-facing slope. Within the survey area this habitat type is not isolated with no gorges terminal gorges or gullies. Suitability for SRE is rated as medium to high. This broad habitat type is not restricted to the survey area.

Shallow open gully and deep gully habitats fall within this broad habitat. Eight potential SRE category taxa were collected from this habitat over the 2020 and 2021 field surveys combined. In 2021 eight potential SRE category taxa were collected from this habitat type: Austrostrophus 'Clade A', Buddelundia ‘13’, Buddelundia ‘16’, Cryptops 'LCr01', Euryolpium 'LCr01', Indolpium 'LCr04', Lychas ‘hairy tail complex’, and Sepedonophilus 'LCr01'.

Lychas 'hairy tail complex', Cryptops 'LCr01' and Sepedonophilus 'LCr01' were collected from this habitat type only.

5.3.4 Medium drainage lines

Connectivity of the medium drainage habitat is high, as this habitat is part of an interconnected network prone to disturbance from flooding. This habitat provides higher protection than the surrounding stony plain habitat due to partial shading from vegetation and some leaf litter and woody debris. This habitat typically has deeper loamier soils than the surrounding stony plain, therefore greater potential to retain moisture. In the survey area, detritus and litter within this habitat was sparse or in piles without accumulated soil - indicating recent fast flow and little opportunity for soil and fine detritus to accumulate. Suitability for SRE is medium to low based on medium to low protection and low isolation. This broad habitat type is not restricted to the survey area.

Four potential SRE category taxa have been collected from this habitat type. These were Lychas ‘harveyi complex’ collected in 2020 from dry pitfall trapping, and Buddelundia '13', Buddelundiinae (Armadillidae) 'ISOP009' and Orphnaeus 'LCr01' collected in 2021.

Buddelundiinae (Armadillidae) 'ISOP009' and Orphnaeus 'LCr01' were collected from this habitat type only.

5.3.5 Minor drainage lines

Despite some patchy shading from vegetation the minor drainage lines assessed had low soil moisture levels, low accumulated litter, and generally gravelly soils. Connectivity of minor drainage is high as the drainage lines flow fast after significant rainfall into a network of drainage. Suitability for SRE is low based on low protection and low isolation. This broad habitat type is not restricted to the survey area.

In 2021 one potential SRE category taxa was collected from this habitat type; Indolpium 'LCr05'.

5.3.6 Tussock grassland plain

The tussock grassland plain habitat is connected via vegetation and undefined flow occurs after significant rainfall. The mulga stands provide shade; however, the stands are not extensive or thick, therefore the shade is patchy as is the accumulated litter. The soils are loamier than the surrounding habitats, so there are areas of higher soil moisture under the bigger mulga stands. Suitability for SRE is medium based on low isolation and medium protection. This broad habitat type is unlikely to be restricted to the survey area.

Three potential SRE taxa have been collected from this habitat type. In 2020 Lychas ‘multipunctatus complex’ and Lychas ‘harveyi complex’ were collected from a dry pitfall trap (LCS01) during the 2020 vertebrate fauna survey. In 2021 Mecistocephalus ‘LCR02’ was collected from a litter sift at site LC34.

Both Lychas ‘multipunctatus complex’ and Mecistocephalus ‘LCR02’ were not collected from other habitat types.

5.3.7 Mulga/Corymbia plain

The mulga/corymbia plain habitat has high connectivity due to drainage, however it is sheet flow rather than fast flowing channel drainage. Mulga stands provide shade; however, the stands are not extensive

or thick, therefore the shade is patchy as is the accumulated litter and associated patches of moister soil. Within the mulga patches this habitat provides loamier soil for burrowing species, however the substrate in adjacent run-on areas is predominantly hard and stony. Suitability for SRE is medium based on low isolation and medium protection. This broad habitat type is unlikely to be restricted to the survey area. However, mulga is sensitive to disruptions to sheet flow, and any disturbances that disrupt sheet flow could impact this habitat both within and outside the project area. Hence, in situations where the footprint V3 would impact sheet flow, it is not important whether sites are inside or outside of the footprint area as impacts would extend well beyond.

Nine taxa of potential SRE invertebrates were collected from this habitat over the 2020 and 2021 field surveys, through the combined methods of dry pitfall trapping, litter sifting, and burrow excavations. These taxa were: Austrochthonius 'LCr01', Austrostrophus 'Clade A', Austrostrophus 'clade M', Bothriembryon 'BOT065', Buddelundia '13', Kwonkan 'MYG324', Lychas 'bituberculatus complex', Lychas 'harveyi complex', and Mecistocephalus 'LCr01'.

Austrochthonius 'LCr01', Bothriembryon BOT065, and Kwonkan 'MYG324' were only recorded from the mulga/corymbia plain habitat.

6 Survey adequacy and limitations

An assessment of survey adequacy , limitations and discussion and variance against EPA Technical Guidance for sampling SRE (Environmental Protection Authority 2016) is presented in Table 6.1.

Table 6.1 Limitations of the survey

Aspect	Limitation	Discussion
Scope and intensity	No	This survey was designed with the intention of sampling multiple habitats throughout the survey area, including habitats not typically thought to harbour SRE invertebrate groups. The survey targeted all invertebrate groups likely to represent SREs rather than just focussing on a small subset of these such as spiders or snails. All likely terrestrial SRE groups were sampled including some groups rarely sampled in terrestrial SRE surveys and more commonly detected in subterranean fauna surveys. There are difficulties that apply to all SRE surveys such as cryptic habitats and taxa occurring in low numbers leading to taxa being difficult to detect.
Availability of contextual information at a regional and local scale	No	Contextual information is strongly dependent on data from the WAM invertebrate databases. The Hamersley subregion has been subject to numerous SRE surveys, most associated with EIA for mining developments. Lodgement requirements of EPA (2009) make WAM database searches the most reliable source of contextual knowledge with which to assess the findings of this survey. Additional data sources include publicly available DNA sequences on GenBank from significant recent revisions of Australian and Western Australian Trapdoor Spiders (Rix, Wilson, et al. 2018); (Castalanelli et al. 2014); (Rix, Huey, et al. 2017); (Harvey et al. 2018); Rix, Huey, et al. 2018; Rix, Wilson, et al. 2018). The data required to classify SRE category taxa, and the interpretation of species' distributions is dependent on the current state of taxonomic and ecological knowledge of the target groups at time of survey and the public availability of this information. Contextual information is available for many groups but often not in published form. Numerous morphospecies could not be matched with WAM records on the basis of morphology. Molecular identifications relied heavily on DNA sequences available to the invertebrate taxonomist and publicly accessible via GenBank. The WAM internal collection of DNA sequences was also queried for additional morphospecies matches. Despite this there remains some SRE target groups that have few reference sequences available to query.
Competency/experience of the team carrying out the survey, including experience in bioregion surveyed	No	The field personnel have experience conducting SRE invertebrate surveys in Western Australia and surveying and collecting SRE target groups. The field team were advised by the invertebrate taxonomist (Dr Erich Volschenk) prior to the survey on locations and habitats to target prior to conducting the field work. The invertebrate taxonomist is well versed in the taxonomy of terrestrial arthropods using both morphological and molecular data and is experienced classifying SRE category taxa. This is especially important as currently WAM invertebrate database searches, although geographically filtered, do not come with taxonomic support/interpretation with regards to SRE category taxa and SRE status and there is a lag updating taxonomic knowledge. This is especially important as genetic analysis is finding

Aspect	Limitation	Discussion
		that many morpho-species once thought to be widespread are actually species complexes that may contain SRE species, and status is rapidly changing.
Proportion of fauna recorded and/or collected, any identification issues	No	Morphological identifications were made by the invertebrate taxonomist (Dr Erich Volschenk) using expert knowledge (scorpions and pseudoscorpions), or morphological comparisons against voucher specimens at the WAM. Where available, relevant taxonomic experts were consulted in order to identify unfamiliar species: Dr Simon Judd (independent taxonomist: terrestrial Isopoda). Where species boundaries were questionable and when suitable tissue samples were available, DNA barcoding was undertaken to help verify species identity. Where reference sequences were not available to help verify species identity, this is not seen as a limitation because taxa are still able to be given the status of Potential SRE based on morphology.
Was the appropriate area fully surveyed (effort and extent)	No	51 sites were sampled across the survey area. Use of helicopter meant that foraging sites were selected based on vegetation/litter cover and habitat complexity rather than a reliance of sites near tracks. All broad habitats of the survey area were sampled. This survey also targeted all invertebrate groups likely to represent SREs rather than just focussing on a small subset of these such as spiders or snails. Night spotting with UV lights was not conducted due to client safety requirements. Scorpions were sampled in 2020 through dry pitfall trapping, and via litter sifting in 2021. Therefore, there is representation of this group in the collection despite not being able to survey at night. Wet pits were not deployed as per client request. Wet pitfall traps, owing to their longer sampling period relative to foraging, would have increased diversity and abundance of SRE category taxa collected. This is not variance against guidance as SRE ((EPA 2016)) does not direct the use of wet pits over other sampling methods such as foraging. The species accumulation curve (section 4.2.3) depicted a curve that had not plateaued, indicating that more sampling would have yielded more species. This is not unusual for a single phased SRE survey or even multi phased SRE survey because of the cryptic nature of many of the target groups and the general lack of ecological knowledge of invertebrates in comparison to vertebrate fauna. Despite this, this survey is not at variance with the EPA Technical Guidance for sampling SREs because EPA 2016) offers no guidance on minimum survey effort for SRE surveys.
Access restrictions within the survey area	No	The survey area was accessible with minimal restrictions once land access was granted across the full survey area. Land access issues meant that the haul road portion of the survey area could not be visited until the latter half of the February sampling period.
Survey timing, rainfall, season of survey	No	The timing of the survey followed EPA (2016) and the survey intercepted a significant rainfall period.
Disturbances that may have affected the results of the survey (e.g. fire, flooding, clearing)	No	No disturbances beyond clearing for tracks and exploration office/ laydown

7 Conclusion

There are fourteen potential SRE taxa collected from the survey area that have not been recorded regionally. Of these taxa, six were recorded from the proposed footprint V3 only.

- Austrostrophus 'Clade M'
- Cryptops 'LCr02'
- Indolpium 'LCr03'
- Indolpium 'LCr05'
- Mecistocephalus 'LCr01'
- Orphnaeus 'LCr01'

Three taxa were collected from adjacent to the proposed disturbance footprint V3 only (within 100 metres). Of these taxa, two had not been recorded regionally.

- Austrochthonius 'LCr01'
- Mecistocephalus 'LCr02'

Potential SRE taxa were collected from all habitats. The mulga shrubland patches within the mulga/corymbia plain broad habitat yielded the highest abundance and species richness followed by stony plain, although survey effort was not uniform across habitats. The mulga/Corymbia plain habitat is sensitive to interruption of sheet flow, and impacts to sheet flow may affect the entire habitat, not just within the immediate footprint.

On a macro scale there is connectivity of all habitats to the surrounding landscape, accordingly, it is unlikely that the Potential SRE taxa collected would be restricted to survey area habitats especially where the survey area is narrow (haul road portion).

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9 Appendices

No	Title
Appendix I	Western Australian Museum Invertebrate Database Searches
Appendix II	Habitat Data
Appendix III	Lamb Creek SRE Barcoding Report
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Appendix I Western Australian Museum Invertebrate Database Searches

Western Australian Museum Database Search Interpreted Results

REGNO	CLASS	HIGHER LEVEL CLASSIFICATION	ORDER	FAMILY	Binomial	ECOTYPE	SRE	SRE_justification	SITE	LATDEC	LONGDEC	DTFR
C47358	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Cloud Break mine area	-22.2666	119.3	
C49785	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandicoogina mine	-22.7246	119.323	
C49783	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandicoogina mine	-22.7403	119.307	
C49782	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandicoogina mine	-22.741	119.306	
C49776	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandicoogina mine	-22.7513	119.301	
C49774	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandicoogina mine	-22.7289	119.313	
C49773	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandicoogina mine	-22.7541	119.303	
C49772	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandicoogina mine	-22.7292	119.32	
C49770	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandicoogina mine	-22.741	119.306	
C45640	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-22.4647	119.772	
C47359	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Cloud Break mine area	-22.3	119.3	
C49788	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandicoogina mine	-22.7282	119.312	
C47357	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Cloud Break mine area	-22.3166	119.367	
C47356	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Cloud Break mine area	-22.2833	119.367	
C47355	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Cloud Break mine area	-22.2833	119.367	
C47354	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Cloud Break mine area	-22.3166	119.433	
C47353	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Cloud Break mine area	-22.2833	119.367	
C45645	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-22.4647	119.772	
C45644	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-22.4647	119.772	
C45643	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-22.4419	119.724	
C47361	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Ore Body 25, site 5	-23.3166	119.767	
C52474	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1724	118.623	
C52567	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1216	118.874	
C52485	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1216	118.874	
C52484	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1723	118.624	
C52483	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1229	118.862	
C52482	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1724	118.623	
C52481	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1723	118.624	
C52480	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.193	118.642	
C52478	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1724	118.623	
C49786	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandicoogina mine	-22.7413	119.312	
C52475	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1917	118.642	
C49787	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandicoogina mine	-22.7286	119.312	
C52473	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1917	118.642	
C52472	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1723	118.625	
C52471	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1915	118.858	
C52470	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1904	118.828	
C50323	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Hamersley Range	-23.0781	119.865	
C50322	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Hamersley Range	-22.738	119.54	
C50321	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	West Angelas	-23.1991	118.724	
C50320	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Hamersley Range	-23.0781	119.865	
C52477	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1216	118.874	
C52476	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1922	118.642	
C42711	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	100km NW Newman, HD4-9	-23.0663	119.279	
C52479	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-23.1724	118.625	
C45638	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-22.4419	119.724	
C45639	Crustacea	Isopoda (isopods)	Isopoda	Indet	Isopoda sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs		-22.2872	119.03	
C61317	Crustacea	Isopoda (isopods)	Isopoda	Armadilidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hancock Gorge, Karijini National Park	-22.3591	118.284	
C61316	Crustacea	Isopoda (isopods)	Isopoda	Armadilidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Woodland site, Karijini National Park	-22.5713	118.378	
C61315	Crustacea	Isopoda (isopods)	Isopoda	Armadilidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Dales Gorge, Circular Pool, Karijini NP	-22.4758	118.562	
C61314	Crustacea	Isopoda (isopods)	Isopoda	Armadilidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Kalamina Gorge , Karijini NP	-22.4172	118.402	
C61313	Crustacea	Isopoda (isopods)	Isopoda	Armadilidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Dales Gorge, Circular Pool, Karijini NP	-22.4758	118.562	
C60151	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Acanthodillo 'B14'	epigean	Potential SRE: DD	W.A. Museum assessment	Mount Mcrae	-22.0976	118.174	
C60223	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Acanthodillo 'B14'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.0976	118.174	
C62181	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Acanthodillo sp.	epigean	Potential SRE: DD	genus contains SREs	Chichester Range	-23.3671	119.787	
C62108	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Acanthodillo sp.	epigean	Potential SRE: DD	genus contains SREs	Cloudbreak	-22.3303	119.232	
C62236	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Acanthodillo sp.	epigean	Potential SRE: DD	genus contains SREs	Roy Hill Station	-22.4266	119.942	
C62237	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Acanthodillo sp.	epigean	Potential SRE: DD	genus contains SREs	Roy Hill Station	-22.441	119.979	
C62722	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Acanthodillo sp.	epigean	Potential SRE: DD	genus contains SREs	115 km N of Newman	-22.3134	119.789	
C62723	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Acanthodillo sp.	epigean	Potential SRE: DD	genus contains SREs	108 km N of Newman	-22.3132	119.86	
C62142	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Acanthodillo sp.	epigean	Potential SRE: DD	genus contains SREs	Fortescue Marsh	-22.0192	119.034	
C62141	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Acanthodillo sp.	epigean	Potential SRE: DD	genus contains SREs	Fortescue Marsh	-22.109	119.224	
C48134	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Acanthodillo 'sp. 6'	epigean	Potential SRE: DD	W.A. Museum assessment	113 km NNW of Newman	-22.3351	119.653	
C48133	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Acanthodillo 'sp. 6'	epigean	Potential SRE: DD	W.A. Museum assessment	113 km NNW of Newman	-22.3351	119.653	
C48132	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Acanthodillo 'sp. 6'	epigean	Potential SRE: DD	W.A. Museum assessment	118 km N of Newman	-22.2972	119.863	

Western Australian Museum Database Search Interpreted Results

C48135	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Acanthodillo 'sp. 6'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, approx. 70 km heading 291° from New	-23.1318	119.096	
C48358	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Armadillidae 'Roy Hill'	epigean	Potential SRE: DD	Family contains SREs and potential SREs	113 km NNW of Newman	-22.3351	119.653	
C75044	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Armadillidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	88.2 km NW of Newman	-23.06	118.932	
C75045	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Armadillidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	79.9 km NW of Newman	-23.0777	119.011	
C45678	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Armadillidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Mindy	-22.7513	119.417	
C62712	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Barrowdillo 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini N.P., Mt Meharry	-22.9797	118.589	
C48177	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48200	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	104 km NNE of Newman	-22.4481	119.986	
C48176	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48198	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3263	119.749	
C48178	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	112 km NNE of Newman	-22.3621	119.969	
C48197	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	110 km NNE of Newman	-22.3827	119.973	
C48199	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3263	119.749	
C48196	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3263	119.749	
C48169	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3257	119.739	
C48180	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2954	119.811	
C48168	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3257	119.739	
C48167	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3257	119.739	
C48166	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48201	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	108 km N of Newman	-22.3132	119.86	
C48202	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48159	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	113 km NNW of Newman	-22.3351	119.653	
C62122	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.4233	119.01	
C62121	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.5306	119.169	
C48165	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	108 km N of Newman	-22.3132	119.86	
C48170	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	112 km NNE of Newman	-22.3621	119.969	
C48192	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2972	119.863	
C48183	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48174	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48184	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48185	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2954	119.811	
C48186	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	108 km N of Newman	-22.3132	119.86	
C48203	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48187	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	108 km N of Newman	-22.3132	119.86	
C48188	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	108 km N of Newman	-22.3132	119.86	
C48189	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48193	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3263	119.749	
C48191	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2972	119.863	
C48195	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	112 km NNE of Newman	-22.3871	119.966	
C48173	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48172	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	108 km N of Newman	-22.3132	119.86	
C48171	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	112 km NNE of Newman	-22.3621	119.969	
C62123	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.4083	119.006	
C48175	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48181	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	108 km N of Newman	-22.3132	119.86	
C48182	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48179	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	112 km NNE of Newman	-22.3621	119.969	
C48194	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3263	119.749	
C48190	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48161	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	113 km NNW of Newman	-22.3351	119.653	
C48155	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3257	119.739	
C48143	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	108 km N of Newman	-22.3132	119.86	
C48144	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	112 km NNE of Newman	-22.3871	119.966	
C48145	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48146	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48147	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48148	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48149	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48207	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3263	119.749	
C48150	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3257	119.739	
C48208	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3263	119.749	
C48151	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3257	119.739	
C48141	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	104 km NNE of Newman	-22.4481	119.986	
C62127	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.5098	119.127	
C48140	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3257	119.739	

C48162	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	113 km NNW of Newman	-22.3351	119.653	
C48163	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	112 km NNE of Newman	-22.3621	119.969	
C48220	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2972	119.863	
C48219	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	110 km NNE of Newman	-22.3827	119.973	
C48209	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3263	119.749	
C48210	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3263	119.749	
C48211	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48212	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	110 km NNE of Newman	-22.3827	119.973	
C48213	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	110 km NNE of Newman	-22.3827	119.973	
C48218	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	110 km NNE of Newman	-22.3827	119.973	
C48217	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48216	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48215	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2972	119.863	
C48160	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	113 km NNW of Newman	-22.3351	119.653	
C62133	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.4083	119.006	
C48157	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3257	119.739	
C48156	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3257	119.739	
C48214	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	110 km NNE of Newman	-22.3827	119.973	
C48158	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	113 km NNW of Newman	-22.3351	119.653	
C48152	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C62128	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.5306	119.169	
C48204	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	110 km NNE of Newman	-22.3827	119.973	
C62129	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.4889	119.086	
C62130	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.4749	119.055	
C62131	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.4083	119.006	
C62132	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.5011	119.104	
C48142	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48153	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C62726	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2972	119.863	
C62124	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.4083	119.006	
C48206	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2972	119.863	
C62125	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.3157	119.241	
C48205	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2972	119.863	
C63265	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Christmas Creek	-22.3492	119.632	
C62126	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.4083	119.006	
C62727	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	113 km NNW of Newman	-22.3351	119.653	
C48164	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	112 km NNE of Newman	-22.3621	119.969	
C62725	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2972	119.863	
C62724	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2972	119.863	
C62136	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.1281	119.052	
C62135	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.2858	119.028	
C62134	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.2203	119.043	
C48154	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3257	119.739	
C73872	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10ma'	epigean	potential SRE: DD	W.A. Museum assessment	Greater Hope Downs, 79.5 km NW of Newman	-23.0828	119.013	
C73876	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10ma'	epigean	potential SRE: DD	W.A. Museum assessment	Greater Hope Downs, 79.5 km NW of Newman	-23.0828	119.013	
C73875	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10ma'	epigean	potential SRE: DD	W.A. Museum assessment	Greater Hope Downs, 80.5 km NW of Newman	-23.0828	119.002	
C73873	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10ma'	epigean	potential SRE: DD	W.A. Museum assessment	Greater Hope Downs, 80.9 km NW of Newman	-23.0779	119.001	
C73871	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10ma'	epigean	potential SRE: DD	W.A. Museum assessment	Greater Hope Downs, 80.5 km NW of Newman	-23.0828	119.002	
C73874	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '10ma'	epigean	potential SRE: DD	W.A. Museum assessment	Greater Hope Downs, 80.5 km NW of Newman	-23.0828	119.002	
C62192	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '12'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station	-22.5383	119.942	
C62193	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '12'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station	-22.4321	119.891	
C62194	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '12'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station	-22.5933	120.033	
C62195	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '12'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station	-22.5489	120.036	
C62191	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '12'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station	-22.4547	119.871	
C62190	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '12'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station	-22.5565	119.97	
C62189	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '12'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station	-22.459	119.902	
C62187	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '12'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station	-22.4697	119.878	
C62186	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '12'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station	-22.5565	119.97	
C62185	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '12'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station	-22.5039	120.021	
C62183	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '12'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station	-22.4898	119.895	
C62184	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '12'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station	-22.574	119.963	

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C62188	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '12'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station	-22.574	119.963	
C62198	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '12'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station	-22.503	119.891	
C62076	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.3193	119.192	
C48224	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 79 km heading 286° from New	-23.1546	118.993	
C48225	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 77 km heading 288° from New	-23.1393	119.018	
C48226	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 71 km heading 290° from New	-23.1314	119.077	
C48227	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 75 km heading 290° from New	-23.1201	119.048	
C62077	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.298	119.394	
C48222	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 79 km heading 286° from New	-23.1546	118.993	
C62078	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.3251	119.446	
C48228	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 74 km heading 290° from New	-23.1216	119.05	
C62203	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Roy Hill Station	-22.459	119.902	
C63269	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Christmas Creek	-22.3932	119.78	
C62965	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, heading 286° from Newman	-23.1546	118.993	
C62964	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, heading 291° from Newman	-23.1255	119.08	
C62963	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, heading 286° from Newman	-23.1596	118.97	
C62729	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C62209	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Roy Hill Station	-22.4961	120.01	
C62207	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Roy Hill Station	-22.5174	119.931	
C62206	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Roy Hill Station	-22.5181	119.913	
C62205	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Roy Hill Station	-22.5489	120.036	
C48223	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 78 km heading 286° from New	-23.1615	119.002	
C62204	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Roy Hill Station	-22.505	119.914	
C48221	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 77 km heading 288° from New	-23.1393	119.018	
C62202	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Roy Hill Station	-22.4898	119.895	
C62201	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Roy Hill Station	-22.5565	119.97	
C62200	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Roy Hill Station	-22.5383	119.942	
C62199	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Roy Hill Station	-22.4943	119.922	
C62196	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Roy Hill Station	-22.5181	119.913	
C62083	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.3146	119.302	
C62082	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.3949	119.502	
C62081	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.3303	119.232	
C62080	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.3985	119.475	
C62079	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '13'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.4011	119.476	
C62094	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.2881	119.236	
C63268	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Christmas Creek	-22.4039	119.865	
C62691	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P.	-22.8437	118.533	
C48235	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 73 km heading 291° from New	-23.1185	119.065	
C48234	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 70 km heading 291° from New	-23.1287	119.09	
C48233	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 71 km heading 290° from New	-23.1314	119.077	
C48232	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 70 km heading 291° from New	-23.1287	119.09	
C48231	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 70 km heading 291° from New	-23.1318	119.096	
C48237	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 70 km heading 291° from New	-23.1318	119.096	
C48229	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 73 km heading 291° from New	-23.1185	119.065	
C48238	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 70 km heading 291° from New	-23.1287	119.09	
C62968	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, heading 291° from Newman	-23.1318	119.096	
C62967	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, heading 291° from Newman	-23.1287	119.09	
C62966	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, heading 291° from Newman	-23.1318	119.096	
C62695	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P., Dales Gorge	-22.4782	118.56	
C62694	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P., Dales Gorge	-22.4782	118.56	
C62693	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P., 77 km E of Tom Price	-22.8446	118.54	

C62092	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.3652	119.341	
C48230	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 74 km heading 290° from New	-23.1216	119.05	
C48246	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 71 km heading 290° from New	-23.1314	119.077	
C48254	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 75 km heading 289° from New	-23.1355	119.038	
C48253	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 75 km heading 289° from New	-23.1355	119.038	
C48252	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 73 km heading 291° from New	-23.1185	119.065	
C48251	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 73 km heading 291° from New	-23.1185	119.065	
C48250	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 71 km heading 290° from New	-23.1314	119.077	
C48249	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 70 km heading 291° from New	-23.1287	119.09	
C48236	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 75 km heading 290° from New	-23.1201	119.048	
C48247	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 75 km heading 290° from New	-23.1201	119.048	
C62690	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P.	-22.8437	118.533	
C48245	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 71 km heading 290° from New	-23.1314	119.077	
C48244	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 70 km heading 291° from New	-23.1287	119.09	
C48243	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 73 km heading 291° from New	-23.122	119.061	
C48242	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 73 km heading 291° from New	-23.1185	119.065	
C48241	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 70 km heading 291° from New	-23.1318	119.096	
C48240	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 70 km heading 291° from New	-23.1318	119.096	
C48239	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 71 km heading 290° from New	-23.1314	119.077	
C48248	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 70 km heading 291° from New	-23.1318	119.096	
C62088	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.2805	119.41	
C62084	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.3988	119.445	
C62085	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.3973	119.444	
C62692	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P., Dales Gorge	-22.4782	118.56	
C62087	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.2827	119.404	
C62089	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.3985	119.475	
C62090	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.4011	119.476	
C62091	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.298	119.394	
C62093	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.2598	119.279	
C62678	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P.	-22.8415	118.521	
C62687	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P	-22.8529	118.567	
C62086	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.2881	119.236	
C62679	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P.	-22.8397	118.524	
C62688	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P	-22.8534	118.546	
C62686	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P., Knox Gorge	-22.3714	118.299	
C62684	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P.	-22.4778	118.559	
C62683	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P.	-22.8397	118.524	
C62682	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P.	-22.8415	118.521	
C62681	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P.	-22.4782	118.56	
C62680	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P.	-22.8415	118.521	
C62689	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Karijini N.P	-22.849	118.545	
C62149	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14cr'	epigean	Potential SRE: DD	W.A. Museum assessment	Chichester Range	-22.8586	119.673	
C62155	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14cr'	epigean	Potential SRE: DD	W.A. Museum assessment	Chichester Range	-23.3289	119.84	
C62150	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14cr'	epigean	Potential SRE: DD	W.A. Museum assessment	Chichester Range	-23.1164	119.886	
C62151	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14cr'	epigean	Potential SRE: DD	W.A. Museum assessment	Chichester Range	-22.6687	119.419	
C62152	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14cr'	epigean	Potential SRE: DD	W.A. Museum assessment	Chichester Range	-23.3145	119.855	
C62153	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14cr'	epigean	Potential SRE: DD	W.A. Museum assessment	Chichester Range	-22.8586	119.673	
C62154	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14cr'	epigean	Potential SRE: DD	W.A. Museum assessment	Chichester Range	-22.6335	119.329	
C62197	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14cr'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station	-22.4321	119.891	

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C62120	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14fm'	epigean	Potential SRE: DD	W.A. Museum assessment	Fortescue Marsh	-22.2276	119.032	
C62006	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14fm'	epigean	Potential SRE: DD	W.A. Museum assessment	Murray Hill, Mulga Downs Sation	-22.1215	118.513	
C62007	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14fm'	epigean	Potential SRE: DD	W.A. Museum assessment	Murray Hill, Mulga Downs Sation	-22.1291	118.505	
C62117	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14fm'	epigean	Potential SRE: DD	W.A. Museum assessment	Fortescue Marsh	-22.3089	119.154	
C62119	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14fm'	epigean	Potential SRE: DD	W.A. Museum assessment	Fortescue Marsh	-22.1716	119.102	
C62118	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '14fm'	epigean	Potential SRE: DD	W.A. Museum assessment	Fortescue Marsh	-22.3089	119.154	
C48279	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 77 km heading 289° from New	-23.1331	119.015	
C49818	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Southern Flank to Jinidi, 74.7km NW of Newman	-23.0294	119.093	
C75031	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	79.9 km NW of Newman	-23.0777	119.011	
C48273	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 77 km heading 289° from New	-23.1331	119.015	
C48281	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 77 km heading 288° from New	-23.1393	119.018	
C48274	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 77 km heading 289° from New	-23.1331	119.015	
C48276	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 79 km heading 286° from New	-23.1592	118.993	
C48277	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 72 km heading 290° from New	-23.1268	119.067	
C48271	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 72 km heading 290° from New	-23.1268	119.067	
C48280	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 77 km heading 289° from New	-23.1331	119.015	
C48270	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 78 km heading 288° from New	-23.1428	119.01	
C49820	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Southern Flank to Jinidi, 74.7km NW of Newman	-23.0294	119.093	
C62170	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Chichester Range	-22.6687	119.419	
C62969	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, heading 288° from Newman	-23.1393	119.018	
C62970	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, heading 291° from Newman	-23.1185	119.065	
C63347	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Angelo River	-23.3205	118.789	
C75030	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	84.2 km NW of Newman	-23.0606	118.974	
C48278	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 73 km heading 291° from New	-23.121	119.063	
C48263	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 72 km heading 290° from New	-23.1283	119.074	
C48255	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 72 km heading 290° from New	-23.1283	119.074	
C48256	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 73 km heading 291° from New	-23.121	119.063	
C48257	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 72 km heading 290° from New	-23.1309	119.069	
C48258	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 79 km heading 286° from New	-23.1546	118.993	
C48259	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 73 km heading 291° from New	-23.121	119.063	
C48260	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 78 km heading 288° from New	-23.1436	119.006	
C48272	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 74 km heading 289° from New	-23.1356	119.046	
C48262	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 79 km heading 286° from New	-23.1546	118.993	
C48275	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 80 km heading 285° from New	-23.1632	118.977	
C48264	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 72 km heading 290° from New	-23.1309	119.069	
C48265	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 74 km heading 290° from New	-23.1216	119.05	
C48266	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 80 km heading 285° from New	-23.1632	118.977	
C48267	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 77 km heading 288° from New	-23.1393	119.018	
C48268	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 77 km heading 288° from New	-23.1393	119.018	

C48269	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 79 km heading 286° from New	-23.1592	118.993	
C48261	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	Wonmunna, approx. 78 km heading 288° from New	-23.1436	119.006	
C75033	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	81.6 km NW of Newman	-23.077	118.994	
C75034	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	79.9 km NW of Newman	-23.0777	119.011	
C75032	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '15'	epigean	widespread	W.A. Museum assessment	78.5 km NW of Newman	-23.0838	119.023	
C63351	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	OB35	-23.3875	119.656	
C49826	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West to Yandi, 104.7km NW of Newman	-22.6322	119.07	
C63358	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	OB35	-23.3922	119.658	
C63357	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	OB35	-23.3908	119.662	
C63356	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	OB35	-23.3908	119.664	
C63355	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	OB35	-23.3905	119.664	
C75035	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	70.8 km NW of Newman	-23.0416	119.129	
C63352	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	OB35	-23.3886	119.658	
C63361	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	OB35	-23.3933	119.668	
C63350	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	OB35	-23.388	119.654	
C63349	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Angelo River	-23.2901	118.682	
C62973	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, heading 291° from Newman	-23.1185	119.065	
C62972	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, heading 291° from Newman	-23.1185	119.065	
C62711	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini N.P.	-22.8534	118.546	
C63353	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	OB35	-23.3883	119.66	
C49841	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West	-22.9338	118.664	
C49849	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West	-22.8316	118.603	
C49847	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West	-22.8316	118.603	
C49850	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West	-22.8316	118.603	
C49845	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West	-22.8316	118.603	
C49844	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West	-22.9338	118.664	
C63363	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	OB35	-23.3963	119.656	
C49842	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West	-22.8316	118.603	
C63362	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	OB35	-23.3933	119.668	
C49840	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West	-22.9338	118.664	
C49838	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West	-22.9338	118.664	
C49828	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West to Yandi, 104.7km NW of Newman	-22.6322	119.07	
C63359	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	OB35	-23.3938	119.669	
C63360	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	OB35	-23.3933	119.668	
C48283	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, approx. 70 km heading 291° from New	-23.1287	119.09	
C49843	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West	-22.9338	118.664	
C48290	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, approx. 75 km heading 289° from New	-23.1355	119.038	
C48282	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, approx. 73 km heading 291° from New	-23.122	119.061	
C62971	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna	-23.1502	119.009	
C48296	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, approx. 70 km heading 291° from New	-23.1318	119.096	
C48295	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, approx. 70 km heading 291° from New	-23.1318	119.096	
C48294	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, approx. 75 km heading 289° from New	-23.1355	119.038	
C48293	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, approx. 73 km heading 291° from New	-23.122	119.061	
C62710	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini N.P.	-22.8553	118.573	
C48291	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, approx. 73 km heading 291° from New	-23.122	119.061	
C49822	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	South Parmelia, 67.4km NW of Newman	-23.0325	119.178	
C48289	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, approx. 75 km heading 289° from New	-23.1355	119.038	
C48288	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, approx. 73 km heading 291° from New	-23.1185	119.065	
C48287	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna	-23.124	119.058	
C48286	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna	-23.134	119.05	
C48285	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, approx. 73 km heading 291° from New	-23.1185	119.065	

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C48284	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, approx. 73 km heading 291° from New	-23.122	119.061	
C62439	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini NP	-22.2495	118.978	
C48292	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, approx. 73 km heading 291° from New	-23.122	119.061	
C62705	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini N.P.	-22.8529	118.567	
C62709	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini N.P.	-22.8523	118.568	
C62708	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini N.P.	-22.852	118.543	
C62707	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini N.P., Mt Meharry	-22.9797	118.589	
C49819	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Southern Flank to Jinidi, 81.1km NW of Newman	-23.0169	119.036	
C62706	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini N.P.	-22.9268	118.372	
C49823	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	South Parmelia, 67.4km NW of Newman	-23.0325	119.178	
C62704	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini N.P.	-22.8449	118.525	
C49827	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West to Yandi, 110km NW of Newman	-22.7425	118.88	
C75036	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	84.2 km NW of Newman	-23.0606	118.974	
C62703	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini N.P.	-22.8533	118.547	
C49825	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West to Yandi, 110km NW of Newman	-22.7425	118.88	
C49839	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West	-22.8316	118.603	
C49846	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16?'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West	-22.8316	118.603	
C49829	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16?'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West to Yandi, 104.7km NW of Newman	-22.6322	119.07	
C49851	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16?'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West	-22.8316	118.603	
C49848	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '16?'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West	-22.8316	118.603	
C48333	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	110 km NNE of Newman	-22.3827	119.973	
C48311	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	113 km NNW of Newman	-22.3351	119.653	
C48336	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2972	119.863	
C48335	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	110 km NNE of Newman	-22.3827	119.973	
C48334	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48303	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3263	119.749	
C48313	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	108 km N of Newman	-22.3132	119.86	
C48312	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	113 km NNW of Newman	-22.3351	119.653	
C48310	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3257	119.739	
C48309	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48308	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48306	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48315	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3257	119.739	
C48304	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	110 km NNE of Newman	-22.3827	119.973	
C48316	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48302	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3263	119.749	
C48301	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	108 km N of Newman	-22.3132	119.86	
C48300	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2954	119.811	
C48299	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	113 km NNW of Newman	-22.3351	119.653	
C48298	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	113 km NNW of Newman	-22.3351	119.653	
C48297	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	113 km NNW of Newman	-22.3351	119.653	
C48305	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	ca. 71 km heading 291° from Newman	-23.1246	119.067	
C48323	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	108 km N of Newman	-22.3132	119.86	
C48331	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3263	119.749	
C48330	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2972	119.863	
C48329	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2972	119.863	
C48328	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2972	119.863	
C48327	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2972	119.863	
C48326	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	110 km NNE of Newman	-22.3827	119.973	
C48307	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48324	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3263	119.749	
C48332	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48322	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	118 km N of Newman	-22.2954	119.811	
C48321	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48320	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48319	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	108 km N of Newman	-22.3132	119.86	
C48318	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48317	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km NNW of Newman	-22.3178	119.748	
C48325	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	114 km NNW of Newman	-22.3263	119.749	
C62095	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.3527	119.419	
C48314	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48337	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 76 km heading 290° from New	-23.1169	119.04	

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C62976	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, heading 290° from Newman	-23.1309	119.069	
C62977	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, heading 289° from Newman	-23.1331	119.015	
C62974	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, heading 290° from Newman	-23.1142	119.023	
C62099	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.3149	119.154	
C62975	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, heading 291° from Newman	-23.1287	119.09	
C62097	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.3985	119.475	
C48434	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	115 km N of Newman	-22.3134	119.789	
C48346	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 70 km heading 291° from New	-23.1318	119.096	
C48344	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 74 km heading 289° from New	-23.1356	119.046	
C48343	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 72 km heading 290° from New	-23.1309	119.069	
C48342	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 72 km heading 290° from New	-23.1309	119.069	
C48341	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 71 km heading 290° from New	-23.1314	119.077	
C48340	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 71 km heading 290° from New	-23.1314	119.077	
C48339	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 72 km heading 290° from New	-23.1268	119.067	
C48345	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 72 km heading 291° from New	-23.1255	119.08	
C62098	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Cloudbreak	-22.3303	119.232	
C48338	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '19'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Wonmunna, approx. 72 km heading 291° from New	-23.1255	119.08	
C62146	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '20'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.2938	119.073	
C62147	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '20'	epigean	Potential SRE: DD	assessment by Dr Simon Judd	Fortescue Marsh	-22.2203	119.043	
C48347	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '26'	epigean	Potential SRE: DD	W.A. Museum assessment	114 km NNW of Newman	-22.3263	119.749	
C62731	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '26'	epigean	Potential SRE: DD	W.A. Museum assessment	115 km N of Newman	-22.3134	119.789	
C62730	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '26'	epigean	Potential SRE: DD	W.A. Museum assessment	118 km N of Newman	-22.2972	119.863	
C63346	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '47'	epigean	Potential SRE: DD	W.A. Museum assessment	Angelo River	-23.4331	118.733	
C63348	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '48'	epigean	Potential SRE: DD	W.A. Museum assessment	Angelo River	-23.2647	118.754	
C63354	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '49'	epigean	Potential SRE: DD	W.A. Museum assessment	OB35	-23.3936	119.653	
C63267	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '54'	epigean	Potential SRE: DD	W.A. Museum assessment	Christmas Creek	-22.3515	119.771	
C75042	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '77'	epigean	Potential SRE: DD	W.A. Museum assessment	70.8 km NW of Newman	-23.0416	119.129	
C75037	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '77'	epigean	Potential SRE: DD	W.A. Museum assessment	82.5 km NW of Newman	-23.0483	118.998	
C75040	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '77'	epigean	Potential SRE: DD	W.A. Museum assessment	84.2 km NW of Newman	-23.0606	118.974	
C75038	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '77'	epigean	Potential SRE: DD	W.A. Museum assessment	81.6 km NW of Newman	-23.077	118.994	
C75039	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '77'	epigean	Potential SRE: DD	W.A. Museum assessment	79.9 km NW of Newman	-23.0777	119.011	
C75041	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia '77'	epigean	Potential SRE: DD	W.A. Museum assessment	79.9 km NW of Newman	-23.0777	119.011	
C60224	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B27' (SJ13)	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.0976	118.174	
C60283	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B27' (SJ13)	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.0967	118.175	
C60230	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B27' (SJ13)	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.2657	118.644	
C60205	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B27' (SJ13)	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3074	118.377	
C60203	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B27' (SJ13)	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.06	118.113	
C60170	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B27' (SJ13)	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.2657	118.644	
C60165	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B27' (SJ13)	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3769	118.287	
C60163	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B27' (SJ13)	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3769	118.287	
C60235	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B27' (SJ13)	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3684	118.376	
C60204	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.06	118.113	
C60267	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.2358	118.284	
C60288	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.0928	118.234	
C60284	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.0967	118.175	
C60282	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.0972	118.174	
C60281	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.0963	118.175	
C60278	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1471	118.174	
C60275	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1152	118.112	

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C60270	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3769	118.287	
C60256	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1476	118.173	
C60245	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1537	118.172	
C60201	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.06	118.113	
C60153	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.06	118.113	
C60152	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.0969	118.175	
C60262	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.0972	118.174	
C60247	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B47'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.0978	118.174	
C60276	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.1152	118.112	
C60231	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.2657	118.644	
C60244	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.0972	118.174	
C60258	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.1551	118.307	
C60268	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.0935	118.234	
C60225	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.0976	118.174	
C60271	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.1476	118.173	
C60249	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.2343	118.284	
C60279	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.0971	118.648	
C60286	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.155	118.307	
C60269	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.1667	118.306	
C60155	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.0979	118.65	
C60261	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.1552	118.307	
C60219	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.1673	118.175	
C60154	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.0975	118.649	
C60156	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.0976	118.174	
C60167	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.1673	118.175	
C60169	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.2657	118.644	
C60171	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.2657	118.644	
C60173	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.2657	118.644	
C60190	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.1673	118.175	
C60208	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B48'	epigean	widespread	W.A. Museum assessment	Solomon	-22.2657	118.644	
C60158	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3376	118.515	
C60180	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-23.4461	118.341	
C60200	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.06	118.113	
C60194	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3368	118.565	
C60186	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1673	118.175	
C60185	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-23.4461	118.341	
C60182	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-23.4461	118.341	
C60202	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.06	118.113	
C60179	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-23.4461	118.341	
C60178	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1461	118.341	
C60176	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-23.4461	118.341	
C60174	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-23.4461	118.341	
C60162	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3074	118.377	
C60209	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.2657	118.644	
C60196	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.2657	118.644	
C60172	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.2657	118.644	
C60232	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.2657	118.644	
C60251	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3377	118.515	
C60250	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.2343	118.284	
C60191	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1673	118.175	
C60210	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-23.4461	118.341	
C60280	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3684	118.376	
C60233	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.06	118.113	
C60234	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.06	118.113	
C60227	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1762	118.376	
C60226	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.0976	118.174	
C60221	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1762	118.376	
C60217	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3376	118.515	
C60215	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3376	118.515	
C60212	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B49'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3376	118.515	
C60183	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-23.4461	118.341	
C60181	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-23.4461	118.341	
C60211	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-23.4461	118.341	
C60213	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3376	118.515	
C60214	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3376	118.515	
C60177	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1461	118.341	
C60218	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3376	118.515	

C60184	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-23.4461	118.341	
C60175	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-23.4461	118.341	
C60229	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1762	118.376	
C60216	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3376	118.515	
C60238	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.152	118.347	
C60239	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3377	118.515	
C60240	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3377	118.515	
C60241	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1461	118.341	
C60243	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.0928	118.316	
C60252	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3377	118.515	
C60228	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1762	118.376	
C60166	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3769	118.287	
C60159	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3376	118.515	
C60157	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3376	118.515	
C60222	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B50'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1762	118.376	
C60277	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B52'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.2354	118.284	
C60259	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B52'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.2354	118.284	
C60265	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B52'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.4169	118.418	
C60272	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B52'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.4045	118.417	
C60248	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B52'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.2351	118.284	
C60263	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B53'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.5717	118.315	
C60168	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B53'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1673	118.175	
C60187	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B53'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1673	118.175	
C60192	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B53'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1673	118.175	
C60220	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B53'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.1673	118.175	
C60255	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B53'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.5351	118.202	
C60257	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B53'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.3712	118.473	
C60260	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B53'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.5344	118.201	
C60273	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B53'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.5351	118.202	
C60264	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B54'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.5717	118.315	
C60274	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia 'B54'	epigean	Potential SRE: DD	W.A. Museum assessment	Solomon	-22.5351	118.202	
C18438	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hooley (Kylan Pool) W.A.	-21.8833	118.217	
C62701	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini N.P.	-22.8538	118.566	
C42742	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Murays Hill, Mulga Downs Station, Pilbara	-22.1188	118.512	
C62696	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station	-22.9243	118.475	
C42770	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station, Area A	-22.875	118.676	
C49824	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	South Parmelia, 67.4km NW of Newman	-23.0325	119.178	
C62728	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	113 km NNW of Newman	-22.3351	119.653	
C18431	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Wittenoom: W.A.	-22.2333	118.333	
C62213	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station	-22.5489	120.036	
C42740	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Murays Hill, Mulga Downs Station, Pilbara	-22.1185	118.51	
C42774	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station, Area A	-22.8926	118.685	
C49961	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana	-22.0164	119.245	
C49962	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana	-22.3182	119.118	
C75043	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	79.9 km NW of Newman	-23.0777	119.011	
C42741	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Murays Hill, Mulga Downs Station, Pilbara	-22.1132	118.512	
C42773	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Murays Hill, Mulga Downs Station, Pilbara	-22.1188	118.512	
C62698	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini N.P.	-22.8423	118.522	
C42761	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Murays Hill, Mulga Downs Station, Pilbara	-22.1132	118.512	
C42762	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Murays Hill, Mulga Downs Station, Pilbara	-22.1207	118.508	
C42763	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Murays Hill, Mulga Downs Station, Pilbara	-22.117	118.503	
C62702	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini N.P.	-22.8446	118.54	
C42749	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Murays Hill, Mulga Downs Station, Pilbara	-22.1291	118.505	
C42760	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station, Area A	-22.8759	118.683	
C62697	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini N.P.	-22.8397	118.524	
C42765	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Murays Hill, Mulga Downs Station, Pilbara	-22.1246	118.518	
C62699	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini N.P.	-22.8424	118.52	
C42748	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Murays Hill, Mulga Downs Station, Pilbara	-22.123	118.513	
C62005	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Phils Creek, East Hamersley Range	-22.7316	119.193	
C62700	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini N.P.	-22.8553	118.573	
C62210	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station	-22.4793	119.942	
C62211	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station	-22.5181	119.913	
C62212	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundia sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station	-22.441	119.979	
C62217	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.5565	119.97	
C62216	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.5771	120.025	
C62215	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.4547	119.871	
C62218	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.4697	119.878	

C62219	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.5383	119.942	
C62220	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.4943	119.922	
C62221	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.5843	120.017	
C62225	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.5933	120.033	
C62107	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Cloudbreak	-22.3949	119.502	
C62223	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.5843	120.017	
C62106	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Cloudbreak	-22.3527	119.419	
C62105	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Cloudbreak	-22.3251	119.446	
C62104	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Cloudbreak	-22.298	119.394	
C62103	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Cloudbreak	-22.2827	119.404	
C62102	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Cloudbreak	-22.2805	119.41	
C62101	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Cloudbreak	-22.3395	119.277	
C62096	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Cloudbreak	-22.3146	119.302	
C62100	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Cloudbreak	-22.3973	119.463	
C62145	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Fortescue Marsh	-22.293	119.061	
C62172	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Chichester Range	-22.8586	119.673	
C62176	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Chichester Range	-23.3145	119.855	
C62177	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Chichester Range	-23.3289	119.84	
C62173	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Chichester Range	-22.9841	119.771	
C62226	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.4321	119.891	
C62174	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Chichester Range	-22.6687	119.419	
C62235	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.4827	119.881	
C62143	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Fortescue Marsh	-22.1237	119.043	
C62140	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	potential SRE: DD	assessment by Dr S. Judd	Fortescue Marsh	-22.1716	119.102	
C62139	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Fortescue Marsh	-22.0192	119.034	
C62137	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Fortescue Marsh	-22.3157	119.241	
C63266	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Christmas Creek	-22.4078	119.877	
C62734	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	115 km NNW of Newman	-22.3178	119.748	
C62144	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Fortescue Marsh	-22.1237	119.043	
C62732	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	104 km N of Newman	-22.451	119.976	
C62175	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Chichester Range	-23.1164	119.886	
C62234	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.5181	119.913	
C62233	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.503	119.891	
C62232	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.5271	120.042	
C62231	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.5846	120.026	
C62229	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.4967	120.024	
C62228	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.505	119.914	
C62733	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	118 km N of Newman	-22.2954	119.811	
C62138	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Fortescue Marsh	-22.0021	119.013	
C62227	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Buddelundiinae sp.	epigean	Potential SRE: DD	assessment by Dr S. Judd	Roy Hill Station	-22.5174	119.931	
C48348	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	cf. Spherillo 'sp. 3'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, approx. 73 km heading 291° from New	-23.122	119.061	
C60193	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Philosciidae 'B31'	epigean	Potential SRE: DD	W.A. Museum Assessment	Solomon	-22.1673	118.175	
C60188	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Philosciidae 'B31'	epigean	Potential SRE: DD	W.A. Museum Assessment	Solomon	-22.1673	118.175	
C60149	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Philosciidae 'B31'	epigean	Potential SRE: DD	W.A. Museum Assessment	Mount Mcrae	-22.1673	118.175	
C60189	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Philosciidae 'B31'	epigean	Potential SRE: DD	W.A. Museum Assessment	Solomon	-22.1673	118.175	
C75046	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Pseudodiploexochus sp.	epigean	Potential SRE: DD	W.A. Museum assessment	70.8 km NW of Newman	-23.0416	119.129	
C62180	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Spherillo sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range	-22.9841	119.771	
C62978	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Spherillo 'sp. 3'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Wonmunna, heading 291° from Newman	-23.121	119.063	
C75047	Crustacea	Isopoda (isopods)	Isopoda	Armadillidae	Troglarmadillo sp.	epigean	Potential SRE: DD	W.A. Museum assessment	80.3 km NW of Newman	-23.0484	119.021	
C48395	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	118 km N of Newman	-22.2972	119.863	
C48390	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	108 km N of Newman	-22.3132	119.86	
C48386	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	104 km N of Newman	-22.451	119.976	
C48392	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	118 km N of Newman	-22.2972	119.863	
C48389	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	118 km N of Newman	-22.2954	119.811	
C48397	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	104 km NNE of Newman	-22.4481	119.986	
C48396	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	114 km NNW of Newman	-22.3263	119.749	
C48398	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	114 km NNW of Newman	-22.3263	119.749	

C48391	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	118 km N of Newman	-22.2972	119.863	
C48394	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	112 km NNE of Newman	-22.3871	119.966	
C48393	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	114 km NNW of Newman	-22.3263	119.749	
C48387	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	115 km N of Newman	-22.3134	119.789	
C48385	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	112 km NNE of Newman	-22.3871	119.966	
C48384	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	113 km NNW of Newman	-22.3351	119.653	
C48383	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	115 km NNW of Newman	-22.3178	119.748	
C48399	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	110 km NNE of Newman	-22.3827	119.973	
C48382	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	104 km NNE of Newman	-22.4481	119.986	
C48402	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	113 km NNW of Newman	-22.3351	119.653	
C48388	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	118 km N of Newman	-22.2954	119.811	
C48406	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	115 km NNW of Newman	-22.3178	119.748	
C48401	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	114 km NNW of Newman	-22.3257	119.739	
C48400	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	118 km N of Newman	-22.2972	119.863	
C48403	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	114 km NNW of Newman	-22.3257	119.739	
C48404	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	114 km NNW of Newman	-22.3257	119.739	
C48405	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'PES4394'	epigean	Potential SRE: DD	W.A. Museum Assessment	114 km NNW of Newman	-22.3257	119.739	
C62179	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia sp.	epigean	Potential SRE: DD	W.A. Museum Assessment	Chichester Range	-22.6335	119.329	
C62979	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia sp.	epigean	Potential SRE: DD	W.A. Museum Assessment	Wonmunna, heading 291° from Newman	-23.121	119.063	
C48359	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'Wonmunna A'	epigean	Potential SRE: DD	W.A. Museum Assessment	Wonmunna, approx. 78 km heading 288° from New	-23.1436	119.006	
C48361	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'Wonmunna A'	epigean	Potential SRE: DD	W.A. Museum Assessment	Wonmunna, approx. 73 km heading 291° from New	-23.121	119.063	
C48362	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'Wonmunna A'	epigean	Potential SRE: DD	W.A. Museum Assessment	Wonmunna, approx. 77 km heading 288° from New	-23.1393	119.018	
C48360	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Laevophiloscia 'Wonmunna A'	epigean	Potential SRE: DD	W.A. Museum Assessment	Wonmunna, approx. 73 km heading 291° from New	-23.121	119.063	
C61311	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Philosciidae sp.	epigean	Potential SRE: DD	family contains SREs and potential SREs	Dales Gorge, Circular Pool, Karijini NP	-22.4758	118.562	
C75048	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Philosciidae sp.	epigean	potential SRE: DD	family contains SREs and potential SREs	84.2 km NW of Newman	-23.0606	118.974	
C75049	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Philosciidae sp.	epigean	potential SRE: DD	family contains SREs and potential SREs	88.2 km NW of Newman	-23.06	118.932	
C61312	Crustacea	Isopoda (isopods)	Isopoda	Philosciidae	Philosciidae sp.	epigean	Potential SRE: DD	family contains SREs and potential SREs	Woodland site, Karijini NP	-22.5713	118.378	
T51619	Arachnida	Araneae (spiders)	Araneae		Mygalomorphae sp.	epigean	Potential SRE: DD	Infraorder contains SREs and potential SREs	Weeli Wolli Creek, ca. 28 km SW. of Marillana, site HDA7	-22.8344	119.2736	25/04/2003
T125303	Arachnida	Araneae (spiders)	Araneae		Mygalomorphae sp.	epigean	Potential SRE: DD	Infraorder contains SREs and potential SREs	Koodaideri Western Corridor, 200.6 km NW. of Newman	-22.17611	118.2702	28/03/2012
T144520	Arachnida	Araneae (spiders)	Araneae		Mygalomorphae sp.	epigean	Potential SRE: DD	Infraorder contains SREs and potential SREs	Packsaddle Range, 93 km NW. of Newman	-22.900645	118.993269	1/06/2017
T144521	Arachnida	Araneae (spiders)	Araneae		Mygalomorphae sp.	epigean	Potential SRE: DD	Infraorder contains SREs and potential SREs	ca. 105 km NW. of Newman	-22.879198	118.822872	1/06/2017
T113617	Arachnida	Araneae (spiders)	Araneae		Mygalomorphae sp.	epigean	Potential SRE: DD	Infraorder contains SREs and potential SREs	111.3 km NW. of Newman	-22.62453	118.9876	26/05/2011
T122353	Arachnida	Araneae (spiders)	Araneae		Mygalomorphae sp.	epigean	Potential SRE: DD	Infraorder contains SREs and potential SREs	Area C West, 114.9 km NW. of Newman	-22.89753	118.7061	6/02/2012
T131085	Arachnida	Araneae (spiders)	Araneae		Mygalomorphae sp.	epigean	Potential SRE: DD		Orebody 24, ca. 7 km N. of Newman	-23.27582	119.8071	29/04/2013
T131254	Arachnida	Araneae (spiders)	Araneae		Mygalomorphae sp.	epigean	Potential SRE: DD	Infraorder contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.32554	119.7477	5/08/2013
T122346	Arachnida	Araneae (spiders)	Araneae		Mygalomorphae sp.	epigean	Potential SRE: DD	Infraorder contains SREs and potential SREs	Area C West, 123.3 km NW. of Newman	-22.87906	118.6571	6/02/2012

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T125323	Arachnida	Araneae (spiders)	Araneae		Mygalomorphae sp.	epigean	Potential SRE: DD	Infraorder contains SREs and potential SREs	Koodaideri Western Corridor, 144.2 km NW. of Newman	-22.37994	118.82	30/03/2012
T125304	Arachnida	Araneae (spiders)	Araneae		Mygalomorphae sp.	epigean	Potential SRE: DD	Infraorder contains SREs and potential SREs	Koodaideri Western Corridor, 154.8 km NW. of Newman	-22.33589	118.7158	27/03/2012
T136533	Arachnida	Araneae (spiders)	Araneae		Mygalomorphae sp.	epigean	Potential SRE: DD	Infraorder contains SREs and potential SREs	Koodaideri, 81.1 km NE. of Tom Price	-22.18674	118.3542	26/10/2013
T136523	Arachnida	Araneae (spiders)	Araneae		Mygalomorphae sp.	epigean	Potential SRE: DD	Infraorder contains SREs and potential SREs	Koodaideri, 83 km NE. of Tom Price	-22.2365	118.4254	25/10/2013
T136545	Arachnida	Araneae (spiders)	Araneae		Mygalomorphae sp.	epigean	Potential SRE: DD	Infraorder contains SREs and potential SREs	Koodaideri, 79.1 km NE. of Tom Price	-22.18447	118.3255	27/10/2013
T128631	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	ca. 18 km N. of Wittenoom	-22.09838	118.4099	20/05/2013
T97017	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena faulderi	epigean	Potential SRE: DD	W.A. Museum assessment, {Harms, 2013 #36186}	Jinayri, ca. 65 km NW. of Newman	-22.96783	119.2672	1/02/2009
T96132	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena faulderi	epigean	Potential SRE: DD	W.A. Museum assessment, {Harms, 2013 #36186}	Jinayri, ca. 60 km NW. of Newman	-23.04158	119.2776	5/02/2009
T96133	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena faulderi	epigean	Potential SRE: DD	W.A. Museum assessment, {Harms, 2013 #36186}	Jinayri, ca. 60 km NW. of Newman	-23.04075	119.2798	2/02/2009
T108710	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena insignis	epigean	widespread	W.A. Museum assessment	Chichester Range, northern slopes @	-22.18735	119.0258	22/08/2008
T108714	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena insignis	epigean	widespread	W.A. Museum assessment	Chichester Range, northern slopes @	-22.22492	118.9887	22/08/2008
T122441	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'insignis group'	epigean	widespread	W.A. Museum assessment	Mulga Downs Station, 16 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW07	-22.22172	119.0249	14/08/2003
T91913	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena langlandsi	epigean	Potential SRE: DD	W.A. Museum assessment, {Harms, 2013 #36186}	Hamersley Range, Weeli Wolli Creek region, Area C, site 15-15D	-22.93136	119.0472	17/06/2008
T91912	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena langlandsi	epigean	Potential SRE: DD	W.A. Museum assessment, {Harms, 2013 #36186}	Hamersley Range, Weeli Wolli Creek region, Area C, site 15-15B	-22.93136	119.047	17/06/2008
T91911	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena langlandsi	epigean	Potential SRE: DD	W.A. Museum assessment, {Harms, 2013 #36186}	Hamersley Range, Weeli Wolli Creek region, Area C, site 09-9C	-22.92583	119.0379	15/06/2008
T91914	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena langlandsi	epigean	Potential SRE: DD	W.A. Museum assessment, {Harms, 2013 #36186}	Hamersley Range, Weeli Wolli Creek region, Area C, site 15-15E	-22.93161	119.0473	17/06/2008
T115948	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena langlandsi	epigean	Potential SRE: DD	W.A. Museum assessment, {Harms, 2013 #36186}	Wonmunna, ca. 73 km heading 291° from Newman	-23.12101	119.0632	20/05/2011
T112076	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena langlandsi	epigean	Potential SRE: DD	W.A. Museum assessment, {Harms, 2013 #36186}	Wonmunna, ca. 73 km heading 291° from Newman	-23.11921	119.0643	20/05/2011
T136003	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'marillana'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station, Marillana Creek area	-22.56889	119.2325	30/06/2008
T136004	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'marillana'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station, Marillana Creek area	-22.55528	119.23	30/06/2008
T136002	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'marillana'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station, Marillana Creek area	-22.56639	119.2322	30/06/2008
T99600	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Bellbird Siding to Juna Downs, 76.4 km E. of Tom Price	-22.875	118.5039	9/05/2009
T116873	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	84.2 km NW. of Newman	-22.675	119.3492	26/07/2011
T116874	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	84.2 km NW. of Newman	-22.67472	119.3483	26/07/2011
T119969	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	84.8 km NW. of Newman	-22.66833	119.3747	27/07/2011
T116875	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	89.3 km NW. of Newman	-22.64083	119.3206	26/07/2011
T116881	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	89.3 km NW. of Newman	-22.64083	119.3203	26/07/2011
T116868	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Mudlark, 94 km W. of Newman	-23.07944	118.8578	6/07/2011
T119726	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 116 km NW. of Newman	-22.64556	118.9028	11/05/2011
T116866	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Mudlark, 94 km W. of Newman	-23.07972	118.8581	6/07/2011
T145114	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	c. 10 km NW. of Kellerberrin, McCLellands [= McLennans] remnant, K49, quadrat T25-30	-22.36219	119.9691	23/03/2011
T126276	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	114 km NW. of Newman	-22.61444	118.955	21/11/2011
T119727	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 116 km NW. of Newman	-22.64556	118.9028	11/05/2011
T126272	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	114 km NW. of Newman	-22.61444	118.955	21/11/2011

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T126260	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	118.3 km NW. of Newman	-22.61111	118.9072	18/11/2011
T119728	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 116 km NW. of Newman	-22.64556	118.9028	10/05/2011
T116839	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Mudlark, 102 km W. of Newman	-23.09	118.8111	3/07/2011
T119729	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 116 km NW. of Newman	-22.64556	118.9028	10/05/2011
T122107	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.54303	119.9164	17/02/2012
T119731	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 117 km NW. of Newman	-22.62889	118.9017	10/05/2011
T119733	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 116 km NW. of Newman	-22.61056	118.9397	10/05/2011
T128629	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	ca. 18 km N. of Wittenoom	-22.08333	118.3104	20/05/2013
T128630	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	ca. 18 km N. of Wittenoom	-22.05	118.309	20/05/2013
T116811	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Mudlark, 110 km W. of Newman	-23.08444	118.6972	3/07/2011
T122105	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	BSF2, ca. 90 km NW. of Newman	-22.28222	119.1276	15/07/2010
T122861	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	118.6 km NW. of Newman	-22.88083	118.6872	1/04/2012
T119974	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	84.8 km NW. of Newman	-22.66833	119.3747	27/07/2011
T119718	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 114 km NW. of Newman	-22.72583	118.8497	12/05/2011
T119975	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	84.8 km NW. of Newman	-22.66833	119.3747	27/07/2011
T119711	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 113 km NW. of Newman	-22.68639	118.8931	10/05/2011
T119979	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	99.1 km NW. of Newman	-22.57167	119.2858	27/07/2011
T119980	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	99.1 km NW. of Newman	-22.57167	119.2861	27/07/2011
T119984	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	105.3 km NW. of Newman	-22.51194	119.2592	28/07/2011
T119703	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 120 km NW. of Newman	-22.61083	118.8764	8/05/2011
T119993	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	105.3 km NW. of Newman	-22.51194	119.2589	28/07/2011
T122822	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	111.6 km NW. of Newman	-22.89194	118.7647	29/03/2012
T126257	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	118.2 km NW. of Newman	-22.60528	118.9192	19/11/2011
T122843	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	115.4 km NW. of Newman	-22.90861	118.7175	31/03/2012
T126264	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	118.3 km NW. of Newman	-22.61111	118.9072	18/11/2011
T122865	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	118.6 km NW. of Newman	-22.88083	118.6869	1/04/2012
T122872	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	124 km NW. of Newman	-22.86555	118.6411	1/04/2012
T120018	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	85.2 km NW. of Newman	-22.65333	119.4136	31/07/2011
T125176	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	63.5 km ESE. of Paraburdoo, site 1000-tur01	-23.28848	118.2849	27/04/2012
T122106	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.54303	119.9164	17/02/2012
T125308	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Koodaideri Western Corridor, 194.8 km NW. of Newman	-22.12856	118.1286	28/03/2012
T125317	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Koodaideri Western Corridor, 109.7 km NW. of Newman	-22.15622	118.1472	29/03/2012
T119725	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 113 km NW. of Newman	-22.68722	118.8925	10/05/2011

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T120019	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	85.2 km NW. of Newman	-22.65333	119.4139	31/07/2011
T147375	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	118.6 km NW. of Newman	-22.88083	118.6872	1/04/2012
T122234	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 70.2 km NE. of Tom Price	-22.15622	118.1344	20/02/2012
T119995	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	81.2 km NW. of Newman	-22.70028	119.3781	29/07/2011
T113665	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	117.6 km NW. of Newman	-22.6276	118.896	31/05/2011
T114598	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	IOH, Iron Valley Project, near Marillana Station, site rios2d5	-22.43389	119.1958	10/05/2011
T122248	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 71.6 km NE. of Tom Price	-22.13608	118.136	20/02/2012
T122252	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 82.1 km NE. of Tom Price	-22.2325	118.4146	20/02/2012
T122209	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 93.7 km NE. of Tom Price	-22.32831	118.6102	20/02/2012
T113591	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	South Parmelia, 52 km NW. of Newman	-23.08556	119.3181	16/04/2011
T113593	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Southern Flank, 72 km NW. of Newman	-23.00306	119.1394	13/04/2011
T116746	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Mudlark, 107 km W. of Newman	-23.09389	118.7194	30/06/2011
T113596	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Southern Flank, 72 km NW. of Newman	-23.00278	119.1394	14/04/2011
T114599	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	FMG Nyidinghu Project, near Marillana Station, site s1wt17	-22.31948	119.1135	10/05/2011
T128632	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	ca. 18 km N. of Wittenoom	-22.06667	118.3353	20/05/2013
T113597	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Southern Flank, 72 km NW. of Newman	-23.00306	119.1392	14/04/2011
T134156	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.08413	118.227	22/04/2014
T113653	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	110.6 km NW. of Newman	-22.74232	118.8806	29/05/2011
T113660	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	119.1 km NW. of Newman	-22.63364	118.8698	30/05/2011
T122224	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 71.7 km NE. of Tom Price	-22.13528	118.1362	20/02/2012
T128633	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	ca. 18 km N. of Wittenoom	-22.06667	118.3142	20/05/2013
T128634	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	ca. 18 km N. of Wittenoom	-22.08333	118.3104	20/05/2013
T136490	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Koodaideri, 117 km ENE. of Tom Price	-22.40159	118.8827	6/05/2012
T122226	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 70.1 km NE. of Tom Price	-22.15517	118.1345	20/02/2012
T122235	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 70.1 km NE. of Tom Price	-22.15622	118.1344	20/02/2012
T122217	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 89.4 km NE. of Tom Price	-22.26528	118.5217	20/02/2012
T116776	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Mudlark, 113 km W. of Newman	-23.03806	118.6828	1/07/2011
T115979	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Angelo River	-23.32678	118.7308	20/06/2011
T113626	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	113.8 km NW. of Newman	-22.65646	118.9182	26/05/2011
T122229	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 69.6 km NE. of Tom Price	-22.15569	118.1349	20/02/2012
T113599	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Southern Flank, 72 km NW. of Newman	-23.00306	119.1389	14/04/2011
T135563	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Karijini National Park, c. 25 km SSW. of Dales Gorge	-22.65806	118.4342	17/03/2015
T113598	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Southern Flank, 72 km NW. of Newman	-23.00306	119.1392	14/04/2011

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T136502	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Koodaideri, 114.8 km E. of Tom Price	-22.63315	118.9042	8/05/2012
T136492	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG045'	epigean	widespread	W.A. Museum assessment	Koodaideri, 117 km ENE. of Tom Price	-22.40159	118.8827	7/05/2012
T122093	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG252'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.52258	119.9186	8/02/2011
T122094	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG252'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.52258	119.9186	8/02/2011
T122095	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG252'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.55611	119.9703	5/02/2011
T122097	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG252'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.57744	120.0255	6/02/2011
T122098	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG252'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.57744	120.0255	6/02/2011
T122096	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG252'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.55611	119.9703	5/02/2011
T122101	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG252'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.52247	119.9186	18/02/2012
T131217	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG252'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Mine 1, ca. 90 km N. of Newman	-22.47892	119.9421	18/04/2013
T122099	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG252'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.47892	119.9421	16/02/2012
T97637	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG253'	epigean	widespread	W.A. Museum assessment	Murray Hills, Mulga Downs Station, Ecologia project 1142	-22.12782	118.5153	19/04/2009
T107393	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG253'	epigean	widespread	W.A. Museum assessment	Hope Downs, 73.7 km NW. of Newman	-22.99028	119.1217	27/06/2010
T105877	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG253'	epigean	widespread	W.A. Museum assessment	Area C, 87.3 km NW. of Newman	-23.01111	118.9708	16/08/2010
T116751	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG253'	epigean	widespread	W.A. Museum assessment	Mudlark, 111 km WNW. of Newman	-23.08667	118.6864	30/06/2011
T116755	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG253'	epigean	widespread	W.A. Museum assessment	Mudlark, 111 km WNW. of Newman	-23.08694	118.6861	30/06/2011
T122103	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG253'	epigean	widespread	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.52247	119.9186	18/02/2012
T118328	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena 'MYG253'	epigean	widespread	W.A. Museum assessment	Mulga Downs Station, Cowra, site 994-13	-22.22709	119.0137	16/04/2012
T29985	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena occatoria	epigean	widespread	W.A. Museum assessment	Marandoo	-22.6166	118.1333	1/08/1991
T29984	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena occatoria	epigean	widespread	W.A. Museum assessment	Marandoo	-22.6166	118.1333	1/08/1991
T29980	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena occatoria	epigean	widespread	W.A. Museum assessment	Marandoo	-22.6166	118.1333	1/08/1991
T31039	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena occatoria	epigean	widespread	W.A. Museum assessment	Newman	-23.35	119.7333	10/05/1987
T30238	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena occatoria	epigean	widespread	W.A. Museum assessment	Marandoo Minesite	-22.6166	118.1333	22/04/1976
T29983	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena occatoria	epigean	widespread	W.A. Museum assessment	Marandoo	-22.6166	118.1333	1/08/1991
T29982	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena occatoria	epigean	widespread	W.A. Museum assessment	Marandoo	-22.6166	118.1333	1/08/1991
T29981	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena occatoria	epigean	widespread	W.A. Museum assessment	Marandoo	-22.6166	118.1333	1/08/1991
T120914	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena rutraspina	epigean	widespread	W.A. Museum assessment	14 km WSW. of Roy Hill Station, Pilbara Biological Survey site RHNE05	-22.67567	119.8406	19/11/2003
T120915	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena rutraspina	epigean	widespread	W.A. Museum assessment	10.5 km NW. of Bonney Downs Homestead, Pilbara Biological Survey site RHNE10	-22.11783	119.8772	7/08/2003
T149410	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena rutraspina	epigean	widespread	W.A. Museum assessment	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T149409	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena rutraspina	epigean	widespread	W.A. Museum assessment	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T120916	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena rutraspina	epigean	widespread	W.A. Museum assessment	Mulga Downs Station, 16 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW07	-22.22172	119.0249	9/08/2003
T84003	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 10)	-22.3275	119.3703	26/09/2006
T103213	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 86.4 km NW. of Newman	-22.94722	119.0153	27/06/2010

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T84002	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 10)	-22.3275	119.3703	31/07/2006
T107190	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range	-22.66878	119.4189	20/04/2010
T84005	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 25)	-22.335	119.4039	26/09/2006
T89294	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	9.3 km NE. of Newman, Orebody 24	-23.30369	119.8046	21/04/2008
T84004	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 25)	-22.335	119.4039	31/07/2006
T107192	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range	-22.66878	119.4189	20/04/2010
T103237	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 85.7 km NW. of Newman	-22.94861	119.0247	27/06/2010
T98152	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Ecologia Project 1106	-22.57717	120.0247	25/05/2009
T140325	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	55.5 km S. of Auski Roadhouse	-22.89778	118.6531	17/05/2008
T112593	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinidy to Mindy, 71.9 km NW. of Newman	-23.00306	119.1394	29/03/2011
T122102	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.52247	119.9186	18/02/2012
T126322	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mt Florance Station, 123 km WNW. of Tom Price	-22.43306	118.9606	9/03/2012
T140324	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	55.5 km S. of Auski Roadhouse	-22.87833	118.6481	17/05/2008
T122108	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.54303	119.9164	17/02/2012
T115950	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Wonmunna, ca. 78 km heading 288° from Newman	-23.142843	119.009895	18/05/2011
T139792	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Wonmunna, ca. 72 km heading 290° from Newman	-23.12832	119.0736	19/05/2011
T112073	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	110 km NNE. of Newman	-22.38274	119.9727	23/03/2011
T135548	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, c. 20 km SW. of Hancock Gorge	-22.48389	118.1475	15/03/2015
T145014	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	South Flank to Jinidi mine lease, site SFJ02, c. 39 km NE. of West Mt Hilditch	-23.01972	119.0603	4/11/2011
T112594	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinidy to Mindy, 71.8 km NW. of Newman	-23.00278	119.14	29/03/2011
T116862	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 121 km W. of Newman	-23.08167	118.5842	6/07/2011
T125336	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Western Corridor, 154.4 km NW. of Newman	-22.32094	118.7228	1/04/2012
T125339	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Western Corridor, 154.8 km NW. of Newman	-22.32092	118.7226	1/04/2012
T137573	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.62717	119.2796	10/10/2008
T115962	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 100 km N. of Newman	-22.62858	119.3485	8/08/2011
T136491	Arachnida	Araneae (spiders)	Araneae	Actinopodidae	Missulena sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 117 km ENE. of Tom Price	-22.40159	118.8827	6/05/2012
T109363	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname baileyorum	epigean	widespread	W.A. Museum assessment	26 km WNW. of Bonney Downs Homestead, Pilbara Biological Survey site RHNE12	-22.08531	119.7035	8/08/2003
T109377	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname baileyorum	epigean	widespread	W.A. Museum assessment	Mulga Downs Station, 16 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW07	-22.22172	119.0249	14/08/2003
T109368	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname baileyorum	epigean	widespread	W.A. Museum assessment	10.5 km NW. of Bonney Downs Homestead, Pilbara Biological Survey site RHNE10	-22.1178	119.8769	
T145069	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname baileyorum	epigean	widespread	W.A. Museum assessment	10.5 km NW. of Bonney Downs Homestead, Pilbara Biological Survey site RHNE10	-22.1178	119.8769	
T117281	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname ellenae	epigean	widespread	W.A. Museum assessment	Hamersley Range, 20.5 km WNW. of Mt Marsh, Pilbara Biological Survey site RHNW03	-22.46653	119.0226	13/08/2003
T117282	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname ellenae	epigean	widespread	W.A. Museum assessment	14 km WSW. of Roy Hill Station, Pilbara Biological Survey site RHNE05	-22.67567	119.8406	9/08/2003
T117283	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname ellenae	epigean	widespread	W.A. Museum assessment	4 km SSW. of Mile Camp, Pilbara Biological Survey site RHNE01	-22.82014	119.6127	10/08/2003
T96124	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98994	119.2365	7/02/2009
T91712	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Hope Downs 4, ca. 100 km NW. of Newman, HD4-7	-23.11494	119.363	13/05/2008
T96122	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96317	119.227	6/02/2009
T96123	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.97875	119.2613	7/02/2009
T103200	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84.6 km NW. of Newmam	-22.95306	119.0306	27/06/2010
T103199	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 88.7 km NW. of Newman	-22.90917	119.0067	29/06/2010
T91917	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Hamersley Range, Weeli Wolli Creek region, Area C, site 09-9A	-22.92583	119.0379	15/06/2008
T103198	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 86.4 km NW. of Newman	-22.94778	119.0153	27/06/2010
T103196	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 86.4 km NW. of Newman	-22.94861	119.0158	27/06/2010
T104784	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site 3-HC1	-23.40472	119.6052	15/03/2010
T96129	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.9785	119.2611	5/02/2009
T105851	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 96 km NW. of Newman	-23.01333	118.8753	14/08/2010

T104787	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site 14-P5	-23.38341	119.6479	12/03/2010
T96125	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98756	119.2698	6/02/2009
T96126	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96939	119.2601	7/02/2009
T104794	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site 10-P6	-23.3999	119.6521	12/03/2010
T96127	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98886	119.2365	8/02/2009
T96128	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96931	119.2601	7/02/2009
T104797	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site 12-P5	-23.39936	119.5844	12/03/2010
T104807	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site 9-P10	-23.38953	119.6433	12/03/2010
T104810	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site 6-P8	-23.40195	119.5744	12/03/2010
T103195	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 87 km NW. of Newman	-22.94083	119.0069	28/06/2010
T103903	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	West Angelas, 116 km SE. of Tom Price	-23.37417	118.6575	26/06/2010
T103259	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84 km NW. of Newman	-23.01444	118.9883	25/06/2010
T103262	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84 km NW. of Newman	-23.01444	118.9881	25/06/2010
T103263	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84 km NW. of Newman	-23.01805	118.9983	25/06/2010
T103264	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84 km NW. of Newman	-23.01889	118.9986	25/06/2010
T107968	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri, 103.8 km NW. of Newman	-22.58694	119.1553	22/08/2010
T103266	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84.8 km NW. of Newman	-22.97139	119.0161	25/06/2010
T103267	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84.8 km NW. of Newman	-22.97111	119.0164	25/06/2010
T107965	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri, 103.8 km NW. of Newman	-22.58694	119.1553	22/08/2010
T103268	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 83.6 km NW. of Newman	-22.99139	119.0136	26/06/2010
T103270	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84 km NW. of Newman	-23.0125	118.9922	26/06/2010
T103271	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84 km NW. of Newman	-23.01805	118.9983	25/06/2010
T96145	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.97414	119.3009	1/02/2009
T107977	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri, 117.2 km NW. of Newman	-22.51	119.0453	23/08/2010
T103899	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	West Angelas, 117 km SE. of Tom Price	-23.55028	118.4842	22/06/2010
T103253	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84.1 km NW. of Newman	-22.95417	119.0417	26/06/2010
T103906	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	West Angelas, 114 km SE. of Tom Price	-23.32139	118.6739	26/06/2010
T103907	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	West Angelas, 115 km SE. of Tom Price	-23.37417	118.6444	27/06/2010
T103908	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	West Angelas, 115 km SE. of Tom Price	-23.37444	118.6444	27/06/2010
T107950	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri, 118.5 km NW. of Newman	-22.53722	118.9864	22/08/2010
T103913	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	West Angelas, 115 km SE. of Tom Price	-23.34167	118.6656	28/06/2010
T107947	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri, 120.1 km NW. of Newman	-22.51861	118.9919	21/08/2010
T96140	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-23.02472	119.2438	3/02/2009
T107945	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri, 120.2 km NW. of Newman	-22.49472	119.0217	23/08/2010
T107942	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri, 117.2 km NW. of Newman	-22.51	119.0453	23/08/2010
T107481	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, site 8-HC559	-23.41583	119.592	14/08/2010
T107482	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, site 9-HC560	-23.38974	119.6431	18/08/2010
T107483	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, site 9-HC561	-23.39005	119.6426	18/08/2010
T96144	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96939	119.2601	7/02/2009
T103230	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84.6 km NW. of Newmam	-22.95389	119.03	27/06/2010
T103206	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 81.6 km NW. of Newman	-22.96667	119.0556	27/06/2010
T109506	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Cloudbreak, Chichester Range, c. 42 km WSW. of Warrie Homestead	-22.33035	119.2322	26/10/2010
T103209	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 81.6 km NW. of Newman	-22.96667	119.0561	26/06/2010
T103210	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84.1 km NW. of Newman	-22.95444	119.0414	26/06/2010
T103216	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84.1 km NW. of Newman	-22.95444	119.0417	26/06/2010
T103217	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 85.7 km NW. of Newman	-22.94833	119.025	27/06/2010
T103218	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 85.7 km NW. of Newman	-22.94889	119.0247	27/06/2010
T103219	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 81.6 km NW. of Newman	-22.96639	119.0561	26/06/2010
T103221	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 85.7 km NW. of Newman	-22.94861	119.0247	27/06/2010
T103223	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 85.7 km NW. of Newman	-22.94861	119.0247	27/06/2010
T103226	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 85.7 km NW. of Newman	-22.94861	119.0247	27/06/2010
T103227	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84.6 km NW. of Newmam	-22.95361	119.03	27/06/2010
T103256	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84 km NW. of Newman	-23.01417	118.9883	25/06/2010
T103229	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 85.7 km NW. of Newman	-22.94861	119.0247	27/06/2010
T103255	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84 km NW. of Newman	-23.01417	118.9886	25/06/2010
T103233	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 86.4 km NW. of Newman	-22.94806	119.0156	27/06/2010
T103235	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84.6 km NW. of Newmam	-22.95361	119.03	27/06/2010
T103239	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 85.7 km NW. of Newman	-22.94833	119.0247	27/06/2010

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T103241	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 74.9 km NW. of Newman	-22.90611	119.1772	24/06/2010
T103242	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 81.6 km NW. of Newman	-22.96583	119.0478	26/06/2010
T103245	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 81.6 km NW. of Newman	-22.96611	119.0475	26/06/2010
T103246	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 74.9 km NW. of Newman	-22.91195	119.1836	23/06/2010
T103251	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 74.9 km NW. of Newman	-22.91195	119.1836	23/06/2010
T103252	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 83.9 km NW. of Newman	-22.89417	119.0778	23/06/2010
T105871	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 92.1 km NW. of Newman	-23.01056	118.9186	15/08/2010
T107976	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri, 118.5 km NW. of Newman	-22.53722	118.9864	22/08/2010
T105882	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 87.3 km NW. of Newman	-23.01111	118.9708	16/08/2010
T103202	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84.1 km NW. of Newman	-22.95444	119.0403	26/06/2010
T103228	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 85.7 km NW. of Newman	-22.94861	119.0247	27/06/2010
T94869	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98578	119.2509	7/02/2009
T94875	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-23.02483	119.2436	4/02/2009
T105967	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 83.1 km NW. of Newman	-22.975	119.0378	1/05/2010
T94874	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.974	119.3002	6/02/2009
T94873	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-23.05244	119.2708	3/02/2009
T94872	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96931	119.2598	5/02/2009
T94865	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98925	119.2363	6/02/2009
T94870	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96825	119.285	3/02/2009
T101166	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 98.2 km NW. of Newman	-23.00778	118.8533	21/02/2010
T105974	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84.7 km NW. of Newman	-22.90583	119.0289	1/05/2010
T105975	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 89 km NW. of Newman	-22.95639	118.9833	1/05/2010
T105976	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 89.6 km NW. of Newman	-22.90861	119.0072	1/05/2010
T94868	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98458	119.2673	6/02/2009
T94867	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98597	119.2598	7/02/2009
T101157	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 89.2 km NW. of Newman	-22.96556	118.9756	23/02/2010
T94871	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96778	119.2851	5/02/2009
T105957	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T101158	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 101 km NW. of Newman	-23.00556	118.8272	25/02/2010
T105950	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 84.7 km NW. of Newman	-22.90583	119.0289	1/05/2010
T101160	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 89.6 km NW. of Newman	-23.00083	118.9469	24/02/2001
T101161	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 82.6 km NW. of Newman	-22.98167	119.0136	20/02/2010
T101162	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 101 km NW. of Newman	-23.00556	118.8272	25/02/2010
T105954	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.89917	119.0994	1/05/2010
T94876	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-23.00647	119.2452	7/02/2009
T105956	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 83.1 km NW. of Newman	-22.975	119.0378	1/05/2010
T101167	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 75.7 km NW. of Newman	-22.90583	119.18	19/02/2010
T105958	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 78.9 km NW. of Newman	-22.90278	119.1439	1/05/2010
T105872	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 92.1 km NW. of Newman	-23.01083	118.9181	16/08/2010
T105960	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-23.005	119.0239	1/05/2010
T105880	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 87.3 km NW. of Newman	-23.01056	118.9708	16/08/2010
T101165	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 75.7 km NW. of Newman	-22.90583	119.18	19/02/2010
T94864	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96292	119.2268	7/02/2009
T101163	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 74.1 km NW. of Newman	-22.91806	119.1892	18/02/2010
T97009	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	14 km WSW. of Roy Hill Station, Pilbara Biological Survey site RHNE05	-22.67567	119.8406	9/08/2003
T94853	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98589	119.2512	7/02/2009
T94852	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-23.01367	119.2372	6/02/2009
T94851	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98975	119.2364	8/02/2009
T94850	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-23.05272	119.2705	5/02/2009
T97033	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 65 km NW. of Newman	-22.91028	119.2083	1/04/2009
T94866	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98458	119.2673	7/02/2009
T97013	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 65 km NW. of Newman	-22.85278	119.2761	31/03/2009
T94857	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96931	119.2601	5/02/2009
T88683	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	84.1 km E. of Tom Price	-22.8611	118.5814	20/03/2004
T102618	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Roy Hill	-22.4266	119.9424	11/03/2010
T103177	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 89.1 km NW. of Newman	-22.90083	119.0172	29/06/2010
T103173	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 87 km NW. of Newman	-22.94111	119.0064	28/06/2010
T96151	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-23.00664	119.2454	5/02/2009
T96150	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.99014	119.2367	8/02/2009
T103193	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 87 km NW. of Newman	-22.94083	119.0069	28/06/2010
T109348	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	9 km NE. of Cowra Line Camp, Pilbara Biological Survey site RHNW11	-22.29411	119.0614	27/08/2003
T94863	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.9695	119.2603	6/02/2009
T94862	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96931	119.2601	6/02/2009
T94861	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98572	119.2508	7/02/2009
T94860	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.97414	119.3009	6/02/2009

T94859	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.97858	119.2614	7/02/2009
T109373	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	25 km NE. of Moorimoordinia Native Well, Pilbara Biological Survey site RHNE09	-22.41545	119.984	
T94854	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98572	119.2508	7/02/2009
T109350	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	26 km WSW. of Mt Marsh, Pilbara Biological Survey site RHNW01	-22.53503	118.9774	12/08/2003
T94856	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.97414	119.3009	6/02/2009
T94858	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98725	119.2693	6/02/2009
T109335	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	24 km ENE. of Moorimoordinina Native Well, Pilbara Biological Survey site RHNE08	-22.45194	119.9761	9/08/2003
T109329	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	24 km WSW. of Mt Marsh, Pilbara Biological Survey site RHNW02	-22.53583	118.9975	12/08/2003
T109324	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	11.5 km SW. of Rhodes Ridge, Pilbara Biological Survey site RHNC07	-23.14603	119.2658	25/05/2004
T109321	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	2.5 km N. of Mile Camp, Pilbara Biological Survey site RHNE02	-22.76606	119.6314	10/08/2003
T105959	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 89.4 km NW. of Newman	-22.98028	118.9622	1/05/2010
T109353	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Mulga Downs Station, 16 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW07	-22.22172	119.0249	14/08/2003
T105887	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 103.6 km NW. of Newman	-22.98444	118.8078	17/08/2010
T94886	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.97417	119.3011	7/02/2009
T96113	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96756	119.2851	5/02/2009
T105910	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010
T105911	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 89 km NW. of Newman	-22.95639	118.9833	1/05/2010
T101164	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.96472	119.0481	20/02/2010
T96120	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98994	119.2365	6/02/2009
T96114	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98425	119.2676	5/02/2009
T96121	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96292	119.2268	7/02/2009
T96115	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-23.01105	119.2358	7/02/2009
T105886	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 103.6 km NW. of Newman	-22.985	118.8081	17/08/2010
T105912	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 89 km NW. of Newman	-22.95639	118.9833	1/05/2010
T105892	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 103.4 km NW. of Newman	-22.99139	118.8067	18/08/2010
T105884	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 103.6 km NW. of Newman	-22.98472	118.8083	17/08/2010
T105915	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 90.6 km NW. of Newman	-22.99778	119.0297	1/05/2010
T105881	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 87.3 km NW. of Newman	-23.01083	118.9706	16/08/2010
T101156	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 81.8 km NW. of Newman	-23.00556	119.0328	21/02/2010
T96117	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96806	119.2851	5/02/2009
T96119	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98747	119.2695	7/02/2009
T105891	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 103.4 km NW. of Newman	-22.99083	118.8064	18/08/2010
T105890	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 103.4 km NW. of Newman	-22.99083	118.8067	18/08/2010
T67072	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Port Hedland - Newman Railway, Chichester Range, Fortesque Metals Group, site FMG 7	-22.7847	119.3603	29/03/2004
T96118	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98589	119.2512	7/02/2009
T92123	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Hamersley Range, Weeli Wolli Creek area, BHP Billiton Area C, site 7-7A	-22.89989	119.013	12/06/2008
T105908	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 89.6 km NW. of Newman	-22.90861	119.0072	1/05/2010
T92125	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Hamersley Range, Weeli Wolli Creek area, BHP Billiton Area C, site 12-12E	-22.91681	118.9105	11/06/2008
T105914	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 81.4 km NW. of Newman	-22.95806	119.0692	1/05/2010
T96116	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.9628	119.2268	6/02/2009
T105901	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 93 km NW. of Newman	-23.01805	118.9069	14/08/2010
T105902	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 93 km NW. of Newman	-23.01722	118.9075	14/08/2010
T92127	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Hamersley Range, Weeli Wolli Creek area, BHP Billiton Area C, site 15-15A	-22.93161	119.0473	10/06/2008
T67071	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Port Hedland - Newman Railway, Chichester Range, Fortesque Metals Group, site FMG 7	-22.7847	119.3603	29/03/2004
T105905	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 93.4 km NW. of Newman	-23.00028	118.9128	15/08/2010
T92124	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Hamersley Range, Weeli Wolli Creek area, BHP Billiton Area C, site 10-10A	-22.91047	118.9664	9/06/2008
T94878	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-23.05244	119.2708	3/02/2009
T105919	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 88.4 km NW. of Newman	-22.89889	119.0306	1/05/2010
T105932	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 83.9 km NW. of Newman	-22.99306	119.0158	1/05/2010
T107179	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.2923	119.0694	2/06/2010
T105934	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 90.6 km NW. of Newman	-22.89889	119.0019	1/05/2010
T94882	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96931	119.2601	1/02/2009
T94881	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96353	119.2272	5/02/2009

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T105930	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 61.8 km NW. of Newman	-22.99861	118.8686	1/05/2010
T94879	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98436	119.3011	2/02/2009
T105931	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 61.8 km NW. of Newman	-22.99861	118.8686	1/05/2010
T94877	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96317	119.227	3/02/2009
T101153	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 92.7 km NW. of Newman	-23.01778	118.9067	24/02/2010
T101154	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 85.2 km NW. of Newman	-23.00389	118.9947	22/02/2010
T105943	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 75.8 km NW. of Newman	-22.90583	119.18	1/05/2010
T105944	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 89.4 km NW. of Newman	-22.98028	118.9622	1/05/2010
T101155	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 87.2 km NW. of Newman	-22.98944	118.9828	22/02/2010
T94880	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-23.04056	119.2792	2/02/2009
T94883	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.99014	119.2367	5/02/2009
T94885	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96931	119.2598	3/02/2009
T105921	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T94884	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96931	119.2601	1/02/2009
T107184	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.31578	119.2407	2/06/2010
T107180	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.2923	119.0694	2/06/2010
T105925	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 89.4 km NW. of Newman	-22.98028	118.9622	1/05/2010
T107181	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.2923	119.0694	2/06/2010
T105928	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Area C, 86.2 km NW. of Newman	-23.00139	118.9817	1/05/2010
T107182	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.3073	119.2159	2/06/2010
T149433	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	88.2 km NW. of Newman	-23.06007	118.9316	9/03/2019
T149434	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Hope Downs Mining Village, 80.3 km NW. of Newman	-23.05301	119.0192	15/03/2019
T149435	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T149436	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	88.2 km NW. of Newman	-23.06007	118.9316	9/03/2019
T149437	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	80.3 km NW. of Newman	-23.06253	119.0149	10/03/2019
T122241	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 72.4 km NE. of Tom Price	-22.13567	118.1362	20/02/2012
T149445	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	80.3 km NW. of Newman	-23.06253	119.0149	10/03/2019
T149444	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	85.2 km NW. of Newman	-23.06971	118.9594	11/03/2019
T149446	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	80.3 km NW. of Newman	-23.06253	119.0149	10/03/2019
T122445	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	9 km NE. of Weeli Wolli Spring, Pilbara Biological Survey site RHNC12	-22.8525	119.265	31/08/2003
T122263	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 82.2 km NE. of Tom Price	-22.23258	118.415	20/02/2012
T122250	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 71.8 km NE. of Tom Price	-22.13608	118.136	20/02/2012
T149442	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	85.2 km NW. of Newman	-23.06971	118.9594	11/03/2019
T122242	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 71.8 km NE. of Tom Price	-22.13603	118.1367	20/02/2012
T149438	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	88.2 km NW. of Newman	-23.06007	118.9316	9/03/2019
T149441	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	85.2 km NW. of Newman	-23.06971	118.9594	11/03/2019
T122238	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 71.8 km NE. of Tom Price	-22.13625	118.1356	20/02/2012
T149440	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	85.2 km NW. of Newman	-23.06971	118.9594	11/03/2019
T149439	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	80.3 km NW. of Newman	-23.06253	119.0149	10/03/2019
T122237	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 69.8 km NE. of Tom Price	-22.15583	118.1342	20/02/2012
T122236	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 69.6 km NE. of Tom Price	-22.15608	118.1345	20/02/2012
T149443	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	85.2 km NW. of Newman	-23.06971	118.9594	11/03/2019
T132748	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Yandi, 76.1 km NNW. Newman	-22.77555	119.3322	17/03/2014
T126295	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	111.6 km NW. of Newman	-22.6925	118.9153	19/11/2011
T126296	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	115.1 km NW. of Newman	-22.6975	118.8592	19/11/2011
T126301	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	112.3 km NW. of Newman	-22.73361	118.8633	20/11/2011
T126320	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Mt Florance Station, 70 km NW. of Tom Price	-22.1575	118.1478	12/03/2012
T127198	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	81.5 km NW. of Newman	-23.02444	119.0206	3/11/2011
T113636	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	113.5 km NW. of Newman	-22.75588	118.8307	27/05/2011
T113629	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	113.5 km NW. of Newman	-22.75683	118.8313	27/05/2011
T130376	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	6 km SSW. of West Angelas Aerodrome	-23.18307	118.6747	18/03/2013
T113614	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Southern Flank, 71 km NW. of Newman	-22.99472	119.1656	17/04/2011
T113612	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Southern Flank, 71 km NW. of Newman	-22.99444	119.1653	17/04/2011
T113608	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Southern Flank, 71 km NW. of Newman	-22.99361	119.1667	17/04/2011
T113588	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	South Parmelia, 52 km NW. of Newman	-23.08528	119.3183	16/04/2011
T126259	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	118.2 km NW. of Newman	-22.60528	118.9192	17/11/2011
T132747	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Yandi, 72.7 km NNW. Newman	-22.84972	119.2786	16/03/2014
T126283	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	116.4 km NW. of Newman	-22.64556	118.9028	18/11/2011

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T132750	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Yandi, 76.4 km NNW. Newman	-22.80056	119.2861	17/03/2014
T132751	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Yandi, 76.4 km NNW. Newman	-22.80056	119.2861	17/03/2014
T133998	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.75989	119.0686	2/04/2014
T113576	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	South Parmelia, 66 km NW. of Newman	-23.03444	119.1922	12/04/2011
T135514	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Karijini National Park, 3.5 km NE. of Mt Bruce	-22.58	118.1606	14/03/2015
T135519	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Karijini National Park, 3.5 km NE. of Mt Bruce	-22.58028	118.1606	14/03/2015
T113574	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	South Parmelia, 66 km NW. of Newman	-23.03555	119.1881	12/04/2011
T135566	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Karijini National Park, c. 35 km SW. of Dales Gorge	-22.75333	118.41	17/03/2015
T135567	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Karijini National Park, c. 35 km SW. of Dales Gorge	-22.75333	118.41	17/03/2015
T135571	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Karijini National Park, c. 25 km SSW. of Dales Gorge	-22.65806	118.4342	17/03/2015
T135574	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Karijini National Park, c. 25 km SSW. of Dales Gorge	-22.65778	118.4336	17/03/2015
T135610	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Karijini National Park, c. 11 km SW. of Hancock Gorge	-22.43139	118.3572	16/03/2015
T113566	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Jinidi, 66 km NW. of Newman	-22.95444	119.2481	17/04/2011
T113582	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	South Parmelia, 52 km NW. of Newman	-23.08639	119.3186	16/04/2011
T113648	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	113.5 km NW. of Newman	-22.75486	118.8342	28/05/2011
T149431	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T149430	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T149429	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	85.2 km NW. of Newman	-23.06971	118.9594	11/03/2019
T149428	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	83.2 km NW. of Newman	-23.08254	118.9746	10/03/2019
T149427	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	71.9 km NW. of Newman	-23.04277	119.1169	11/03/2019
T149426	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T130374	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	6 km SSW. of West Angelas Aerodrome	-23.18307	118.6747	18/03/2013
T149424	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T149422	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	80.3 km NW. of Newman	-23.06253	119.0149	10/03/2019
T149421	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	85.2 km NW. of Newman	-23.06971	118.9594	11/03/2019
T149420	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	71.9 km NW. of Newman	-23.04277	119.1169	11/03/2019
T122823	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	111.6 km NW. of Newman	-22.89194	118.7644	29/03/2012
T122824	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	111.6 km NW. of Newman	-22.89194	118.7644	29/03/2012
T113642	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	113.5 km NW. of Newman	-22.78208	118.8171	28/05/2011
T126267	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	118.3 km NW. of Newman	-22.61167	118.9081	18/11/2011
T149432	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	88.2 km NW. of Newman	-23.06126	118.9308	3/09/2019
T126280	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	118.2 km NW. of Newman	-22.63445	118.87	21/11/2011
T126279	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	118 km NW. of Newman	-22.6025	118.9239	17/11/2011
T126278	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	114 km NW. of Newman	-22.61444	118.955	21/11/2011
T126273	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	114 km NW. of Newman	-22.61444	118.955	21/11/2011
T122839	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	121.9 km NW. of Newman	-22.90528	118.6494	31/03/2012
T126268	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	118.3 km NW. of Newman	-22.61167	118.9081	18/11/2011
T122870	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	118.6 km NW. of Newman	-22.88056	118.6867	1/04/2012
T149425	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	88.2 km NW. of Newman	-23.06007	118.9316	9/03/2019
T126262	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	118.3 km NW. of Newman	-22.61111	118.9072	18/11/2011
T126250	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	118.2 km NW. of Newman	-22.60528	118.9192	17/11/2011
T125353	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Western Corridor, 204.9 km NW. of Newman	-22.1565	118.2256	2/04/2012
T125342	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Western Corridor, 211.9 km NW. of Newman	-22.13436	118.1538	1/04/2012
T126284	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	116.4 km NW. of Newman	-22.64556	118.9028	18/11/2011
T126271	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	114 km NW. of Newman	-22.61444	118.955	21/11/2011
T119976	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	84.8 km NW. of Newman	-22.66833	119.3747	27/07/2011
T116740	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Mudlark, 119 km W. of Newman	-23.08361	118.6039	30/06/2011
T116783	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Mudlark, 111 km W. of Newman	-23.05222	118.6781	1/07/2011
T149423	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	80.3 km NW. of Newman	-23.06253	119.0149	10/03/2019
T122199	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 115.8 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T122198	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 115.9 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T113654	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	119.1 km NW. of Newman	-22.63325	118.8697	30/05/2011
T116785	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Mudlark, 111 km W. of Newman	-23.05222	118.6778	1/07/2011
T116795	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Mudlark, 111 km W. of Newman	-23.08083	118.6844	2/07/2011
T113666	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	106.2 km NW. of Newman	-22.71272	118.964	31/05/2011
T119987	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	105.3 km NW. of Newman	-22.51111	119.2603	28/07/2011

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T122225	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 71.6 km NE. of Tom Price	-22.13542	118.1363	20/02/2012
T119973	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	84.8 km NW. of Newman	-22.66833	119.3747	27/07/2011
T119968	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	84.8 km NW. of Newman	-22.66778	119.375	27/07/2011
T119721	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 141 km NW. of Newman	-23.12444	119.3819	12/05/2011
T119715	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 117 km NW. of Newman	-22.62806	118.9031	12/05/2011
T119710	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 113 km NW. of Newman	-22.68639	118.8931	10/05/2011
T119702	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 120 km NW. of Newman	-22.61083	118.8764	8/05/2011
T119700	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 120 km NW. of Newman	-22.61083	118.8764	8/05/2011
T119249	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	3.2 km SW. of Giles Point, Pilbara Biological Survey site RHNC03	-23.2662	119.1339	29/08/2003
T116858	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Mudlark, 98 km W. of Newman	-23.04583	118.8317	4/07/2011
T122223	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 83.8 km NE. of Tom Price	-22.25417	118.4547	20/02/2012
T114613	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 72 km heading 290° from Newman	-23.12683	119.0673	19/05/2011
T122219	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 84.6 km NE. of Tom Price	-22.25253	118.4548	20/02/2012
T112087	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 76 km [NW. of] heading 290° from Newman	-23.1169	119.0396	20/05/2011
T122213	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 86.3 km NE. of Tom Price	-22.27997	118.5052	20/02/2012
T122220	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 84.6 km NE. of Tom Price	-22.25253	118.4548	20/02/2012
T122222	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 83.5 km NE. of Tom Price	-22.25414	118.455	20/02/2012
T122207	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 93 km NE. of Tom Price	-22.32936	118.6113	20/02/2012
T122218	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 88.9 km NE. of Tom Price	-22.26608	118.5199	20/02/2012
T122205	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 116.4 km NE. of Tom Price	-22.41639	118.8795	20/02/2012
T122215	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 87.9 km NE. of Tom Price	-22.26547	118.5207	20/02/2012
T122204	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 115.9 km NE. of Tom Price	-22.41647	118.8795	20/02/2012
T122203	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 115.5 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T122202	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 116.5 km NE. of Tom Price	-22.4165	118.8796	20/02/2012
T122201	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 115.1 km NE. of Tom Price	-22.41703	118.8796	20/02/2012
T122200	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname mellosa	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 115.4 km NE. of Tom Price	-22.41644	118.8796	20/02/2012
T97313	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG104'	epigean	Potential SRE: DD	W.A. Museum assessment	Hamersley Range, 20.5 km WNW. of Mt Marsh, Pilbara Biological Survey site RHNW03	-22.46653	119.0226	13/08/2003
T105948	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG104'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010
T97314	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG105'	epigean	Potential SRE: DD	W.A. Museum assessment	Hamersley Range, 20.5 km WNW. of Mt Marsh, Pilbara Biological Survey site RNHW03	-22.46653	119.0226	13/08/2003
T45832	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Hope Downs proposed rail corridor, site HAC4	-22.5	119.0833	12/11/2001
T118806	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 115.8 km NW. of Newman	-22.51667	119.0594	14/10/2011
T118811	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 114.8 km NW. of Newman	-22.51111	119.0844	18/10/2011
T118812	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 112.7 km NW. of Newman	-22.51944	119.1078	18/10/2011
T118817	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 112.7 km NW. of Newman	-22.51944	119.1078	19/10/2011
T118818	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 112.7 km NW. of Newman	-22.51944	119.1078	16/10/2011
T118804	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 115.8 km NW. of Newman	-22.51667	119.0594	18/10/2011
T118824	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 118 km NW. of Newman	-22.5	119.0472	19/10/2011
T118803	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 116.9 km NW. of Newman	-22.50722	119.0547	19/10/2011
T118802	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 116.9 km NW. of Newman	-22.50722	119.0547	18/10/2011
T118805	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 115.8 km NW. of Newman	-22.51667	119.0594	19/10/2011
T118789	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 121.2 km NW. of Newman	-22.48694	119.015	15/10/2011
T136008	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Roy Hill Station, Marillana Creek area	-22.54833	119.2128	6/09/2008
T137571	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Roy Hill Station, Marillana Creek area	-22.60695	119.2386	6/09/2008
T118795	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 122.1 km NW. of Newman	-22.47528	119.0164	16/10/2011

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T118788	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 124.2 km NW. of Newman	-22.47639	118.9814	19/10/2011
T118800	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 119.7 km NW. of Newman	-22.50028	119.0192	18/10/2011
T137572	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Roy Hill Station, Marillana Creek area	-22.555	119.2214	6/09/2008
T118791	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 122.1 km NW. of Newman	-22.47528	119.0164	20/10/2011
T118793	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 122.1 km NW. of Newman	-22.47528	119.0164	19/10/2011
T118798	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 122.1 km NW. of Newman	-22.47528	119.0164	19/10/2011
T118799	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 122.1 km NW. of Newman	-22.47528	119.0164	14/10/2011
T118820	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG331'	epigean	widespread	W.A. Museum assessment	Koodaideri, 118 km NW. of Newman	-22.5	119.0472	20/10/2011
T103274	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG370'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 89.5 km NW. of Newman	-22.98028	118.9622	26/06/2010
T113563	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG377'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinidi, 66 km NW. of Newman	-22.95528	119.2489	17/04/2011
T74771	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG661'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 25 km N. of Prairie Downs Homestead, site RHNC2	-23.3208	119.1	21/10/2004
T128882	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG661'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna	-23.14478	118.9964	25/05/2011
T128884	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG661'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna	-23.14478	118.9964	25/05/2011
T128885	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG661'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna	-23.14478	118.9964	25/05/2011
T128886	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG661'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna	-23.14478	118.9964	23/05/2011
T128883	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname 'MYG661'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna	-23.14478	118.9964	25/05/2011
T97016	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 65 km NW. of Newman	-22.91889	119.2039	1/04/2009
T102613	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill	-22.51743	119.9314	11/03/2010
T97302	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 12-12G	-22.91667	118.9103	11/06/2008
T97638	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.12072	118.5082	21/04/2009
T45833	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs proposed rail corridor, site HAC2	-22.6166	119.25	12/11/2001
T96147	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.98575	119.2505	5/02/2007
T102619	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill	-22.54898	120.036	11/03/2010
T102616	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill	-22.48279	119.8811	11/03/2010
T102614	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill	-22.52711	120.0421	11/03/2010
T97300	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 05-5C	-22.93797	119.008	13/06/2008
T103240	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 85.5 km NW. of Newman	-22.8975	119.0639	24/06/2010
T103201	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 83.9 km NW. of Newman	-22.89444	119.0767	29/06/2010
T104785	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site 14-HC3	-23.3837	119.6478	14/03/2010
T97296	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 12-12L	-22.91667	118.9103	14/06/2008
T97297	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 11-11B	-22.92006	118.8942	11/06/2008
T97298	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 05-5D	-22.93797	119.008	13/06/2008
T97304	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 05-5E	-22.93797	119.008	13/06/2008
T104801	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site 19-P9	-23.40483	119.6209	14/03/2010
T103182	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 88.7 km NW. of Newman	-22.90944	119.0069	29/06/2010
T97301	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 01-1A	-22.90958	118.9707	12/06/2008
T97303	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 12-12F	-22.91667	118.9103	11/06/2008
T104811	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site 6-P7	-23.40177	119.5745	12/03/2010
T97294	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 12-12H	-22.92019	118.8943	11/06/2008
T97293	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 12-12H	-22.91667	118.9103	11/06/2008
T97292	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 01-1B	-22.90961	118.9707	12/06/2008
T97037	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 05-5F	-22.93797	119.008	13/06/2008
T97299	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 10-10B	-22.91022	118.9667	11/06/2008
T107980	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 120.2 km NW. of Newman	-22.495	119.0222	23/08/2010
T88684	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	83.4 km E. of Tom Price	-22.8613	118.5808	20/03/2004
T77549	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 46.2 km ESE. of Juna Downs Homestead, site WES	-23.0688	118.89	9/09/2005
T88685	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	83.7 km E. of Tom Price	-22.8611	118.5803	20/03/2004

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T77550	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 31.6 km SE. of Juna Downs Homestead, site WES	-23.085	118.7047	7/09/2005
T107971	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 120.2 km NW. of Newman	-22.495	119.0217	23/08/2010
T107394	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs, 73.7 km NW. of Newman	-22.99028	119.1217	27/06/2010
T107946	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 114.7 km NW. of Newman	-22.53056	119.0606	21/08/2010
T105889	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 102.5 km NW. of Newman	-22.98639	118.8194	17/08/2010
T107975	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 114 km NW. of Newman	-22.52806	119.0731	21/08/2010
T107978	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 114 km NW. of Newman	-22.52806	119.0731	21/08/2010
T77548	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 46.2 km ESE. of Juna Downs Homestead, site WES	-23.0688	118.89	8/09/2005
T105888	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 103.6 km NW. of Newman	-22.98472	118.8078	17/08/2010
T107974	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 120.2 km NW. of Newman	-22.495	119.0244	23/08/2010
T105883	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 87.3 km NW. of Newman	-23.01111	118.9708	16/08/2010
T107133	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Fortescue Marsh	-22.31579	119.2407	22/04/2010
T107943	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 116.9 km NW. of Newman	-22.53528	119.0028	22/08/2010
T107941	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 115.9 km NW. of Newman	-22.52861	119.045	20/08/2010
T105855	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 96 km NW. of Newman	-23.01306	118.8753	14/08/2010
T105856	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 96 km NW. of Newman	-23.01306	118.8753	14/08/2010
T105987	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 82.7 km NW. of Newman	-22.89917	119.0994	1/05/2010
T107396	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs, 72.5 km NW. of Newman	-22.99556	119.1644	27/06/2010
T105861	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 92.4 km NW. of Newman	-23.00722	118.9167	15/08/2010
T105962	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 91.3 km NW. of Newman	-22.90055	118.9933	1/05/2010
T107273	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.21436	119.0332	12/05/2010
T107979	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 115.9 km NW. of Newman	-22.52861	119.045	20/08/2010
T105973	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 85.8 km NW. of Newman	-22.89639	119.0619	1/05/2010
T107961	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 122 km NW. of Newman	-22.48472	119.0044	23/08/2010
T107963	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 117.3 km NW. of Newman	-22.53306	119.0153	20/08/2010
T107958	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 122 km NW. of Newman	-22.48472	119.0044	23/08/2010
T77551	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 41 km ESE. of Juna Downs Homestead, site WES	-23.0997	118.8106	9/09/2005
T88682	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	84.1 km E. of Tom Price	-22.8611	118.5814	20/03/2004
T107956	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 120.2 km NW. of Newman	-22.49528	119.0242	23/08/2010
T109342	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	15.5 km ENE. of Mt Bruce, Pilbara Biological Survey site TCMBE02	-22.58333	118.2903	2/08/2005
T107955	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 114.7 km NW. of Newman	-22.53056	119.0606	21/08/2010
T105936	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 87.2 km NW. of Newman	-22.98917	118.9822	1/05/2010
T78148	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Port Hedland-Newman Railway, Chichester Rge, Fortescue Metals Group, site FMG09	-22.7372	119.4211	1/04/2004
T105904	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 93.4 km NW. of Newman	-22.99972	118.9125	15/08/2010
T107952	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 117.3 km of NW. of Newman	-22.53306	119.0153	20/08/2010
T107967	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 116.9 km NW. of Newman	-22.53528	119.0028	22/08/2010
T93553	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.96325	119.2276	29/08/2008
T107949	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 117.3 km of NW. of Newman	-22.53306	119.0153	20/08/2010
T105951	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 87.3 km NW. of Newman	-22.89528	119.045	1/05/2010
T107964	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 118.1 km NW. of Newman	-22.52972	119.0008	23/08/2010
T107966	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 122 km NW. of Newman	-22.48472	119.0044	23/08/2010
T107951	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 116.9 km NW. of Newman	-22.53528	119.0028	23/08/2010
T112005	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Wonmunna, ca. 72 km heading 290° from Newman	-23.12683	119.0673	19/05/2011
T107954	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 116.5 km NW. of Newman	-22.54778	119.0089	24/08/2010
T107969	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 115.2 km NW. of Newman	-22.52333	119.0606	20/08/2010
T112092	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Wonmunna, ca. 75 km heading 290° from Newman	-23.12662	119.047	20/05/2011
T114824	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 96.9 km NW. of Newman	-22.61972	119.2292	15/06/2007
T136493	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 124.3 km ENE. of Tom Price	-22.43424	118.9657	7/05/2012
T114826	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 85 km NW. of Newman	-22.6825	119.3364	16/06/2007
T116775	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 113 km W. of Newman	-23.03806	118.6828	1/07/2011
T116773	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 113 km W. of Newman	-23.03806	118.6825	1/07/2011
T114827	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 87.9 km NW. of Newman	-22.66639	119.3078	16/06/2007
T136494	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 124.3 km ENE. of Tom Price	-22.43424	118.9657	7/05/2012
T116768	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 113 km W. of Newman	-23.03806	118.6825	1/07/2011
T149448	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	83.2 km NW. of Newman	-23.08254	118.9746	10/03/2019
T116767	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 113 km W. of Newman	-23.03806	118.6825	1/07/2011
T116761	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 114 km W. of Newman	-23.07	118.6511	1/07/2011
T116760	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 114 km W. of Newman	-23.07	118.6511	1/07/2011
T131242	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.31062	119.731	5/08/2013
T131250	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.30548	119.7701	5/08/2013

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T131251	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.30886	119.7654	5/08/2013
T116759	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 94 km W. of Newman	-23.06333	118.625	1/07/2011
T116758	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 94 km W. of Newman	-23.06333	118.6247	1/07/2011
T116769	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 113 km W. of Newman	-23.03806	118.6825	1/07/2011
T136497	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 124.3 km ENE. of Tom Price	-22.43424	118.9657	7/05/2012
T127215	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	75.4 km NW. of Newman	-23.01972	119.0903	3/11/2011
T127217	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	75.4 km NW. of Newman	-23.01972	119.0903	4/11/2011
T127219	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	75.4 km NW. of Newman	-23.01972	119.0903	8/11/2011
T127225	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	80.4 km NW. of Newman	-23.015	119.0367	5/11/2011
T127226	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	80.4 km NW. of Newman	-23.015	119.0367	5/11/2011
T127228	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	80.4 km NW. of Newman	-23.015	119.0367	5/11/2011
T127229	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	80.4 km NW. of Newman	-23.015	119.0367	5/11/2011
T114822	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 93.6 km NW. of Newman	-22.62389	119.2536	15/06/2007
T113637	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	107.4 km NW. of Newman	-22.73711	118.9248	27/05/2011
T116743	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 107 km W. of Newman	-23.09389	118.7192	30/06/2011
T116816	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 102 km W. of Newman	-23.09805	118.7747	3/07/2011
T116814	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 102 km W. of Newman	-23.09833	118.775	3/07/2011
T116810	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 110 km W. of Newman	-23.08417	118.6975	3/07/2011
T120012	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	76 km NW. of Newman	-22.79306	119.3092	31/07/2011
T116794	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 111 km W. of Newman	-23.08083	118.6844	2/07/2011
T136495	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 124.3 km ENE. of Tom Price	-22.43424	118.9657	7/05/2012
T120021	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	111.4 km NW. of Newman	-22.52222	119.1453	1/08/2011
T149447	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	85.6 km NW. of Newman	-23.06266	118.958	17/03/2019
T127235	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	71.5 km NW. of Newman	-22.92611	119.2139	3/11/2011
T135032	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	15.5 km ENE. of Mt Bruce, Pilbara Biological Survey site TCMBE02	-22.58333	118.2881	2/08/2005
T116753	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 111 km WNW. of Newman	-23.08667	118.6864	30/06/2011
T116554	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 92.6 km NW. of Newman	-22.65083	119.2647	18/06/2007
T114829	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 87.9 km NW. of Newman	-22.66639	119.3078	16/06/2007
T116553	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 92.6 km NW. of Newman	-22.65083	119.2647	18/06/2007
T134161	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi Billiards, 78.5 km NW. Newman	-22.76667	119.3036	14/09/2014
T114831	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 86.4 km NW. of Newman	-22.69056	119.2844	17/06/2007
T112081	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Wonmunna, ca. 80 km heading 285° from Newman	-23.16326	118.977	17/05/2011
T116556	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 92.6 km NW. of Newman	-22.65083	119.2647	18/06/2007
T114832	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 86.4 km NW. of Newman	-22.69056	119.2844	17/06/2007
T136007	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.60833	119.2403	6/09/2008
T112084	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Wonmunna, ca. 72 km [NW. of] heading 290° from Newman	-23.12832	119.0736	19/05/2011
T135137	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	25 km NE. of Moorimoordinina Native Well, Pilbara Biological Survey site RHNE09	-22.41556	119.8672	8/08/2003
T135143	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	6 km N. of Cowra Line Camp, Mulga Downs Station, Pilbara Biological Survey site RHNW06	-22.30178	119.0134	21/11/2003
T113578	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	South Parmelia, 58 km NW. of Newman	-23.07333	119.2953	13/04/2011
T116551	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 92.6 km NW. of Newman	-22.65083	119.2647	18/06/2007
T113575	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	South Parmelia, 66 km NW. of Newman	-23.035	119.1881	12/04/2011
T116541	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 86.2 km NW. of Newman	-22.67889	119.3031	17/06/2007
T114834	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 86.2 km NW. of Newman	-22.67889	119.3031	17/06/2007
T112082	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Wonmunna, ca. 71 km heading 290° from Newman	-23.13146	119.0774	19/05/2011
T113652	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	113.3 km NW. of Newman	-22.79885	118.802	29/05/2011
T127207	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	78.2 km NW. of Newman	-23.02	119.06	4/11/2011
T116742	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 119 km W. of Newman	-23.08417	118.6036	30/06/2011
T116741	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 119 km W. of Newman	-23.08417	118.6036	30/06/2011
T114828	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 87.9 km NW. of Newman	-22.66639	119.3078	16/06/2007
T136489	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 117 km ENE. of Tom Price	-22.40159	118.8827	6/05/2012
T136488	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 117 km ENE. of Tom Price	-22.40159	118.8827	6/05/2012
T136487	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 109.2 km E. of Tom Price	-22.72786	118.8521	5/05/2012
T136006	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.62611	119.2803	30/06/2008
T136009	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.58222	119.3119	30/06/2008
T116750	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 94 km W. of Newman	-23.09139	118.67	30/06/2011
T131593	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 107 km NW. of Newman	-22.54292	119.1687	22/05/2013
T132659	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs, 78.3 km NW. of Newman	-23.02	119.0608	12/09/2013
T132662	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs, 73.3 km NW. of Newman	-23.02167	119.1147	14/09/2013
T132663	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs, 73.3 km NW. of Newman	-23.02083	119.1144	14/09/2013
T132666	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs, 73 km NW. of Newman	-23.01944	119.1189	14/09/2013

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T132745	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi, 73.6 km NNW. Newman	-22.84417	119.2719	15/03/2014
T116560	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 85 km NW. of Newman	-22.6825	119.3364	16/06/2007
T116559	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 99.5 km NW. of Newman	-22.59917	119.1981	19/06/2007
T113570	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	South Parmelia, 52 km NW. of Newman	-23.08583	119.3183	16/04/2011
T114814	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 105 km NW. of Newman	-22.58194	119.1864	13/06/2007
T136498	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 115.1 km E. of Tom Price	-22.63375	118.9081	8/05/2012
T125347	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Western Corridor, 149.2 km NW. of Newman	-22.34989	118.7657	2/04/2012
T125348	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Western Corridor, 150.1 km NW. of Newman	-22.3497	118.7651	2/04/2012
T125349	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Western Corridor, 104.6 km NW. of Newman	-22.15694	118.2257	2/04/2012
T125350	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Western Corridor, 103.8 km NW. of Newman	-22.15661	118.2262	2/04/2012
T136548	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 78 km NE. of Tom Price	-22.17807	118.3023	27/10/2013
T113644	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	113.3 km NW. of Newman	-22.79914	118.8016	28/05/2011
T125340	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Western Corridor, 212.7 km NW. of Newman	-22.1345	118.1548	1/04/2012
T119706	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station, 112 km NW. of Newman	-22.64444	118.9525	9/05/2011
T136729	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi Oxbow, 86.9 km NW. of Newman	-22.78778	119.1461	1/05/2015
T119707	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station, 112 km NW. of Newman	-22.64444	118.9525	9/05/2011
T114816	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 105 km NW. of Newman	-22.58194	119.1864	13/06/2007
T119708	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station, 112 km NW. of Newman	-22.64444	118.9525	9/05/2011
T119716	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station, 111 km NW. of Newman	-22.62917	118.9697	12/05/2011
T114818	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 93.6 km NW. of Newman	-22.62389	119.2536	14/06/2007
T119717	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station, 111 km NW. of Newman	-22.62917	118.9697	12/05/2011
T119734	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station, 117 km NW. of Newman	-22.60695	118.9356	7/05/2011
T136514	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 105.5 km ENE. of Tom Price	-22.34836	118.744	9/05/2012
T114813	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 100.3 km NW. of Newman	-22.59028	119.2008	13/06/2007
T118814	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 112.7 km NW. of Newman	-22.51944	119.1078	18/10/2011
T118823	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 118 km NW. of Newman	-22.5	119.0472	15/10/2011
T118819	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 118 km NW. of Newman	-22.5	119.0472	17/10/2011
T119235	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	2.5 km N. of Mile Camp, Pilbara Biological Survey site RHNE02	-22.75689	119.6314	10/08/2003
T122873	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	104 km NW. of Newman	-22.96583	118.8011	2/04/2012
T122244	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Corridor West, 72.2 km NE. of Tom Price	-22.13583	118.1366	20/02/2012
T119243	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hamersley Range, 20.5 km WNW. of Mt Marsh, Pilbara Biological Survey site RHNW03	-22.46653	119.0226	13/08/2003
T113647	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	113.3 km NW. of Newman	-22.79923	118.8014	28/05/2011
T122339	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 105.4 km NW. of Newman	-22.54617	119.1867	6/02/2012
T118816	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 112.7 km NW. of Newman	-22.51944	119.1078	18/10/2011
T136513	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 98.8 km ENE. of Tom Price	-22.34483	118.672	9/05/2012
T118813	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 112.7 km NW. of Newman	-22.51944	119.1078	18/10/2011
T122334	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 105.9 km NW. of Newman	-22.546	119.1867	6/02/2012
T119244	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mulga Downs Station, 16 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW07	-22.22172	119.0249	14/08/2003
T118810	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 114.8 km NW. of Newman	-22.51111	119.0844	12/10/2011
T118809	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 114.8 km NW. of Newman	-22.51111	119.0844	15/10/2011
T125324	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Western Corridor, 110.8 km NW. of Newman	-22.15622	118.1472	30/03/2012
T137570	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.62717	119.2796	10/10/2008
T118808	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 114.8 km NW. of Newman	-22.51111	119.0844	15/10/2011
T122251	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Corridor West, 69.8 km NE. of Tom Price	-22.1552	118.1348	20/02/2012
T116827	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 102 km W. of Newman	-23.10556	118.7722	3/07/2011
T116850	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 87 km WNW. of Newman	-23.08556	118.9289	4/07/2011
T126294	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	114.2 km NW. of Newman	-22.68722	118.8925	22/11/2011
T116847	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 89 km WNW. of Newman	-23.1	118.9014	4/07/2011
T114820	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 94.8 km NW. of Newman	-22.63917	119.2122	14/06/2007
T126297	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	115.1 km NW. of Newman	-22.6975	118.8592	19/11/2011
T136501	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 114.8 km E. of Tom Price	-22.63315	118.9042	8/05/2012
T116837	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 102 km W. of Newman	-23.09028	118.8111	3/07/2011
T118797	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 122.1 km NW. of Newman	-22.47528	119.0164	11/10/2011
T136500	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 114.8 km E. of Tom Price	-22.63315	118.9042	8/05/2012

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T136504	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 119.8 km E. of Tom Price	-22.6133	118.952	8/05/2012
T116820	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 102 km W. of Newman	-23.09805	118.7739	3/07/2011
T127199	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	81.5 km NW. of Newman	-23.02472	119.0206	4/11/2011
T127200	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	78.2 km NW. of Newman	-23.01972	119.06	4/11/2011
T127201	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	78.2 km NW. of Newman	-23.01972	119.06	4/11/2011
T136499	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 114.8 km E. of Tom Price	-22.63315	118.9042	8/05/2012
T127203	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	78.2 km NW. of Newman	-23.01972	119.0603	4/11/2011
T127205	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	78.2 km NW. of Newman	-23.01972	119.0603	4/11/2011
T131587	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 107 km NW. of Newman	-22.54372	119.1684	22/05/2013
T116835	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 102 km W. of Newman	-23.10667	118.775	3/07/2011
T118786	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 124.2 km NW. of Newman	-22.47639	118.9814	17/10/2011
T127208	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	78.2 km NW. of Newman	-23.02	119.0603	4/11/2011
T119937	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station, 118 km NW. of Newman	-22.62389	118.8931	8/05/2011
T119970	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	84.8 km NW. of Newman	-22.66833	119.3753	27/07/2011
T118792	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 122.1 km NW. of Newman	-22.47528	119.0164	14/10/2011
T136511	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 112.1 km ENE. of Tom Price	-22.42215	118.839	9/05/2012
T136510	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 112.1 km ENE. of Tom Price	-22.42215	118.839	9/05/2012
T119972	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	84.8 km NW. of Newman	-22.66861	119.375	27/07/2011
T136509	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 112.1 km ENE. of Tom Price	-22.42215	118.839	9/05/2012
T113643	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	113.3 km NW. of Newman	-22.79906	118.8015	28/05/2011
T136508	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 119.8 km E. of Tom Price	-22.6133	118.952	8/05/2012
T136503	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 119.8 km E. of Tom Price	-22.6133	118.952	8/05/2012
T126281	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	116.4 km NW. of Newman	-22.64556	118.9028	18/11/2011
T126282	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	116.4 km NW. of Newman	-22.64556	118.9028	18/11/2011
T116872	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	83.2 km NW. of Newman	-22.70028	119.3619	26/07/2011
T136506	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 119.8 km E. of Tom Price	-22.6133	118.952	8/05/2012
T136505	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 119.8 km E. of Tom Price	-22.6133	118.952	8/05/2012
T116856	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 88 km WNW. of Newman	-23.07167	118.9008	4/07/2011
T116855	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 88 km WNW. of Newman	-23.07167	118.9008	4/07/2011
T118796	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 122.1 km NW. of Newman	-22.47528	119.0164	11/10/2011
T119977	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	94.4 km NW. of Newman	-22.60778	119.2925	27/07/2011
T104788	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname watsoni	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site 14-P7	-23.38324	119.6479	12/03/2010
T104789	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname watsoni	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site 14-P10	-23.383	119.6482	12/03/2010
T104790	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname watsoni	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site 14-P1	-23.3837	119.6478	12/03/2010
T104791	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname watsoni	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site 10-P4	-23.40005	119.6522	12/03/2010
T104786	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname watsoni	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site 14-P2	-23.38371	119.6478	12/03/2010
T104796	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname watsoni	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site 10-P3	-23.40016	119.6523	12/03/2010
T104795	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname watsoni	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site 10-P6	-23.3999	119.6521	12/03/2010
T103222	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 84.6 km NW. of Newmam	-22.95306	119.0308	27/06/2010
T103236	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 86.4 km NW. of Newman	-22.94806	119.0156	27/06/2010
T103224	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 85.7 km NW. of Newman	-22.94889	119.0247	27/06/2010
T103232	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 86.4 km NW. of Newman	-22.94778	119.0156	27/06/2010
T103231	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 85.7 km NW. of Newman	-22.94861	119.0247	27/06/2010
T107409	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Iron Valley, 5 km NE. of Yandicoogina mine; LT74	-22.75947	119.3025	5/05/2010
T107960	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Koodaideri, 120.2 km NW. of Newman	-22.49528	119.0242	23/08/2010
T103243	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 74.9 km NW. of Newman	-22.91694	119.1917	23/06/2010
T103244	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 81.6 km NW. of Newman	-22.96611	119.0475	26/06/2010
T103250	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 84.1 km NW. of Newman	-22.95444	119.0406	26/06/2010
T107953	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Koodaideri, 117.3 km of NW. of Newman	-22.53306	119.0153	20/08/2010
T103220	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 81.6 km NW. of Newman	-22.9675	119.0558	27/06/2010
T105898	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 97.6 km NW. of Newman	-23.01083	118.8606	18/08/2010
T107973	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Koodaideri, 103.8 km NW. of Newman	-22.58694	119.1553	20/08/2010
T103260	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 81.6 km NW. of Newman	-22.96611	119.0478	26/06/2010
T107970	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Koodaideri, 120.2 km NW. of Newman	-22.495	119.0222	23/04/2010
T103238	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 84.1 km NW. of Newman	-22.95444	119.0414	26/06/2010
T97034	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 65 km NW. of Newman	-22.73333	119.4067	28/03/2009
T103215	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 86.4 km NW. of Newman	-22.94806	119.0158	27/06/2010
T103225	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 86.4 km NW. of Newman	-22.94833	119.0158	27/06/2010
T103174	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 81.6 km NW. of Newman	-22.96639	119.0558	26/06/2010

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T103175	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 98 km NW. of Newman	-23.00778	118.8533	30/06/2010
T107135	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.48899	119.0858	22/04/2010
T103179	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 98 km NW. of Newman	-23.00778	118.8531	30/06/2010
T103180	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 98 km NW. of Newman	-23.00778	118.8536	30/06/2010
T103183	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 86.4 km NW. of Newman	-22.94806	119.0158	27/06/2010
T103185	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 86.4 km NW. of Newman	-22.94806	119.0156	27/06/2010
T103190	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 86.4 km NW. of Newman	-22.94861	119.0158	27/06/2010
T103194	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 86.4 km NW. of Newman	-22.94778	119.0156	27/06/2010
T103208	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 81.6 km NW. of Newman	-22.9675	119.0553	27/06/2010
T103214	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 86.4 km NW. of Newman	-22.94833	119.0158	27/06/2010
T103204	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 86.4 km NW. of Newman	-22.94833	119.0158	27/06/2010
T103205	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 86.4 km NW. of Newman	-22.94833	119.0158	27/06/2010
T103212	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 84.6 km NW. of Newmam	-22.95389	119.03	27/06/2010
T103207	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Area C, 84.1 km NW. of Newman	-22.95444	119.0417	26/06/2010
T126277	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	114 km NW. of Newman	-22.61444	118.955	21/11/2011
T122820	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	111.6 km NW. of Newman	-22.89167	118.7639	29/03/2012
T120020	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	111.4 km NW. of Newman	-22.5225	119.1456	1/08/2011
T116819	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Mudlark, 102 km W. of Newman	-23.09805	118.7739	3/07/2011
T127211	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	78.2 km NW. of Newman	-23.02056	119.0603	4/11/2011
T127202	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	78.2 km NW. of Newman	-23.01972	119.06	4/11/2011
T116834	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Mudlark, 102 km W. of Newman	-23.10667	118.7731	3/07/2011
T116842	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Mudlark, 88 km WNW. of Newman	-23.03639	118.9472	4/07/2011
T116843	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Mudlark, 88 km WNW. of Newman	-23.03639	118.9472	4/07/2011
T126286	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	116.4 km NW. of Newman	-22.64556	118.9028	18/11/2011
T126285	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	116.4 km NW. of Newman	-22.64556	118.9028	18/11/2011
T122814	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	108.6 km NW. of Newman	-22.94278	118.7706	28/03/2012
T119998	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	74.6 km NW. of Newman	-22.77361	119.3511	29/07/2011
T126274	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	114 km NW. of Newman	-22.61444	118.955	21/11/2011
T113799	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Koodaideri, 79.4 km ESE. of Wittenoom	-22.52528	119.0472	13/08/2010
T126270	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	114 km NW. of Newman	-22.61444	118.955	21/11/2011
T126261	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	118.3 km NW. of Newman	-22.61111	118.9072	18/11/2011
T126258	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	118.2 km NW. of Newman	-22.60528	118.9192	17/11/2011
T126256	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	118.2 km NW. of Newman	-22.60528	118.9192	19/11/2011
T126248	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	118.2 km NW. of Newman	-22.60528	118.9181	17/11/2011
T149419	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	85.2 km NW. of Newman	-23.06971	118.9594	11/03/2019
T118807	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Koodaideri, 114.8 km NW. of Newman	-22.51111	119.0844	15/10/2011
T122832	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	127.3 km NW. of Newman	-22.86028	118.6044	29/03/2012
T113645	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	113.3 km NW. of Newman	-22.79922	118.8015	28/05/2011
T122875	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	104 km NW. of Newman	-22.96583	118.8011	2/04/2012
T116863	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Mudlark, 121 km W. of Newman	-23.08139	118.5842	6/07/2011
T113586	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	South Parmelia, 52 km NW. of Newman	-23.08583	119.3183	16/04/2011
T126266	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	118.3 km NW. of Newman	-22.61111	118.9072	18/11/2011
T131385	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Mesa Gap, ca. 33 km ENE. of Newman	-23.35507	120.0286	27/08/2013
T118822	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Koodaideri, 118 km NW. of Newman	-22.5	119.0472	15/10/2011
T113585	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	South Parmelia, 52 km NW. of Newman	-23.08583	119.3183	16/04/2011
T116555	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Marillana, 92.6 km NW. of Newman	-22.65083	119.2647	18/06/2007
T113587	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	South Parmelia, 52 km NW. of Newman	-23.08583	119.3183	16/04/2011
T116771	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Mudlark, 113 km W. of Newman	-23.03806	118.6825	1/07/2011
T116780	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	Mudlark, 111 km W. of Newman	-23.05222	118.6783	1/07/2011
T113584	Arachnida	Araneae (spiders)	Araneae	Anamidae	Aname whitei	epigean	widespread	W.A. Museum assessment	South Parmelia, 52 km NW. of Newman	-23.08583	119.3183	16/04/2011
T140524	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae 'N140'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, ca. 33.9 km E. of Auski Roadhouse	-22.46194	118.9975	8/03/2014
T140523	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae 'N140'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, ca. 29.7 km E. of Auski Roadhouse	-22.46861	118.9622	8/03/2014
T140522	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae 'N140'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, ca. 29.7 km E. of Auski Roadhouse	-22.46806	118.9625	8/03/2014
T140518	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae 'N43'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri, ca. 38.3 km E. of Auski Roadhouse	-22.48611	119.0486	7/03/2014
T140521	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae 'N43'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri, ca. 41.3 km E. of Auski Roadhouse	-22.49583	119.0708	9/03/2014
T140520	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae 'N43'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri, ca. 41.3 km E. of Auski Roadhouse	-22.49611	119.0708	9/03/2014
T140519	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae 'N43'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri, ca. 41.3 km E. of Auski Roadhouse	-22.49611	119.0708	9/03/2014
T140517	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae 'N43'	epigean	Potential SRE: DD	W.A. Museum assessment	Yalgorup National Park, 6 km S. of Dawesville	-22.48583	119.0486	7/03/2014
T77523	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	West Angelas, 31.6 km SE. of Juna Downs Homestead, site WES	-23.085	118.7047	7/09/2005

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T89292	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	90.8 km NW. of Newman, BHP Billiton Area C	-22.9001	118.9934	10/04/2008
T89293	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	90.8 km NW. of Newman, BHP Billiton Area C	-22.9001	118.9934	10/04/2008
T44346	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Newman area	-23.35	119.7333	20/06/1984
T111601	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	ca. 15 km SE. of The Governor, West Angelas mine, site WES002	-23.2	118.82	5/05/2004
T136542	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 80.5 km NE. of Tom Price	-22.19547	118.3554	26/10/2013
T136539	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 80.2 km NE. of Tom Price	-22.18695	118.3429	26/10/2013
T136540	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 80.2 km NE. of Tom Price	-22.18733	118.3431	26/10/2013
T136551	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 79.5 km NE. of Tom Price	-22.18463	118.3309	27/10/2013
T136544	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 79.2 km NE. of Tom Price	-22.18399	118.3261	27/10/2013
T136538	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 80.2 km NE. of Tom Price	-22.18703	118.3429	26/10/2013
T136546	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 77.6 km NE. of Tom Price	-22.17094	118.2879	27/10/2013
T136547	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 77.6 km NE. of Tom Price	-22.17092	118.2881	27/10/2013
T135031	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Mulga Downs Stn. E. of Outcamp, Pilbara Biological Survey site RHNW13	-22.36139	119.0067	20/11/2003
T136550	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 79.5 km NE. of Tom Price	-22.18486	118.3309	27/10/2013
T136543	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 79.1 km NE. of Tom Price	-22.18468	118.3257	27/10/2013
T136552	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 79.6 km NE. of Tom Price	-22.18428	118.3309	27/10/2013
T136553	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 81 km NE. of Tom Price	-22.1991	118.3659	27/10/2013
T136554	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 81 km NE. of Tom Price	-22.19903	118.3656	27/10/2013
T136555	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 80.7 km NE. of Tom Price	-22.23189	118.3928	28/10/2013
T136557	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 80.6 km NE. of Tom Price	-22.20468	118.367	28/10/2013
T136727	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi Oxbow, 86.9 km NW. of Newman	-22.78806	119.1461	1/05/2015
T136537	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 81.2 km NE. of Tom Price	-22.17627	118.3452	26/10/2013
T135121	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Mulga Downs Station, 9.3 km NE. of Cowra Line Camp, Pilbara Biological Survey site RHNW11	-22.29411	119.0614	27/08/2003
T136530	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 81.3 km NE. of Tom Price	-22.20454	118.3755	26/10/2013
T137569	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.56639	119.2308	6/09/2008
T122803	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	129.2 km NW. of Newman	-22.83167	118.6025	30/03/2012
T113805	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C Surrounds, 84 km WNW. of Newman	-22.95444	119.0417	26/06/2010
T122802	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	129.2 km NW. of Newman	-22.83167	118.6025	30/03/2012
T114596	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	FMG Nyidinghu Project, near Marillana Station, site s11wt9	-22.37398	119.1948	10/05/2011
T136728	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi Oxbow, 86.9 km NW. of Newman	-22.78778	119.1456	1/05/2015
T136524	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 83 km NE. of Tom Price	-22.2365	118.4254	25/10/2013
T122809	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	119.4 km NW. of Newman	-22.93389	118.6639	31/03/2012
T113583	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	South Parmelia, 52 km NW. of Newman	-23.08611	119.3186	16/04/2011
T120002	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	75.1 km NW. of Newman	-22.805	119.3061	30/07/2011
T146553	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Greater Hope Downs, Hope Downs 1 mine, ca. 80.9 km NW. of Newman	-23.07796	119.0009	25/05/2018
T133999	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.70442	119.0509	2/04/2014
T122808	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	127.1 km NW. of Newman	-22.83694	118.6286	30/03/2012
T136520	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 83 km NE. of Tom Price	-22.23635	118.4253	24/10/2013
T136521	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 83 km NE. of Tom Price	-22.2365	118.4254	24/10/2013
T136532	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 81.7 km NE. of Tom Price	-22.20728	118.3827	25/10/2013
T134164	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi Billiards, 73.8 km NW. Newman	-22.82	119.3003	17/09/2014
T136536	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 81.2 km NE. of Tom Price	-22.17674	118.3452	26/10/2013
T136531	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 81.3 km NE. of Tom Price	-22.20443	118.3751	26/10/2013
T136535	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 81.2 km NE. of Tom Price	-22.17638	118.3457	26/10/2013
T136534	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 81.1 km NE. of Tom Price	-22.18698	118.3545	26/10/2013
T134166	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi Billiards, 73.8 km NW. Newman	-22.82	119.3003	17/09/2014
T136522	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 83 km NE. of Tom Price	-22.2365	118.4254	24/10/2013
T134165	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi Billiards, 73.8 km NW. Newman	-22.82	119.3003	17/09/2014
T136525	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 80.6 km NE. of Tom Price	-22.23203	118.3919	25/10/2013
T136529	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 78 km NE. of Tom Price	-22.26109	118.3855	25/10/2013
T136528	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 78 km NE. of Tom Price	-22.26109	118.3855	25/10/2013
T136527	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 80.6 km NE. of Tom Price	-22.24149	118.4002	25/10/2013
T136526	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 80.6 km NE. of Tom Price	-22.23203	118.3919	25/10/2013
T135638	Arachnida	Araneae (spiders)	Araneae	Anamidae	Anamidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, c. 1.5 km NE. of Visitor Centre	-22.4725	118.4753	18/03/2015
T94838	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98747	119.2695	4/02/2009
T94839	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.9873	119.2694	7/02/2009
T94845	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98892	119.2363	7/02/2009

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T97305	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Hamersley Range, 20.5 km WNW. of Mt Marsh, Pilbara Biological Survey site RHNW03	-22.46653	119.0226	13/08/2003
T96146	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-23.01103	119.2341	7/02/2009
T94846	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98572	119.2508	7/02/2009
T94849	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.97875	119.2613	1/02/2009
T94847	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98761	119.2701	7/02/2009
T94848	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.99317	119.3	7/02/2009
T94855	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96925	119.2596	6/02/2009
T94837	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.9695	119.2603	1/02/2009
T105972	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 81.4 km NW. of Newman	-22.95806	119.0692	1/05/2010
T96130	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.9695	119.2603	7/02/2009
T105909	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010
T96136	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98994	119.2365	7/02/2009
T107132	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Fortescue Marsh	-22.53063	119.1685	22/04/2010
T96134	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96939	119.2601	2/02/2009
T96135	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98458	119.2673	6/02/2009
T94834	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.97636	119.3004	28/02/2009
T104806	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site2-P1	-23.4036	119.611	13/03/2010
T96137	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96756	119.2851	4/02/2009
T96138	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96928	119.2597	6/02/2009
T104805	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site5-P3	-23.41051	119.5716	12/03/2010
T96149	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.97633	119.3006	6/02/2009
T96139	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96931	119.2601	7/02/2009
T114812	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 100.3 km NW. of Newman	-22.59028	119.2008	13/06/2007
T125329	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG006'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri Western Corridor, 135.1 km NW. of Newman	-22.42881	118.8773	31/03/2012
T96143	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG033'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.974	119.3004	6/02/2009
T94835	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG033'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.9765	119.3	2/02/2009
T94843	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG033'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-23.05258	119.254	7/02/2009
T94842	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG033'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96836	119.2855	2/02/2009
T94841	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG033'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98558	119.2504	7/02/2009
T94840	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG033'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.98589	119.2512	2/02/2009
T94844	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG033'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-23.02792	119.2547	1/02/2009
T102620	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG033'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.58431	120.0172	11/03/2010
T54237	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG088'	epigean	Potential SRE: DD	W.A. Museum assessment	BHP Billiton Area C, ca. 95 km NW. of Newman	-22.9105	118.9667	27/03/2008
T54238	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG088'	epigean	Potential SRE: DD	W.A. Museum assessment	BHP Billiton Area C, ca. 95 km NW. of Newman	-22.9105	118.9708	27/03/2008
T89291	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG088'	epigean	Potential SRE: DD	W.A. Museum assessment	90.8 km NW. of Newman, BHP Billiton Area C	-22.9001	118.9934	10/04/2008
T104793	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG098'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site10-P1	-23.4003	119.6524	12/03/2010
T97015	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG098'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 65 km NW. of Newman	-22.96853	119.2855	2/02/2009
T104813	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG098'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site4-P1	-23.40216	119.5971	12/03/2010
T102615	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG101'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station, c. 13.6 km NE. of homestead, E. of Marble Bar Road	-22.52711	120.0421	11/03/2010
T102617	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG101'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.4266	119.9424	11/03/2010
T105963	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 89.6 km NW. of Newman	-23.00111	118.9478	1/05/2010
T105952	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-23.005	119.0239	1/05/2010
T105964	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 93.1 km NW. of Newman	-23	118.9131	1/05/2010
T105965	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 93.1 km NW. of Newman	-23	118.9131	1/05/2010
T105985	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.89917	119.0994	1/05/2010
T105966	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 89.3 km NW. of Newman	-22.90639	119.0125	1/05/2010
T105969	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 84.7 km NW. of Newman	-22.90583	119.0289	1/05/2010
T105970	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 88.4 km NW. of Newman	-22.89889	119.0306	1/05/2010
T105986	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 89.3 km NW. of Newman	-22.90639	119.0125	1/05/2010
T105977	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 84.7 km NW. of Newman	-22.90583	119.0289	1/05/2010
T105978	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.89917	119.0994	1/05/2010
T105979	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.89917	119.0994	1/05/2010
T105980	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 89.3 km NW. of Newman	-22.90639	119.0125	1/05/2010
T105984	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 89.3 km NW. of Newman	-22.90639	119.0125	1/05/2010
T105983	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 86.2 km NW. of Newman	-23.00139	118.9817	1/05/2010
T105982	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 86.2 km NW. of Newman	-23.00139	118.9817	1/05/2010
T105981	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.89917	119.0994	1/05/2010

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T105971	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 88.4 km NW. of Newman	-22.89889	119.0306	1/05/2010
T105940	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 89.4 km NW. of Newman	-22.98028	118.9622	1/05/2010
T105961	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 81.6 km NW. of Newman	-22.90694	119.1242	1/05/2010
T105929	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 78.2 km NW. of Newman	-22.91778	119.1339	1/05/2010
T105933	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 83.9 km NW. of Newman	-22.99306	119.0158	1/05/2010
T105922	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 86.2 km NW. of Newman	-23.00139	118.9817	1/05/2010
T105920	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.89917	119.0994	1/05/2010
T105937	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 91.3 km NW. of Newman	-22.90055	118.9933	1/05/2010
T105924	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 89.4 km NW. of Newman	-22.98028	118.9622	1/05/2010
T105918	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.89917	119.0994	1/05/2010
T105927	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 93.1 km NW. of Newman	-23	118.9131	1/05/2010
T105941	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 88.4 km NW. of Newman	-22.89889	119.0306	1/05/2010
T105942	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 78.2 km NW. of Newman	-22.91778	119.1339	1/05/2010
T105945	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 78.2 km NW. of Newman	-22.91778	119.1339	1/05/2010
T105946	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 89.6 km NW. of Newman	-22.92278	119.1628	1/05/2010
T105947	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 83.9 km NW. of Newman	-22.99306	119.0158	1/05/2010
T105916	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 86.2 km NW. of Newman	-23.00139	118.9817	1/05/2010
T105949	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 87.3 km NW. of Newman	-22.89528	119.045	1/05/2010
T105913	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 90.6 km NW. of Newman	-22.99778	119.0297	1/05/2010
T105953	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 88.4 km NW. of Newman	-22.89889	119.0306	1/05/2010
T105938	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.89917	119.0994	1/05/2010
T119248	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	3 km SW. of Weeli Wolli Spring, Pilbara Biological Survey site RHNC10	-22.94778	119.1847	31/08/2003
T132749	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG195'	epigean	widespread	W.A. Museum assessment	Yandi, 78.9 km NNW. Newman	-22.76278	119.3042	17/03/2014
T105923	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG197'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 83.9 km NW. of Newman	-22.99306	119.0158	1/05/2010
T105955	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG197'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 81.4 km NW. of Newman	-22.95806	119.0692	1/05/2010
T130375	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG197'	epigean	Potential SRE: DD	W.A. Museum assessment	9 km WSW. of West Angelas Aerodrome	-23.17235	118.6239	18/03/2013
T149449	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG197'	epigean	Potential SRE: DD	W.A. Museum assessment	88.2 km NW. of Newman	-23.06007	118.9316	9/03/2019
T122332	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG321'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 97.4 km NW. of Newman	-22.63433	119.2009	6/02/2012
T113621	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG323'	epigean	Potential SRE: DD	W.A. Museum assessment	111.3 km NW. of Newman, Area C West - Yandi	-22.62479	118.9875	26/05/2011
T113661	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG323'	epigean	Potential SRE: DD	W.A. Museum assessment	115.9 km NW. of Newman, Area C West - Yandi	-22.61071	118.9395	30/05/2011
T113662	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG323'	epigean	Potential SRE: DD	W.A. Museum assessment	115.9 km NW. of Newman, Area C West - Yandi	-22.61049	118.9395	30/05/2011
T126251	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG323'	epigean	Potential SRE: DD	W.A. Museum assessment	118.2 km NW. of Newman, Area C West - Yandi	-22.60528	118.9192	19/11/2011
T113633	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG323'	epigean	Potential SRE: DD	W.A. Museum assessment	113.5 km NW. of Newman, Area C West - Yandi	-22.75677	118.8329	27/05/2011
T113618	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG323'	epigean	Potential SRE: DD	W.A. Museum assessment	111.3 km NW. of Newman, Area C West - Yandi	-22.62455	118.9876	26/05/2011
T113620	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG323'	epigean	Potential SRE: DD	W.A. Museum assessment	111.3 km NW. of Newman, Area C West - Yandi	-22.62479	118.9875	26/05/2011
T113622	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG323'	epigean	Potential SRE: DD	W.A. Museum assessment	111.3 km NW. of Newman, Area C West - Yandi	-22.62478	118.9875	26/05/2011
T113623	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG323'	epigean	Potential SRE: DD	W.A. Museum assessment	111.3 km NW. of Newman, Area C West - Yandi	-22.62476	118.9875	26/05/2011
T113624	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG323'	epigean	Potential SRE: DD	W.A. Museum assessment	111.3 km NW. of Newman, Area C West - Yandi	-22.62481	118.9875	26/05/2011
T113619	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG323'	epigean	Potential SRE: DD	W.A. Museum assessment	111.3 km NW. of Newman, Area C West - Yandi	-22.6247	118.9875	26/05/2011
T135637	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG324'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 1.5 km NE. of Visitor Centre	-22.4725	118.4753	18/03/2015
T113640	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG324'	epigean	Potential SRE: DD	W.A. Museum assessment	113.5 km NW. of Newman	-22.75693	118.8324	27/05/2011
T135636	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG324'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 1.5 km NE. of Visitor Centre	-22.4725	118.4753	18/03/2015
T122817	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG324'	epigean	Potential SRE: DD	W.A. Museum assessment	111.6 km NW. of Newman	-22.89139	118.7644	29/03/2012
T113627	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG324'	epigean	Potential SRE: DD	W.A. Museum assessment	113.5 km NW. of Newman	-22.75698	118.8323	27/05/2011
T107957	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG325'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri, 119.5 km NW. of Newman	-22.49528	119.0339	23/08/2010
T107959	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG325'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri, 114 km of NW. of Newman	-22.52806	119.0731	21/08/2010
T114825	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG325'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 96.9 km NW. of Newman	-22.61972	119.2292	15/06/2007
T114821	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG325'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 93.6 km NW. of Newman	-22.62389	119.2536	15/06/2007
T116550	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG325'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 91.6 km NW. of Newman	-22.665	119.2444	18/06/2007
T114817	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG325'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 105 km NW. of Newman	-22.58194	119.1864	13/06/2007
T118826	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG325'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri, 120.2 km NW. of Newman	-22.4975	119.0153	16/10/2011
T116549	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG325'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 91.6 km NW. of Newman	-22.665	119.2444	18/06/2007
T120022	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG325'	epigean	Potential SRE: DD	W.A. Museum assessment	111.4 km NW. of Newman	-22.52222	119.1453	1/08/2011

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T118821	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG325'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri, 118 km NW. of Newman	-22.5	119.0472	15/10/2011
T118815	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG325'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri, 112.7 km NW. of Newman	-22.51944	119.1078	18/10/2011
T120023	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG325'	epigean	Potential SRE: DD	W.A. Museum assessment	111.4 km NW. of Newman	-22.52222	119.1453	1/08/2011
T114823	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG325'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 93.6 km NW. of Newman	-22.62389	119.2536	15/06/2007
T113625	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG336'	epigean	Potential SRE: DD	W.A. Museum assessment	113.8 km NW. of Newman	-22.65616	118.9184	26/05/2011
T126254	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG336'	epigean	Potential SRE: DD	W.A. Museum assessment	118.2 km NW. of Newman	-22.60528	118.9192	19/11/2011
T126253	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG336'	epigean	Potential SRE: DD	W.A. Museum assessment	118.2 km NW. of Newman	-22.60528	118.9192	19/11/2011
T120000	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG337'	epigean	Potential SRE: DD	W.A. Museum assessment	75.1 km NW. of Newman	-22.805	119.3058	30/07/2011
T120001	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG337'	epigean	Potential SRE: DD	W.A. Museum assessment	75.1 km NW. of Newman	-22.80528	119.3061	30/07/2011
T120003	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG337'	epigean	Potential SRE: DD	W.A. Museum assessment	75.1 km NW. of Newman	-22.80528	119.3058	30/07/2011
T120004	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG337'	epigean	Potential SRE: DD	W.A. Museum assessment	75.1 km NW. of Newman	-22.80528	119.3058	30/07/2011
T120011	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG337'	epigean	Potential SRE: DD	W.A. Museum assessment	76 km NW. of Newman	-22.79361	119.3103	31/07/2011
T120014	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG337'	epigean	Potential SRE: DD	W.A. Museum assessment	72.7 km NW. of Newman	-22.85	119.2825	31/07/2011
T120015	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG337'	epigean	Potential SRE: DD	W.A. Museum assessment	72.7 km NW. of Newman	-22.85	119.2825	31/07/2011
T119996	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG337'	epigean	Potential SRE: DD	W.A. Museum assessment	76.3 km NW. of Newman	-22.74333	119.3933	29/07/2011
T116540	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG338'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 86.2 km NW. of Newman	-22.67889	119.3031	17/06/2007
T116552	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG338'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 92.6 km NW. of Newman	-22.65083	119.2647	18/06/2007
T119999	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG338'	epigean	Potential SRE: DD	W.A. Museum assessment	78.8 km NW. of Newman	-22.73222	119.3603	30/07/2011
T116544	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG338'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 89.7 km NW. of Newman	-22.66222	119.29	17/06/2007
T105858	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 93.8 km NW. of Newman	-23	118.9056	15/08/2010
T105906	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 93.4 km NW. of Newman	-22.99972	118.9125	15/08/2010
T105903	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 93 km NW. of Newman	-23.01778	118.9072	14/08/2010
T105900	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 93 km NW. of Newman	-23.01778	118.9078	14/08/2010
T103191	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 86.4 km NW. of Newman	-22.94778	119.0156	27/06/2010
T105852	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 96 km NW. of Newman	-23.01306	118.875	14/08/2010
T105899	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 97.6 km NW. of Newman	-23.01056	118.8603	18/08/2010
T105860	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 93.8 km NW. of Newman	-22.99972	118.905	15/08/2010
T105854	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 96 km NW. of Newman	-23.01306	118.8753	14/08/2010
T105907	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 93.4 km NW. of Newman	-23.00028	118.9128	15/08/2010
T105893	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 103.4 km NW. of Newman	-22.99055	118.8072	18/08/2010
T105859	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 93.8 km NW. of Newman	-22.99972	118.905	15/08/2010
T105874	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 92.1 km NW. of Newman	-23.01083	118.9178	16/08/2010
T105873	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 92.1 km NW. of Newman	-23.01083	118.9175	16/08/2010
T105875	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 92.1 km NW. of Newman	-23.01056	118.9178	16/08/2010
T105862	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 92.4 km NW. of Newman	-23.00722	118.9167	15/08/2010
T105853	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 96 km NW. of Newman	-23.01306	118.875	14/08/2010
T116853	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 87 km WNW. of Newman	-23.08583	118.9294	4/07/2011
T116846	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG339'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 89 km WNW. of Newman	-23.1	118.9014	4/07/2011
T127231	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG340'	epigean	Potential SRE: DD	W.A. Museum assessment	80.4 km NW. of Newman	-23.01722	119.0367	7/11/2011
T127206	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG340'	epigean	Potential SRE: DD	W.A. Museum assessment	78.2 km NW. of Newman	-23.01972	119.0603	4/11/2011
T127224	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG341'	epigean	Potential SRE: DD	W.A. Museum assessment	80.4 km NW. of Newman	-23.01472	119.0372	7/11/2011
T127230	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG341'	epigean	Potential SRE: DD	W.A. Museum assessment	80.4 km NW. of Newman	-23.015	119.0367	7/11/2011
T113638	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG378'	epigean	Potential SRE: DD	W.A. Museum assessment	110.6 km NW. of Newman	-22.74206	118.8808	27/05/2011
T114830	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG379'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 84.6 km NW. of Newman	-22.70583	119.2942	16/06/2007
T116542	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG379'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 86.3 km NW. of Newman	-22.67417	119.3167	17/06/2007
T114833	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG379'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 85.7 km NW. of Newman	-22.69222	119.2928	17/06/2007
T116558	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG379'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 97.2 km NW. of Newman	-22.62694	119.2006	19/06/2007
T114811	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG379'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 100.3 km NW. of Newman	-22.59028	119.2008	13/06/2007
T116557	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG379'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 96.6 km NW. of Newman	-22.63083	119.2086	19/06/2007
T114810	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG379'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 100.3 km NW. of Newman	-22.59028	119.2008	13/06/2007
T116744	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG380'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 107 km W. of Newman	-23.09389	118.7192	30/06/2011
T135572	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG433'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 25 km SSW. of Dales Gorge	-22.65778	118.4336	17/03/2015
T135565	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG433'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 35 km SW. of Dales Gorge	-22.75333	118.41	17/03/2015
T96131	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG484'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.97628	119.3007	3/02/2009
T96142	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG484'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96756	119.2851	3/02/2009
T96141	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG484'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.96789	119.2851	3/02/2009
T113562	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG484'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinidi, 66 km NW. of Newman	-22.95639	119.2489	17/04/2011
T113561	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG484'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinidi, 66 km NW. of Newman	-22.95583	119.2492	17/04/2011
T127221	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG484'	epigean	Potential SRE: DD	W.A. Museum assessment	69.1 km NW. of Newman	-22.96833	119.2008	9/11/2011
T127223	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG484'	epigean	Potential SRE: DD	W.A. Museum assessment	69.1 km NW. of Newman	-22.96861	119.1997	9/11/2011
T127227	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG524'	epigean	Potential SRE: DD	W.A. Museum assessment	80.4 km NW. of Newman	-23.015	119.0367	5/11/2011
T127232	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG648'	epigean	Potential SRE: DD	W.A. Museum assessment	78.1 km NW. of Newman	-23.01667	119.1022	8/11/2011
T127204	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG648'	epigean	Potential SRE: DD	W.A. Museum assessment	78.2 km NW. of Newman	-23.01972	119.0603	4/11/2011
T104802	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG651'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site16-P8	-23.40469	119.6118	14/03/2010

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T104809	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG651'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site5-P5	-23.41028	119.5716	12/03/2010
T119988	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG651'	epigean	Potential SRE: DD	W.A. Museum assessment	105.3 km NW. of Newman	-22.51194	119.2589	28/07/2011
T113639	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG653'	epigean	Potential SRE: DD	W.A. Museum assessment	110.6 km NW. of Newman, Area C West - Yandi	-22.74222	118.8806	27/05/2011
T113650	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG653'	epigean	Potential SRE: DD	W.A. Museum assessment	113.5 km NW. of Newman, Area C West - Yandi	-22.77988	118.816	29/05/2011
T113646	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG653'	epigean	Potential SRE: DD	W.A. Museum assessment	113.3 km NW. of Newman, Area C West - Yandi	-22.79919	118.8015	28/05/2011
T113628	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG654'	epigean	Potential SRE: DD	W.A. Museum assessment	113.5 km NW. of Newman, Area C West - Yandi	-22.75695	118.8323	27/05/2011
T113630	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG654'	epigean	Potential SRE: DD	W.A. Museum assessment	113.5 km NW. of Newman, Area C West - Yandi	-22.75694	118.8324	27/05/2011
T113632	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG654'	epigean	Potential SRE: DD	W.A. Museum assessment	113.5 km NW. of Newman, Area C West - Yandi	-22.75693	118.8324	27/05/2011
T103176	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG683'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 83.9 km NW. of Newman	-22.89444	119.0767	29/06/2010
T113631	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG683'	epigean	Potential SRE: DD	W.A. Museum assessment	113.5 km NW. of Newman	-22.75695	118.8324	27/05/2011
T113635	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG683'	epigean	Potential SRE: DD	W.A. Museum assessment	113.5 km NW. of Newman	-22.75623	118.8313	27/05/2011
T113651	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan 'MYG683'	epigean	Potential SRE: DD	W.A. Museum assessment	113.5 km NW. of Newman	-22.77989	118.816	29/05/2011
T97036	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 11-11D	-22.92006	118.8941	14/06/2008
T103188	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 83.9 km NW. of Newman	-22.89444	119.0767	29/06/2010
T103211	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 83.9 km NW. of Newman	-22.89417	119.0767	29/06/2010
T97295	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 14-14A	-22.91558	118.9427	13/06/2008
T134979	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	25 km NE. of Moorimoordinina Native Well, Pilbara Biological Survey site RHNE09	-22.41556	119.9839	8/08/2003
T136014	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.62611	119.2803	6/09/2008
T131583	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 105 km NW. of Newman	-22.56214	119.1722	20/05/2013
T134985	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mulga Downs Stn, 6 km N. of Cowra Line Camp , Pilbara Biological Survey site RHNW06	-22.30178	119.0134	21/09/2003
T131599	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 121 km NW. of Newman	-22.51942	118.9693	23/05/2013
T131598	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 121 km NW. of Newman	-22.51942	118.9693	23/05/2013
T131592	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 107 km NW. of Newman	-22.54331	119.169	22/05/2013
T131581	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 105 km NW. of Newman	-22.5633	119.1718	20/05/2013
T134981	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hamersley Range, SE. of Mt Lockyer, Pilbara Biological Survey site RHNW02	-22.53583	118.9976	12/08/2003
T135136	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	14 km WSW. of Roy Hill Station, Pilbara Biological Survey site RHNE05	-22.67567	119.8406	19/11/2003
T126291	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	114.2 km NW. of Newman	-22.68722	118.8925	22/11/2011
T134984	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hamersley Range, 20.5 km WNW. of Mt Marsh, Pilbara Biological Survey site RHNW03	-22.46653	119.0226	13/08/2003
T131582	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 105 km NW. of Newman	-22.56211	119.1722	20/05/2013
T131590	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 107 km NW. of Newman	-22.54372	119.1684	22/05/2013
T134167	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi Billiards, 73.8 km NW. Newman	-22.83055	119.29	18/09/2014
T134163	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi Billiards, 78.5 km NW. Newman	-22.76667	119.3036	14/09/2014
T134160	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi Billiards, 78.5 km NW. Newman	-22.76667	119.3036	14/09/2014
T136486	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 115.7 km E. of Tom Price	-22.69298	118.9156	4/05/2012
T134159	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi Billiards, 73.2 km NW. Newman	-22.84778	119.275	13/09/2014
T134158	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi Billiards, 73.2 km NW. Newman	-22.84778	119.275	13/09/2014
T134157	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi Billiards, 73.2 km NW. Newman	-22.84778	119.275	13/09/2014
T140323	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	55.5 km S. of Auski Roadhouse	-22.89833	118.6728	17/05/2008
T131585	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 105 km NW. of Newman	-22.56197	119.1723	20/05/2013
T131595	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 107 km NW. of Newman	-22.54322	119.1687	22/05/2013
T131589	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 107 km NW. of Newman	-22.54369	119.1684	22/05/2013
T136556	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 80.6 km NE. of Tom Price	-22.24149	118.4002	28/10/2013
T127222	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	69.1 km NW. of Newman	-22.96861	119.1997	9/11/2011
T127234	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	74 km NW. of Newman	-23.02667	119.1058	8/11/2011
T131591	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 107 km NW. of Newman	-22.54331	119.169	22/05/2013
T135141	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hamersley Range, 20.5 km WNW. of Mt Marsh, Pilbara Biological Survey site RHNW03	-22.46653	119.0226	13/08/2003
T131594	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 107 km NW. of Newman	-22.54322	119.1687	22/05/2013
T131580	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 105 km NW. of Newman	-22.5633	119.1717	20/05/2013
T131596	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 107 km NW. of Newman	-22.54325	119.1688	22/05/2013

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T131597	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 121 km NW. of Newman	-22.51942	118.9693	23/05/2013
T136549	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 78 km NE. of Tom Price	-22.17813	118.3022	27/10/2013
T126275	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	114 km NW. of Newman	-22.61444	118.955	21/11/2011
T131588	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 107 km NW. of Newman	-22.54367	119.1684	22/05/2013
T132746	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi, 73.6 km NNW. Newman	-22.84417	119.2725	15/03/2014
T137563	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.60695	119.2386	30/06/2008
T137564	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.62611	119.2803	6/09/2008
T132665	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs, 73.3 km NW. of Newman	-23.02111	119.1144	14/09/2013
T137565	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.62667	119.2789	6/09/2008
T119997	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	76.3 km NW. of Newman	-22.74278	119.3933	29/07/2011
T135635	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, c. 1.5 km NE. of Visitor Centre	-22.4725	118.4753	18/03/2015
T137562	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.62667	119.2789	6/09/2008
T132744	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi, 80.5 km NNW. Newman	-22.74333	119.3083	13/03/2014
T132667	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs, 74 km NW. of Newman	-23.01333	119.1122	15/09/2013
T131578	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 105 km NW. of Newman	-22.56328	119.1717	20/05/2013
T120017	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	72.7 km NW. of Newman	-22.85028	119.2825	31/07/2011
T120016	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	72.7 km NW. of Newman	-22.85	119.2825	31/07/2011
T120013	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	72.7 km NW. of Newman	-22.85	119.2825	31/07/2011
T120010	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	76 km NW. of Newman	-22.79361	119.3103	31/07/2011
T120006	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	72.2 km NW. of Newman	-22.86917	119.2503	30/07/2011
T113589	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	South Parmelia, 52 km NW. of Newman	-23.08528	119.3181	16/04/2011
T135546	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, c. 7 km SSW. of Hancock Gorge	-22.41444	118.2475	15/03/2015
T132658	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs, 78.3 km NW. of Newman	-23.01972	119.0614	12/09/2013
T135634	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, c. 1.5 km NE. of Visitor Centre	-22.4725	118.4753	18/03/2015
T132664	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs, 73.3 km NW. of Newman	-23.02111	119.1147	14/09/2013
T132660	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs, 74.3 km NW. of Newman	-23.02889	119.0983	13/09/2013
T114612	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.13186	119.0964	21/05/2011
T132661	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs, 74.3 km NW. of Newman	-23.02889	119.0978	13/09/2013
T135545	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, c. 7 km SSW. of Hancock Gorge	-22.41444	118.2475	15/03/2015
T135542	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, c. 7 km SSW. of Hancock Gorge	-22.41444	118.2475	15/03/2015
T131579	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 105 km NW. of Newman	-22.56333	119.1718	20/05/2013
T114597	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	FMG Nyidinghu Project, c. 37 km NW. of Marillana Station homestead, site s11wt9	-22.37398	119.1948	10/05/2011
T113609	Arachnida	Araneae (spiders)	Araneae	Anamidae	Kwonkan sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Southern Flank, 71 km NW. of Newman	-22.99389	119.1664	17/04/2011
T44297	Arachnida	Araneae (spiders)	Araneae	Anamidae	Swolnpes 'MYG234'	epigean	Potential SRE: DD	W.A. Museum assessment	263 km SSW. of Port Hedland, site HDC3	-22.6	119.24	9/05/2001
T136444	Arachnida	Araneae (spiders)	Araneae	Anamidae	Swolnpes 'MYG234'	epigean	Potential SRE: DD	W.A. Museum assessment	FMG Nyidinghu Project, near Marillana Station, site s3wt2	-22.33562	119.1281	10/05/2011
T114056	Arachnida	Araneae (spiders)	Araneae	Anamidae	Swolnpes 'MYG234'	epigean	Potential SRE: DD	W.A. Museum assessment	FMG Nyidinghu Project, near Marillana Station, site s3wt2	-22.33562	119.1281	10/05/2011
T91918	Arachnida	Araneae (spiders)	Araneae	Anamidae	Teyl heuretes	epigean	Potential SRE: DD	W.A. Museum assessment	Hamersley Range, Weeli Wolli Creek region, Area C, site 09-9E	-22.92525	119.0377	15/06/2008
T113601	Arachnida	Araneae (spiders)	Araneae	Anamidae	Teyl heuretes	epigean	Potential SRE: DD	W.A. Museum assessment	Southern Flank, 72 km NW. of Newman	-23.00278	119.1389	14/04/2011
T115978	Arachnida	Araneae (spiders)	Araneae	Anamidae	Teyl heuretes	epigean	Potential SRE: DD	W.A. Museum assessment	Angelo River	-23.32678	118.7308	20/06/2011
T112357	Arachnida	Araneae (spiders)	Araneae	Anamidae	Teyl heuretes	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, ca. 73 km heading 291° from Newman	-23.12101	119.0632	20/05/2011
T112358	Arachnida	Araneae (spiders)	Araneae	Anamidae	Teyl sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Wonmunna, ca. 79 km heading 286° from Newman	-23.15466	118.9932	18/05/2011
T116756	Arachnida	Araneae (spiders)	Araneae	Anamidae	Teyl sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Mudlark, 111 km WNW. of Newman	-23.08694	118.6864	30/06/2011
T112356	Arachnida	Araneae (spiders)	Araneae	Anamidae	Teyl sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Wonmunna, ca. 72 km heading 290° from Newman	-23.12832	119.0736	19/05/2011
T116806	Arachnida	Araneae (spiders)	Araneae	Anamidae	Teyl sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Mudlark, 100 km W. of Newman	-23.06917	118.7911	2/07/2011
T112355	Arachnida	Araneae (spiders)	Araneae	Anamidae	Teyl sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Wonmunna, ca. 75 km heading 289° from Newman	-23.13551	119.0384	19/05/2011
T98476	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'chichester'	epigean	widespread	W.A. Museum assessment	Mulga Downs Station, ca. 33 km ENE. of Wittenoom, site BP08	-22.13973	118.6416	1/08/2009
T94609	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'chichester'	epigean	widespread	W.A. Museum assessment	Chichester Range, site 7A	-22.14797	119.0202	17/09/2007
T98479	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'chichester'	epigean	widespread	W.A. Museum assessment	Mulga Downs Station, ca. 33 km ENE. of Wittenoom, site Ref02	-22.17096	118.7605	1/08/2009
T98478	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'chichester'	epigean	widespread	W.A. Museum assessment	Mulga Downs Station, ca. 33 km ENE. of Wittenoom, site BP05	-22.16198	118.705	1/08/2009

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T93293	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'chichester'	epigean	widespread	W.A. Museum assessment	Chichester Range, ca. 20 km NE. of Mardie Downs Outcamp, opposite site 6A	-22.15217	119.0115	27/08/2008
T89290	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'chichester'	epigean	widespread	W.A. Museum assessment	Collier Range, NE. of Mingah Springs, BHP Billiton Area C	-22.91589	118.942611	12/04/2008
T128114	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'chichester'	epigean	widespread	W.A. Museum assessment	ca. 15 km NE. of Roy Hill	-22.53003	120.0354	18/04/2013
T149411	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'HD1'	epigean	Potential SRE: DD	W.A. Museum assessment	70.8 km NW. of Newman, site 1901-SRE3-T2-LS	-23.04168	119.1292	11/03/2019
T94604	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta katersi	epigean	widespread	W.A. Museum assessment	Chichester Range, site 6A	-22.14781	119.0189	17/09/2007
T94607	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta katersi	epigean	widespread	W.A. Museum assessment	Chichester Range, site 7A	-22.14797	119.0202	17/09/2007
T118339	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG057'	epigean	widespread	W.A. Museum assessment	Newman, ca. 120 km NW	-22.80639	118.8853	31/03/2012
T113641	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG246'	epigean	Potential SRE: DD	W.A. Museum assessment	113.5 km NW. of Newman	-22.75364	118.8337	28/05/2011
T113668	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG246'	epigean	Potential SRE: DD	W.A. Museum assessment	108.4 km NW. of Newman	-22.62583	119.0256	2/06/2011
T119730	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG246'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 114 km NW. of Newman	-22.65444	118.9167	10/05/2011
T119722	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG246'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 113 km NW. of Newman	-22.71889	118.8556	12/05/2011
T91896	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG315'	epigean	Potential SRE: DD	W.A. Museum assessment	10 km NE. of Newman, Ore-body 24, site 07-7C	-23.30795	119.8147	29/06/2008
T105894	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG315'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 97.6 km NW. of Newman	-23.01056	118.8603	18/08/2010
T93462	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG315'	epigean	Potential SRE: DD	W.A. Museum assessment	Hope Downs 4, ca. 30 km NW. of Newman, HD4-16, 20	-23.09138	119.1713	19/09/2008
T103910	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG315'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas, 98 km SE. of Tom Price	-23.14194	118.615	27/06/2010
T91895	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG315'	epigean	Potential SRE: DD	W.A. Museum assessment	10 km NE. of Newman, Ore-body 24, site 06-6B	-23.30383	119.8042	30/06/2008
T93465	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG315'	epigean	Potential SRE: DD	W.A. Museum assessment	Hope Downs 4, ca. 30 km NW. of Newman, HD4-3, 10	-23.15328	119.529	15/09/2008
T149466	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG315'	epigean	Potential SRE: DD	W.A. Museum assessment	82.5 km NW. of Newman	-23.04832	118.9978	14/03/2019
T116787	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG315'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 108 km W. of Newman	-23.0425	118.7289	2/07/2011
T116800	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG315'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 108 km W. of Newman	-23.03972	118.7658	2/07/2011
T107962	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG316'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri, 105.7 km NW. of Newman	-22.57611	119.1397	21/08/2010
T122331	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG316'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 96.7 km NW. of Newman	-22.63456	119.2017	6/02/2012
T103248	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta 'MYG317'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 74.9 km NW. of Newman	-22.91694	119.1917	23/06/2010
T92126	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta sp.	epigean	Potential SRE: DD	Genus known to contain SREs and or potential SREs	Hamersley Range, Weeli Wolli Creek area, BHP Billiton Area C, site 12-12J	-22.91667	118.9103	11/06/2008
T119724	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta sp.	epigean	Potential SRE: DD	Genus known to contain SREs and or potential SREs	Juna Downs Station, 114 km NW. of Newman	-22.70333	118.8733	12/05/2011
T130378	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta sp.	epigean	Potential SRE: DD	Genus known to contain SREs and or potential SREs	3 km SSW. of West Angelas Aerodrome	-23.15635	118.6901	18/03/2013
T119713	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta sp.	epigean	Potential SRE: DD	Genus known to contain SREs and or potential SREs	Juna Downs Station, 112 km NW. of Newman	-22.70889	118.8817	10/05/2011
T122866	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta sp.	epigean	Potential SRE: DD	Genus known to contain SREs and or potential SREs	118.6 km NW. of Newman	-22.88056	118.6867	1/04/2012
T131249	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta sp.	epigean	Potential SRE: DD	Genus known to contain SREs and or potential SREs	Orebody 25, ca. 5 km N. of Newman	-23.32588	119.7683	5/08/2013
T133997	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta sp.	epigean	Potential SRE: DD	Genus known to contain SREs and or potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.73447	118.9839	8/09/2014
T122089	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta sp.	epigean	Potential SRE: DD	Genus known to contain SREs and or potential SREs	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.54592	120.0301	20/02/2012
T114819	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Aurecocrypta sp.	epigean	Potential SRE: DD	Genus known to contain SREs and or potential SREs	Marillana, 94.8 km NW. of Newman	-22.63917	119.2122	14/06/2007
T135515	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae 'bark door bary'	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, 3.5 km NE. of Mt Bruce	-22.58028	118.1606	14/03/2015

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T135518	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae 'bark door bary'	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, 3.5 km NE. of Mt Bruce	-22.58028	118.1606	14/03/2015
T98160	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Roy Hill Station, Ecologia Project 1106	-22.45909	119.9023	23/05/2009
T135577	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, Hancock Gorge	-22.35917	118.2844	16/03/2015
T135507	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, near Rangers Station	-22.57139	118.3781	14/03/2015
T135516	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, c. 15 km SW. of Dales Gorge	-22.56583	118.4528	14/03/2015
T135145	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Mulga Downs Station, 16 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW07	-22.22172	119.0249	9/08/2003
T140239	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	South Flank, ca. 95 km NW. of Newman	-22.99531	119.0405	16/03/2016
T126318	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Mt Florance Station, 70 km NW. of Tom Price	-22.1575	118.1478	12/03/2012
T140240	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	South Flank, ca. 95 km NW. of Newman	-22.95822	118.9546	16/03/2016
T114809	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C West to Yandi, 110.6 km NW. of Newman	-22.74222	118.8803	28/05/2007
T135557	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, c. 8.6 km W. of Dales Gorge	-22.47583	118.4781	15/03/2015
T136723	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi Oxbow, 87.3 km NW. of Newman	-22.78361	119.1467	5/05/2015
T122333	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Marillana, 97.1 km NW. of Newman	-22.63417	119.2011	6/02/2012
T134986	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Mulga Downs Stn, 24.5 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW10	-22.13467	119.0242	27/08/2003
T113600	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Southern Flank, 72 km NW. of Newman	-23.00278	119.1389	14/04/2011
T136722	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi Oxbow, 87.3 km NW. of Newman	-22.78361	119.1467	5/05/2015
T136721	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi Oxbow, 86 km NW. of Newman	-22.78944	119.1542	2/05/2015
T134980	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Mulga Downs Stn, 6 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW06	-22.30178	119.0134	21/09/2003
T139668	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Barychelidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.80702	119.0779	31/03/2015
T97350	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Idiommata 'MYG111'	epigean	widespread	W.A. Museum assessment	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.10308	119.2918	24/04/2009
T97351	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Idiommata 'MYG111'	epigean	widespread	W.A. Museum assessment	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.09197	119.1877	23/04/2009
T118338	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Idiommata 'MYG111'	epigean	widespread	W.A. Museum assessment	Newman, ca. 120 km NW	-22.86472	118.8128	2/04/2012
T115949	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Idiommata 'MYG111'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 72 km heading 290° from Newman	-23.12832	119.0736	19/05/2011
T98157	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Idiommata 'MYG128'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Station, Ecologia Project 1106	-22.47936	119.9421	26/05/2009
T119723	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Idiommata 'MYG247'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 115 km NW. of Newman	-22.6975	118.8592	7/05/2011
T134131	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Idiommata 'MYG382'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mt McRae, Solomon mine lease	-22.14715	118.173	22/04/2014
T128635	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Idiommata 'MYG382'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 18 km N. of Wittenoom	-22.05	118.4041	20/05/2013
T134282	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Idiommata 'MYG382'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.14622	118.1726	22/04/2014
T134283	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Idiommata 'MYG382'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.14548	118.1725	22/04/2014
T105917	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Idiommata sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 89 km NW. of Newman	-22.95639	118.9833	1/05/2010
T92491	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele karara	epigean	widespread	W.A. Museum assessment	Chichester Range, site 25, 863_093e	-22.21917	118.9708	13/07/2008
T92490	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele karara	epigean	widespread	W.A. Museum assessment	Chichester Range, site 25, 863_197e	-22.31917	118.9708	13/07/2008
T92489	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele karara	epigean	widespread	W.A. Museum assessment	Chichester Range, site 23, 863_108e	-22.0566	118.9858	13/07/2008
T94610	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele karara	epigean	widespread	W.A. Museum assessment	Chichester Range, site 23	-22.05653	118.9859	10/06/2008
T113602	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG055'	epigean	potential SRE: DD	W.A. Museum assessment	Southern Flank, 72 km NW. of Newman	-23.00278	119.1389	14/04/2011
T113595	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG055'	epigean	potential SRE: DD	W.A. Museum assessment	Southern Flank, 72 km NW. of Newman	-23.00278	119.1394	14/04/2011
T107129	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.40839	119.0055	22/04/2010
T104803	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site17-P1	-23.4045	119.6247	12/03/2010
T105926	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Area C, 93.1 km NW. of Newman	-23	118.9131	1/05/2010
T104800	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site8-P7	-23.41525	119.5913	14/03/2010

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T104804	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site1-P6	-23.39449	119.6317	13/03/2010
T107131	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.50113	119.1042	22/04/2010
T107136	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.50981	119.1274	22/04/2010
T104792	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site10-P1	-23.4003	119.6524	12/03/2010
T107130	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.40839	119.0055	22/04/2010
T111972	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.365682	119.603136	23/03/2011
T105968	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Area C, 83.1 km NW. of Newman	-22.975	119.0378	1/05/2010
T105939	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Area C, 88.4 km NW. of Newman	-22.89889	119.0306	1/05/2010
T98477	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Mulga Downs Station, ca. 33 km ENE. of Wittenoom, site Ref03	-22.12245	118.5689	1/08/2009
T98154	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill Station, Ecologia Project 1106	-22.55656	119.9703	25/05/2009
T104812	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site6-P5	-23.40157	119.5747	12/03/2010
T111971	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.39665	119.7767	23/03/2011
T107137	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.47499	119.0555	22/04/2010
T98159	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill Station, Ecologia Project 1106	-22.49618	120.0104	24/05/2009
T102611	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill Station	-22.49673	120.0237	11/03/2010
T119732	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Juna Downs Station, 117 km NW. of Newman	-22.62889	118.9017	10/05/2011
T131222	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill Mine 1, ca. 90 km N. of Newman	-22.47892	119.9421	18/04/2013
T131221	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill Mine 1, ca. 90 km N. of Newman	-22.47892	119.9421	18/04/2013
T131220	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill Mine 1, ca. 90 km N. of Newman	-22.54303	119.9164	16/04/2013
T115833	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 80 km heading 285° from Newman	-23.16326	118.977	17/05/2011
T131211	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill Mine 1, ca. 90 km N. of Newman	-22.47892	119.9421	23/07/2013
T131219	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill Mine 1, ca. 90 km N. of Newman	-22.43064	119.8857	15/04/2013
T122083	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.47892	119.9421	6/02/2011
T115766	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.71103	119.014	14/05/2013
T115955	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.77458	119.1234	14/05/2013
T115954	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.77458	119.1234	14/05/2013
T112090	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Wonmunna	-23.13393	119.0476	23/05/2011
T125330	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Koodaideri Western Corridor, 136.5 km NW. of Newman	-22.40428	118.8823	31/03/2012
T115830	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 81 km heading 286° from Newman	-23.15965	118.9703	18/05/2011
T122081	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.43064	119.8857	9/02/2011
T112085	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 75 km [NW. of] heading 290° from Newman	-23.12012	119.0484	20/05/2011
T125305	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Koodaideri Western Corridor, 154.2 km NW. of Newman	-22.33589	118.7158	28/03/2012
T112080	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 78 km heading 286° from Newman	-23.1615	119.002	18/05/2011

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T115834	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 79 km heading 286° from Newman	-23.15466	118.9932	18/05/2011
T122084	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.57744	120.0255	8/02/2011
T122085	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.47892	119.9421	16/02/2012
T122086	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.52042	119.9121	18/02/2012
T122087	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.54592	120.0301	20/02/2012
T115831	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 78 km heading 288° from Newman	-23.14284	119.0099	18/05/2011
T115832	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 79 km heading 286° from Newman	-23.15929	118.9928	17/05/2011
T125319	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Koodaideri Western Corridor, 144.2 km NW. of Newman	-22.37994	118.82	30/03/2012
T130377	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	18 km E. of of West Angelas Aerodrome	-23.12279	118.8753	18/03/2013
T125306	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Koodaideri Western Corridor, 171.3 km NW. of Newman	-22.27861	118.5306	28/03/2012
T148924	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill Station, c. 36 km NW. of homestead, "Christmas Creek" mine, site XC17	-22.36714	119.7399	11/04/2011
T148928	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill Station, c. 28 km NNW. of homestead, "Christmas Creek" mine, site XC7	-22.38736	119.8569	9/04/2011
T122082	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG127'	epigean	widespread	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.54306	119.9162	5/02/2011
T103203	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	Area C, 85.7 km NW. of Newman	-22.94833	119.0247	27/06/2010
T122821	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	111.6 km NW. of Newman	-22.89139	118.7644	29/03/2012
T116867	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	Mudlark, 94 km W. of Newman	-23.07944	118.8581	6/07/2011
T113657	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	119.1 km NW. of Newman	-22.63371	118.8699	30/05/2011
T122871	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	118.6 km NW. of Newman	-22.88056	118.6867	1/04/2012
T122846	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	115.4 km NW. of Newman	-22.90861	118.7175	31/03/2012
T122850	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	117.2 km NW. of Newman	-22.89083	118.7069	1/04/2012
T122856	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	117.2 km NW. of Newman	-22.89056	118.7061	1/04/2012
T122858	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	118.6 km NW. of Newman	-22.88083	118.6872	1/04/2012
T122859	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	118.6 km NW. of Newman	-22.88083	118.6872	1/04/2012
T122860	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	118.6 km NW. of Newman	-22.88083	118.6872	1/04/2012
T122862	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	118.6 km NW. of Newman	-22.88083	118.6875	1/04/2012
T122864	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	118.6 km NW. of Newman	-22.88083	118.6869	1/04/2012
T122867	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	118.6 km NW. of Newman	-22.88056	118.6867	1/04/2012
T126249	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	118.2 km NW. of Newman	-22.60528	118.9192	17/11/2011
T122840	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	115.4 km NW. of Newman	-22.90917	118.7178	31/03/2012
T126252	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	118.2 km NW. of Newman	-22.60528	118.9192	19/11/2011
T122831	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	127.3 km NW. of Newman	-22.86028	118.6044	29/03/2012
T113663	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	117.6 km NW. of Newman	-22.62786	118.8963	31/05/2011
T122826	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	127.3 km NW. of Newman	-22.86028	118.6042	29/03/2012

T122833	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	127.3 km NW. of Newman	-22.86028	118.6044	29/03/2012
T122834	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	127.3 km NW. of Newman	-22.86028	118.6044	29/03/2012
T122837	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	125.9 km NW. of Newman	-22.88694	118.6106	29/03/2012
T122838	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	114.9 km NW. of Newman	-22.82556	118.7692	30/03/2012
T149467	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T122825	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG309'	epigean	widespread	W.A. Museum assessment	111.6 km NW. of Newman	-22.89194	118.7644	29/03/2012
T107392	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG311'	epigean	widespread	W.A. Museum assessment	Hope Downs, 78.8 km NW. of Newman	-22.97639	119.1336	26/06/2010
T97035	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG311'	epigean	widespread	W.A. Museum assessment	Jinayri, ca. 65 km NW. of Newman	-22.85278	119.2739	30/03/2009
T116798	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG311'	epigean	widespread	W.A. Museum assessment	Mudlark, 111 km W. of Newman	-23.08083	118.6844	2/07/2011
T122347	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG311'	epigean	widespread	W.A. Museum assessment	Area C West, 122.8 km NW. of Newman	-22.87856	118.6559	6/02/2012
T122835	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG311'	epigean	widespread	W.A. Museum assessment	127.6 km NW. of Newman	-22.88111	118.5956	29/03/2012
T149412	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG311'	epigean	widespread	W.A. Museum assessment	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T125351	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG311'	epigean	widespread	W.A. Museum assessment	Koodaideri Western Corridor, 204.2 km NW. of Newman	-22.15533	118.2247	2/04/2012
T116860	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG311'	epigean	widespread	W.A. Museum assessment	Mudlark, 121 km W. of Newman	-23.0825	118.5844	6/07/2011
T125341	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'MYG334'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri Western Corridor, 148.8 km NW. of Newman	-22.34914	118.765	1/04/2012
T104808	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Orebody 35, ca. 8 km W. of Newman, Site20-P8	-23.3952	119.5921	12/03/2010
T37823	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Mt Whaleback, site W.8	-23.3903	119.6513	6/08/1997
T104799	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Orebody 35, ca. 8 km W. of Newman, Site18-P9	-23.41776	119.585	14/03/2010
T104798	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Orebody 35, ca. 8 km W. of Newman, Site12-P5	-23.39936	119.5844	12/03/2010
T103197	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Area C, 86.4 km NW. of Newman	-22.94806	119.0158	27/06/2010
T103912	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	West Angelas, 98 km SE. of Tom Price	-23.14194	118.615	27/06/2010
T105885	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Area C, 103.6 km NW. of Newman	-22.98472	118.8078	17/08/2010
T105935	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T91915	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Hamersley Range, Weeli Wolli Creek region, Area C, site 12-12A	-22.91681	118.9105	11/06/2008
T101169	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Area C, 61.8 km NW. of Newman	-22.99889	118.8692	25/02/2010
T116861	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Mudlark, 121 km W. of Newman	-23.08139	118.5842	6/07/2011
T135470	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Karijini National Park, near Rangers Station	-22.58278	118.4589	12/03/2015
T116859	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Mudlark, 98 km W. of Newman	-23.04583	118.8314	4/07/2011
T116857	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Mudlark, 98 km W. of Newman	-23.04556	118.8314	4/07/2011
T116852	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Mudlark, 87 km WNW. of Newman	-23.08583	118.9294	4/07/2011
T122811	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	108.6 km NW. of Newman	-22.94278	118.7711	28/03/2012
T149468	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	84.1 km NW. of Newman	-23.07811	118.9678	14/03/2019
T116849	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Mudlark, 87 km WNW. of Newman	-23.08556	118.9289	4/07/2011
T116864	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Mudlark, 121 km W. of Newman	-23.08139	118.5836	6/07/2011
T122815	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	111.5 km NW. of Newman	-22.985	118.7203	28/03/2012
T116793	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Mudlark, 108 km W. of Newman	-23.0425	118.7289	2/07/2011
T127233	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	74 km NW. of Newman	-23.02639	119.1053	8/11/2011
T120975	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Chichester Range, site 11	-22.14833	119.0253	3/07/2008
T116765	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Mudlark, 112 km W. of Newman	-23.0325	118.6892	1/07/2011
T119705	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Juna Downs Station, 116 km NW. of Newman	-22.66028	118.9011	9/05/2011
T119704	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Juna Downs Station, 116 km NW. of Newman	-22.66	118.9011	9/05/2011
T136240	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Hillside Station, ca. 150 km SE. of Wodgina Mine	-21.88445	119.4253	23/05/2014
T118330	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Mulga Downs Station, Cowra, site 994-13	-22.22709	119.0137	16/04/2012
T113564	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Jinidi, 66 km NW. of Newman	-22.95528	119.2483	17/04/2011
T116790	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Mudlark, 108 km W. of Newman	-23.04278	118.7294	2/07/2011
T94611	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'sp. nov. 3'	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Chichester Range, site 21 (22)	-22.15161	119.0163	5/05/2008

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T115362	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'Weld Range'	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	June Downs Station @	-22.89778	118.6531	17/06/2008
T84008	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'xkarara'	epigean	widespread	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 29)	-22.3358	119.4242	26/09/2006
T84009	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'xkarara'	epigean	widespread	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 33)	-22.3352	119.4233	8/09/2006
T62548	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'xkarara'	epigean	widespread	W.A. Museum assessment	N. of Fortescue River, ca. 15 km NE. of Warrie Outcamp (40.2 km SW. of Roy Hill homestead), site FMC01	-22.3708	119.6819	4/07/2004
T97642	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'xkarara'	epigean	widespread	W.A. Museum assessment	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.11234	118.5209	19/04/2009
T84010	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'xkarara'	epigean	widespread	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 33)	-22.3352	119.4233	26/09/2006
T84011	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'xkarara'	epigean	widespread	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 34)	-22.3352	119.4197	26/09/2006
T84006	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'xkarara'	epigean	widespread	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 11)	-22.3275	119.3658	1/06/2006
T84007	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'xkarara'	epigean	widespread	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 25)	-22.335	119.4039	1/06/2006
T92465	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'xkarara'	epigean	widespread	W.A. Museum assessment	Jimblebar, 40 km ESE. of Newman	-23.3765	120.0295	26/08/2008
T97641	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'xkarara'	epigean	widespread	W.A. Museum assessment	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.12302	118.5128	20/04/2009
T149415	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'xkarara'	epigean	widespread	W.A. Museum assessment	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T146551	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'xkarara'	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, Hope Downs 1 mine, ca. 80.8 km NW. of Newman	-23.08369	118.9159	19/05/2018
T115357	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'xkarara'	epigean	widespread	W.A. Museum assessment	Juna Downs Station @	-22.88583	118.6883	29/07/2008
T149413	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'xkarara'	epigean	widespread	W.A. Museum assessment	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T149414	Arachnida	Araneae (spiders)	Araneae	Barychelidae	Synothele 'xkarara'	epigean	widespread	W.A. Museum assessment	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T84012	Arachnida	Araneae (spiders)	Araneae	Euagridae	Cethegus 'Cloudbreak sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 07)	-22.3213	119.3756	1/06/2006
T91711	Arachnida	Araneae (spiders)	Araneae	Euagridae	Cethegus 'MYG299'	epigean	Potential SRE: DD	W.A. Museum assessment	Hope Downs 4, ca. 100 km NW. of Newman, HD4-4	-23.14744	119.5191	12/05/2008
T91710	Arachnida	Araneae (spiders)	Araneae	Euagridae	Cethegus 'MYG299'	epigean	Potential SRE: DD	W.A. Museum assessment	Hope Downs 4, ca. 100 km NW. of Newman, HD4-6	-23.15436	119.5817	9/05/2008
T131084	Arachnida	Araneae (spiders)	Araneae	Euagridae	Cethegus 'MYG299'	epigean	Potential SRE: DD	W.A. Museum assessment	"Homestead", ca. 6 km N. of Newman	-23.30134	119.757	29/04/2013
T44354	Arachnida	Araneae (spiders)	Araneae	Euagridae	Cethegus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mt Whaleback, site W.8	-23.4	119.65	6/08/1997
T131243	Arachnida	Araneae (spiders)	Araneae	Euagridae	Cethegus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.29097	119.8613	5/08/2013
T131246	Arachnida	Araneae (spiders)	Araneae	Euagridae	Cethegus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.30134	119.757	5/08/2013
T131252	Arachnida	Araneae (spiders)	Araneae	Euagridae	Cethegus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.29284	119.8577	5/08/2013
T131247	Arachnida	Araneae (spiders)	Araneae	Euagridae	Cethegus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.30134	119.757	5/08/2013
T131245	Arachnida	Araneae (spiders)	Araneae	Euagridae	Cethegus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.30134	119.757	5/08/2013
T151329	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG716'	epigean	potential SRE: DD	W.A. Museum assessment	Mulga Downs Station, ca. 31 km NW. of Munjina	-22.15941	118.6797	16/03/2020
T77529	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas, 31.6 km SE. of Juna Downs Homestead, site WES	-23.085	118.7047	7/09/2005
T107397	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Hope Downs, 72.5 km NW. of Newman	-22.99556	119.1644	27/06/2010
T103917	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas, 106 km SE. of Tom Price	-23.14722	118.7075	28/06/2010
T103900	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas, 97 km SE. of Tom Price	-23.16444	118.5894	24/06/2010
T103901	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas, 97 km SE. of Tom Price	-23.16444	118.5886	24/06/2010
T103911	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas, 98 km SE. of Tom Price	-23.14194	118.615	27/06/2010
T103914	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas, 106 km SE. of Tom Price	-23.14722	118.7075	28/06/2010
T103916	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas, 106 km SE. of Tom Price	-23.14722	118.7075	28/06/2010
T94836	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.99003	119.2366	8/02/2009
T103930	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas, 106 km SE. of Tom Price	-23.14722	118.7075	28/06/2010
T107395	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Hope Downs, 72.5 km NW. of Newman	-22.99556	119.1644	27/06/2010
T105867	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 92.1 km NW. of Newman	-23.01056	118.9178	16/08/2010

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T103178	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 84 km NW. of Newman	-23.015	118.9883	28/06/2010
T103915	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas, 106 km SE. of Tom Price	-23.14722	118.7075	28/06/2010
T116841	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 102 km W. of Newman	-23.09028	118.8106	3/07/2011
T116826	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 102 km W. of Newman	-23.10583	118.7717	3/07/2011
T116829	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 102 km W. of Newman	-23.10611	118.7725	3/07/2011
T116838	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 102 km W. of Newman	-23.09	118.8111	3/07/2011
T116844	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 88 km WNW. of Newman	-23.03639	118.9469	4/07/2011
T113594	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Southern Flank, 72 km NW. of Newman	-23.00278	119.1394	14/04/2011
T116836	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 102 km W. of Newman	-23.1	118.775	3/07/2011
T116812	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 102 km W. of Newman	-23.09805	118.775	3/07/2011
T137340	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 111 km W. of Newman	-23.05222	118.6783	1/07/2011
T127216	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	75.4 km NW. of Newman	-23.01972	119.0903	3/11/2011
T137341	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 102 km W. of Newman	-23.10583	118.7717	3/07/2011
T116818	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 102 km W. of Newman	-23.09778	118.7747	3/07/2011
T116786	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 108 km W. of Newman	-23.0425	118.7289	2/07/2011
T116763	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 112 km W. of Newman	-23.0325	118.6892	1/07/2011
T113603	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Southern Flank, 71 km NW. of Newman	-22.99417	119.1642	16/04/2011
T137450	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas, 106 km SE. of Tom Price	-23.14722	118.7075	28/06/2010
T116762	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 112 km W. of Newman	-23.0325	118.6889	1/07/2011
T116779	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 111 km W. of Newman	-23.05222	118.6783	1/07/2011
T116781	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 111 km W. of Newman	-23.05222	118.6781	1/07/2011
T113569	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinidi, 65 km NW. of Newman	-22.98917	119.2311	15/04/2011
T127213	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	75.4 km NW. of Newman	-23.01972	119.0903	3/11/2011
T116792	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 108 km W. of Newman	-23.04306	118.7297	2/07/2011
T116802	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 108 km W. of Newman	-23.03944	118.7658	2/07/2011
T116803	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 108 km W. of Newman	-23.03944	118.7656	2/07/2011
T116778	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 111 km W. of Newman	-23.05222	118.6786	1/07/2011
T137337	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 111 km W. of Newman	-23.05222	118.6783	1/07/2011
T116823	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 102 km W. of Newman	-23.09972	118.7753	3/07/2011
T116822	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 102 km W. of Newman	-23.09917	118.7736	3/07/2011
T137096	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas, 106 km SE. of Tom Price	-23.14722	118.7075	28/06/2010
T137338	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 102 km W. of Newman	-23.10583	118.7717	3/07/2011
T113565	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG002'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinidi, 66 km NW. of Newman	-22.955	119.2483	17/04/2011

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T107403	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG279'	epigean	widespread	W.A. Museum assessment	Iron Valley, 5 km NE. of Yandicoogina mine; TDS6	-22.74389	119.3014	5/05/2010
T107187	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG279'	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.29344	119.0959	2/06/2010
T137097	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG279'	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.29344	119.0959	2/06/2010
T113615	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG279'	epigean	widespread	W.A. Museum assessment	107.8 km NW. of Newman	-22.6937	118.9608	26/05/2011
T122211	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG279'	epigean	widespread	W.A. Museum assessment	Koodaideri Corridor West, 94.7 NE. of Tom Price	-22.30031	118.6097	20/02/2012
T137442	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG279'	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.29344	119.0959	2/06/2010
T122366	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG281'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 92.6 km NW. of Newman	-23.04781	118.8849	6/02/2012
T122364	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG281'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 92.5 km NW. of Newman	-23.04781	118.885	6/02/2012
T122365	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG281'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 91.1 km NW. of Newman	-23.04781	118.8849	6/02/2012
T126269	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	118.3 km NW. of Newman	-22.61167	118.9081	18/11/2011
T113656	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	119.1 km NW. of Newman	-22.63372	118.8709	30/05/2011
T126290	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	114.2 km NW. of Newman	-22.68722	118.8925	22/11/2011
T126292	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	114.2 km NW. of Newman	-22.68722	118.8925	22/11/2011
T137334	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 113 km NW. of Newman	-22.68639	118.8931	10/05/2011
T126293	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	114.2 km NW. of Newman	-22.68722	118.8925	19/11/2011
T126299	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	113.8 km NW. of Newman	-22.70861	118.8806	22/11/2011
T137333	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	110.6 km NW. of Newman	-22.74147	118.8803	1/06/2011
T137332	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	119.1 km NW. of Newman	-22.63349	118.8708	30/05/2011
T113649	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	110.6 km NW. of Newman	-22.74144	118.8802	28/05/2011
T135643	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 14 km SW. of Dales Gorge, beside Visitor Centre Road	-22.545	118.4556	18/03/2015
T126255	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	118.2 km NW. of Newman	-22.60528	118.9192	19/11/2011
T113655	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	119.1 km NW. of Newman	-22.63349	118.8708	30/05/2011
T113664	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	117.6 km NW. of Newman	-22.62797	118.8963	31/05/2011
T113667	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	110.6 km NW. of Newman	-22.74147	118.8803	1/06/2011
T113658	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	119.1 km NW. of Newman	-22.63362	118.8696	30/05/2011
T119699	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 120 km NW. of Newman	-22.61083	118.8764	8/05/2011
T119701	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 120 km NW. of Newman	-22.61083	118.8764	8/05/2011
T119709	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 113 km NW. of Newman	-22.68639	118.8931	10/05/2011
T137335	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 117 km NW. of Newman	-22.62806	118.9031	11/05/2011
T137336	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 114 km NW. of Newman	-22.72583	118.8497	12/05/2011
T137449	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 113 km NW. of Newman	-22.68639	118.8931	10/05/2011
T119714	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 117 km NW. of Newman	-22.62806	118.9031	11/05/2011
T119719	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 114 km NW. of Newman	-22.72583	118.8497	12/05/2011

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T119720	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 114 km NW. of Newman	-22.72583	118.8497	12/05/2011
T137443	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	110.6 km NW. of Newman	-22.74147	118.8803	1/06/2011
T137444	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 114 km NW. of Newman	-22.72583	118.8497	12/05/2011
T137445	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 117 km NW. of Newman	-22.62806	118.9031	11/05/2011
T113659	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	119.1 km NW. of Newman	-22.63379	118.8695	30/05/2011
T137446	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	119.1 km NW. of Newman	-22.63349	118.8708	30/05/2011
T119712	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG282'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 112 km NW. of Newman	-22.70889	118.8817	10/05/2011
T103902	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG293'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas, 90 km SE. of Tom Price	-23.22167	118.4689	25/06/2010
T118334	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG293'	epigean	Potential SRE: DD	W.A. Museum assessment	69 km E. of Paraburdoo, site 1000-tur10	-23.25557	118.2624	2/05/2012
T137344	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG293'	epigean	Potential SRE: DD	W.A. Museum assessment	69 km E. of Paraburdoo, site 1000-tur10	-23.25557	118.2624	20/05/2012
T119991	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG333'	epigean	Potential SRE: DD	W.A. Museum assessment	102.1 km NW. of Newman	-22.54361	119.2511	28/07/2011
T119990	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG333'	epigean	Potential SRE: DD	W.A. Museum assessment	102.1 km NW. of Newman	-22.54361	119.2517	28/07/2011
T131086	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG385'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 25, ca. 5 km N. of Newman	-23.3288	119.7819	29/04/2013
T99598	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	Bellbird Siding to Juna Downs, 80.7 km E. of Tom Price	-22.87583	118.5553	7/05/2008
T103234	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 85.7 km NW. of Newman	-22.94833	119.0247	27/06/2010
T122874	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	104 km NW. of Newman	-22.96583	118.8011	2/04/2012
T122356	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West, 116.4 km NW. of Newman	-22.89739	118.7061	6/02/2012
T122863	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	118.6 km NW. of Newman	-22.88083	118.6872	1/04/2012
T122354	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West, 114.6 km NW. of Newman	-22.89736	118.7059	6/02/2012
T122855	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	117.2 km NW. of Newman	-22.89056	118.7061	1/04/2012
T122854	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	117.2 km NW. of Newman	-22.89056	118.7061	1/04/2012
T122357	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West, 115.6 km NW. of Newman	-22.8975	118.706	6/02/2012
T122847	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	104 km NW. of Newman	-22.96583	118.8011	31/03/2012
T122869	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	118.6 km NW. of Newman	-22.88028	118.6878	1/04/2012
T122830	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	127.3 km NW. of Newman	-22.86028	118.6042	29/03/2012
T122348	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West, 120 km NW. of Newman	-22.8785	118.6486	6/02/2012
T122848	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	115.4 km NW. of Newman	-22.90861	118.7175	31/03/2012
T122853	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	117.2 km NW. of Newman	-22.89056	118.7061	1/04/2012
T122844	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	115.4 km NW. of Newman	-22.90861	118.7175	31/03/2012
T122352	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West, 115.3 km NW. of Newman	-22.89753	118.7061	6/02/2012
T122852	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	117.2 km NW. of Newman	-22.89083	118.7069	1/04/2012
T122812	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	108.6 km NW. of Newman	-22.94306	118.7708	28/03/2012
T135564	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 4 km ENE. of Juna Downs homestead	-22.87194	118.5219	17/03/2015

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T122849	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG525'	epigean	Potential SRE: DD	W.A. Museum assessment	115.4 km NW. of Newman	-22.90861	118.7175	31/03/2012
T135607	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG526'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 11 km SW. of Hancock Gorge	-22.43056	118.3575	16/03/2015
T135605	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG526'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 11 km SW. of Hancock Gorge	-22.43056	118.3575	16/03/2015
T135606	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG526'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 11 km SW. of Hancock Gorge	-22.43056	118.3575	16/03/2015
T137448	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG527'	epigean	Potential SRE: DD	W.A. Museum assessment	South Parmelia, 52 km NW. of Newman	-23.08583	119.3183	16/04/2011
T137447	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG527'	epigean	Potential SRE: DD	W.A. Museum assessment	South Parmelia, 58 km NW. of Newman	-23.06194	119.2717	13/04/2011
T132610	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG527'	epigean	Potential SRE: DD	W.A. Museum assessment	South Parmelia, 58 km NW. of Newman	-23.06194	119.2717	13/04/2011
T113590	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG527'	epigean	Potential SRE: DD	W.A. Museum assessment	South Parmelia, 52 km NW. of Newman	-23.08583	119.3183	16/04/2011
T113580	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG527'	epigean	Potential SRE: DD	W.A. Museum assessment	South Parmelia, 58 km NW. of Newman	-23.06194	119.2717	13/04/2011
T137331	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG527'	epigean	Potential SRE: DD	W.A. Museum assessment	South Parmelia, 52 km NW. of Newman	-23.08583	119.3183	16/04/2011
T137100	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG527'	epigean	Potential SRE: DD	W.A. Museum assessment	South Parmelia, 58 km NW. of Newman	-23.06194	119.2717	13/04/2011
T107188	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG528'	epigean	Potential SRE: DD	W.A. Museum assessment	Fortescue Marsh	-22.40784	119.0054	2/06/2010
T137339	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG528'	epigean	Potential SRE: DD	W.A. Museum assessment	Fortescue Marsh	-22.40784	119.0054	2/06/2010
T125343	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG528'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri Western Corridor, 146.3 km NW. of Newman	-22.35797	118.8015	2/04/2012
T91916	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG533'	epigean	Potential SRE: DD	W.A. Museum assessment	Hamersley Range, Weeli Wolli Creek region, Area C, site 01-1C	-22.90972	118.9706	14/06/2008
T120005	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG534'	epigean	Potential SRE: DD	W.A. Museum assessment	72.2 km NW. of Newman	-22.86889	119.2508	30/07/2011
T119982	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG534'	epigean	Potential SRE: DD	W.A. Museum assessment	105.3 km NW. of Newman	-22.51194	119.2592	28/07/2011
T131214	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG537'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Mine 1, ca. 90 km N. of Newman	-22.54303	119.9164	16/04/2013
T131212	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG537'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Mine 1, ca. 90 km N. of Newman	-22.5051	119.9143	17/04/2013
T122090	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG537'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.47892	119.9421	16/02/2012
T122091	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG538'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.66133	119.9026	16/02/2012
T122092	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG538'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.58597	119.9423	17/02/2012
T131213	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG538'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill Mine 1, ca. 90 km N. of Newman	-22.58597	119.9423	16/04/2013
T126300	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG539'	epigean	Potential SRE: DD	W.A. Museum assessment	113.8 km NW. of Newman	-22.70861	118.8806	22/11/2011
T120025	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG539'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West to Yandi, 101 km NW. of Newman	-22.74861	118.9944	12/09/2011
T136807	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG558'	epigean	Potential SRE: DD	W.A. Museum assessment	Eastern Ridge, ~7 km N. of Newman	-23.2885	119.7382	13/05/2015
T136804	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG558'	epigean	Potential SRE: DD	W.A. Museum assessment	No Name Ridge ~10 km NW. of Newman	-23.28317	119.6582	13/05/2015
T136806	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG558'	epigean	Potential SRE: DD	W.A. Museum assessment	Mt Newman ~15 km NW. of Newman	-23.27197	119.5887	13/05/2015
T136805	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG575'	epigean	Potential SRE: DD	W.A. Museum assessment	Homestead ~5 km N. of Newman	-23.32019	119.7301	13/05/2015
T134983	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG608'	epigean	Potential SRE: DD	W.A. Museum assessment	Hamersley Range, SE. of Mt Lockyer, Pilbara Biological Survey site RHNW01	-22.53503	118.9774	11/08/2003
T135138	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG609'	epigean	Potential SRE: DD	W.A. Museum assessment	20 km WNW. of Bonney Downs Homestead, Pilbara Biological Survey site RHNE12	-22.08531	119.7035	8/08/2003
T135142	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele 'MYG610'	epigean	Potential SRE: DD	W.A. Museum assessment	1.8 km SSE. of Mulga Downs Outcamp, Pilbara Biological Survey site RHNW04	-22.33464	118.9887	13/08/2003
T107983	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Rhodes Ridge, 141.4 km of NNW. of Newman	-22.12444	119.3819	1/07/2010
T109483	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 100 km N. of Newman	-22.40808	119.0067	8/08/2011

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T109508	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	cloudbreak, Chichester Range, c. 49 km WSW. of Warrie Homestead	-22.31462	119.302	26/10/2010
T107274	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.00211	119.0128	12/05/2010
T77530	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 46.2 km ESE. of Juna Downs Homestead, site WES	-23.0688	118.89	9/09/2005
T109507	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Cloudbreak, Chichester Range, c. 42 km WSW. of Warrie Homestead	-22.33035	119.2322	26/10/2010
T124975	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	69 km E. of Paraburdoo, site 1000-tur10	-23.25557	118.2624	20/05/2012
T145369	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Fortescue Falls, Dales Gorge	-22.48333	118.55	29/07/1987
T145371	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Fortescue Falls, Dales Gorge	-22.48333	118.55	29/07/1987
T112339	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Wonmunna, ca. 75 km heading 289° from Newman	-23.13551	119.0384	19/05/2011
T112337	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Wonmunna, ca. 79 km heading 286° from Newman	-23.15929	118.9928	17/05/2011
T112338	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Wonmunna, ca. 77 km heading 289° from Newman	-23.13317	119.0154	23/05/2011
T135575	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, c. 11 km SW. of Hancock Gorge	-22.43056	118.3575	16/03/2015
T145372	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mt Barnett [sic. = Bennett] Station, Manning Creek	-22.96667	118.9	18/07/1987
T112231	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 100 km NW. of Newman, site 10	-22.5048	119.3733	17/05/2011
T127220	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	75.4 km NW. of Newman	-23.01972	119.0903	8/11/2011
T112232	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 100 km NW. of Newman, site 11	-22.6235	119.3247	18/05/2011
T131584	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 125 km NW. of Newman	-22.505	118.9387	20/05/2013
T120976	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range, S. slopes @	-22.15234	119.0068	25/08/2008
T118329	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mulga Downs Station, Cowra, site 994-13	-22.22709	119.0137	16/04/2012
T145364	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs	-22.88333	118.4833	29/07/1987
T122196	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Corridor West, 122.8 km NE. of Tom Price	-22.44291	118.9551	20/02/2012
T122228	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Corridor West, 69.6 km NE. of Tom Price	-22.15578	118.1349	20/02/2012
T112072	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	112 km NNE. of Newman	-22.38718	119.9664	26/03/2011
T112226	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 100 km NW. of Newman, site 10	-22.5048	119.3733	16/05/2011
T142417	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mulga Downs Station, 6 km N. of Cowra Line Camp, site RHNW6	-22.30178	119.0134	14/08/2003
T145370	Arachnida	Araneae (spiders)	Araneae	Halonoproctidae	Conothele sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Fortescue Falls, Dales Gorge	-22.48333	118.55	29/07/1987
T134982	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Bungulla bertmaini	epigean	widespread	{Rix, 2017 #41813}	1 km SSE. of Cowra Line Camp, site RHNW13	-22.36144	119.0068	28/08/2003
T135003	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Bungulla bertmaini	epigean	widespread	{Rix, 2017 #41813}	1.8 km SSE. of Mulga Downs Outcamp, site RHNW04	-22.33464	118.9887	13/08/2003
T131215	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops 'B04'	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Roy Hill Mine 1, ca. 90 km N. of Newman	-22.43064	119.8857	15/04/2013
T107972	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Koodaideri, 113.7 km NW. of Newman	-22.53639	119.0719	21/08/2010
T107185	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Fortescue Marsh	-22.48898	119.0858	2/06/2010
T102942	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Hamersley Ranges, 85 km E. of Auski Roadhouse	-22.73944	119.3134	1/05/2010
T101170	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Area C, 92.7 km NW. of Newman	-23.01778	118.9067	24/02/2001
T99599	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Bellbird Siding to Juna Downs, 80.7 km E. of Tom Price	-22.87583	118.5553	7/05/2008
T116832	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 102 km W. of Newman	-23.10639	118.7728	3/07/2011
T116770	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 113 km W. of Newman	-23.03806	118.6825	1/07/2011
T116830	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 102 km W. of Newman	-23.10611	118.7725	3/07/2011
T116808	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 110 km W. of Newman	-23.08444	118.6969	3/07/2011
T116796	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 111 km W. of Newman	-23.08083	118.6842	2/07/2011
T116828	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 102 km W. of Newman	-23.10583	118.7722	3/07/2011

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T116807	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 110 km W. of Newman	-23.08444	118.6969	3/07/2011
T116805	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 100 km W. of Newman	-23.06944	118.7911	2/07/2011
T116797	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 111 km W. of Newman	-23.08083	118.6842	2/07/2011
T116788	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 108 km W. of Newman	-23.0425	118.7289	2/07/2011
T116833	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 102 km W. of Newman	-23.10667	118.7733	3/07/2011
T116809	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 110 km W. of Newman	-23.08444	118.6972	3/07/2011
T116825	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 102 km W. of Newman	-23.10556	118.7722	3/07/2011
T116813	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 102 km W. of Newman	-23.09805	118.775	3/07/2011
T116848	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 89 km WNW. of Newman	-23.10056	118.9014	4/07/2011
T116757	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 94 km W. of Newman	-23.06333	118.625	1/07/2011
T116870	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 94 km W. of Newman	-23.07944	118.8581	6/07/2011
T116817	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 102 km W. of Newman	-23.09805	118.775	3/07/2011
T116831	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 102 km W. of Newman	-23.10611	118.7725	3/07/2011
T116747	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Eucyrtops sp.	epigean	widespread	= either Gaius or Bungulla in the Pilbara {Rix, 2017 #41813}	Mudlark, 107 km W. of Newman	-23.09389	118.7194	30/06/2011
T130120	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius 'MYG286'	epigean	widespread	{Rix, 2018 #41849} = G. tealei	SW Jimblebar, ca. 35 km E. of Newman	-23.41331	120.0447	15/02/2013
T112077	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius 'MYG286'	epigean	widespread	{Rix, 2018 #41849} = G. tealei	Wonmunna, ca. 81 km, heading 286° from Newman	-23.15965	118.9703	18/05/2011
T122350	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius 'MYG286'	epigean	widespread	{Rix, 2018 #41849} = G. tealei	Area C West, 116.2 km NW. of Newman	-22.89758	118.7061	6/02/2012
T112091	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius 'MYG286'	epigean	widespread	{Rix, 2018 #41849} = G. tealei	Wonmunna	-23.15023	119.009	23/05/2011
T115822	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius 'MYG286'	epigean	widespread	{Rix, 2018 #41849} = G. tealei	Wonmunna	-23.13495	119.0506	23/05/2011
T122351	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius 'MYG286'	epigean	widespread	{Rix, 2018 #41849} = G. tealei	Area C West, 116.6 km NW. of Newman	-22.89753	118.7061	6/02/2012
T112088	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius 'MYG286'	epigean	widespread	{Rix, 2018 #41849} = G. tealei	Wonmunna	-23.13495	119.0506	23/05/2011
T122355	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius 'MYG286'	epigean	widespread	{Rix, 2018 #41849} = G. tealei	Area C West, 115.3 km NW. of Newman	-22.89753	118.7061	6/02/2012
T77528	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius sp.	epigean	widespread	{Rix, 2018 #41849}	West Angelas, 31.6 km SE. of Juna Downs Homestead, Site WES	-23.085	118.7047	7/09/2005
T77527	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius sp.	epigean	widespread	{Rix, 2018 #41849}	West Angelas, 31.6 km SE. of Juna Downs Homestead, site WES	-23.085	118.7047	7/09/2005
T77525	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius sp.	epigean	widespread	{Rix, 2018 #41849}	West Angelas, 41 km SE. of Juna Downs Homestead, site WES	-23.1002	118.8092	15/09/2005
T146552	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius sp.	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Greater Hope Downs, Hope Downs 1 mine, ca. 81.4 km NW. of Newman	-23.07826	118.9955	25/05/2018
T115974	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius sp.	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Angelo River	-23.31587	118.7655	20/06/2011
T115972	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius sp.	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Angelo River	-23.30565	118.7881	20/06/2011
T103186	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Area C, 98 km NW. of Newman	-23.00833	118.8536	30/06/2010
T77532	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	West Angelas, 46.2 km ESE. of Juna Downs Homestead, site WES	-23.06889	118.89	9/09/2005
T91708	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Hope Downs 4, ca. 100 km NW. of Newman, HD4-8	-23.08656	119.3184	10/05/2008
T91709	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Hope Downs 4, ca. 100 km NW. of Newman, HD4-8	-23.08656	119.3184	12/05/2008
T77536	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	West Angelas, 41 km SE. of Juna Downs Homestead, site WES	-23.10028	118.8106	10/09/2005
T77543	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	West Angelas, 46.2 km ESE. of Juna Downs Homestead, site WES	-23.06889	118.89	9/09/2005
T105868	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Area C, 92.1 km NW. of Newman	-23.01028	118.9183	15/08/2010
T105870	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Area C, 92.1 km NW. of Newman	-23.01056	118.9186	16/08/2010
T105869	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Area C, 92.1 km NW. of Newman	-23.01028	118.9183	15/08/2010

T77535	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	West Angelas, 41 km SE. of Juna Downs Homestead, site WES	-23.10028	118.8106	10/09/2005
T77539	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	West Angelas, 31.6 km SE. of Juna Downs Homestead, site WES	-23.085	118.7047	7/09/2005
T93464	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Hope Downs 4, ca. 30 km NW. of Newman, HD4-11, 40	-23.10145	119.2918	24/09/2008
T77524	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	West Angelas, 31.6 km SE. of Juna Downs Homestead, site WES	-23.085	118.7047	7/09/2005
T77544	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	West Angelas, 46.2 km ESE. of Juna Downs Homestead, site WES	-23.06889	118.89	9/09/2005
T107183	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Fortescue Marsh	-22.30745	119.2407	2/06/2010
T103909	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	West Angelas, 113 km SE. of Tom Price	-23.31917	118.6669	27/06/2010
T93466	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Hope Downs 4, ca. 30 km NW. of Newman, HD4-11, 38-39	-23.10145	119.2918	24/09/2008
T77526	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	West Angelas, 31.6 km SE. of Juna Downs Homestead, site WES	-23.085	118.7047	7/09/2005
T97639	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.12469	118.5181	21/04/2009
T97640	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.12469	118.5181	21/04/2009
T27013	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Giles, ca. 55 km W. of Newman	-23.25	119.1667	23/12/1983
T122868	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	118.6 km NW. of Newman	-22.88028	118.6878	1/04/2012
T147930	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	ca. 77 km NW. of Newman	-23.06022	119.0458	30/06/2019
T149469	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T149470	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T122249	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Koodaideri Corridor West, 71.8 km NE. of Tom Price	-22.13608	118.136	20/02/2012
T125334	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Koodaideri Western Corridor, 185.3 km NW. of Newman	-22.23339	118.3965	31/03/2012
T122857	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	117.2 km NW. of Newman	-22.89056	118.7061	1/04/2012
T122240	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Koodaideri Corridor West, 72.4 km NE. of Tom Price	-22.13567	118.1362	20/02/2012
T122253	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Koodaideri Corridor West, 82.5 km NE. of Tom Price	-22.23244	118.4146	20/02/2012
T149471	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T122255	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Koodaideri Corridor West, 82.4 km NE. of Tom Price	-22.2325	118.4145	20/02/2012
T122819	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	111.6 km NW. of Newman	-22.89167	118.7639	29/03/2012
T149416	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	79.9 km NW. of Newman	-23.07775	119.0114	16/03/2019
T113592	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	South Parmelia, 52 km NW. of Newman	-23.08639	119.3186	16/04/2011
T122827	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	127.3 km NW. of Newman	-22.86028	118.6042	29/03/2012
T115829	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Wonmunna, ca. 73 km heading 291° from Newman	-23.11855	119.0649	20/05/2011
T122239	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Koodaideri Corridor West, 71.8 km NE. of Tom Price	-22.13564	118.1362	20/02/2012
T125345	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Koodaideri Western Corridor, 146.3 km NW. of Newman	-22.35797	118.8015	2/04/2012
T127197	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	81.5 km NW. of Newman	-23.02333	119.0208	6/11/2011
T116789	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Mudlark, 108 km W. of Newman	-23.0425	118.7292	2/07/2011
T125331	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Koodaideri Western Corridor, 185.6 km NW. of Newman	-22.23344	118.3958	31/03/2012

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T112089	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Wonmunna	-23.13393	119.0476	23/05/2011
T116772	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Mudlark, 113 km W. of Newman	-23.03806	118.6825	1/07/2011
T125333	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Koodaideri Western Corridor, 184.5 km NW. of Newman	-22.23336	118.3965	31/03/2012
T116766	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Mudlark, 112 km W. of Newman	-23.03778	118.6822	1/07/2011
T113577	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	South Parmelia, 52 km NW. of Newman	-23.08667	119.3186	12/04/2011
T149418	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	83.2 km NW. of Newman	-23.08254	118.9746	10/03/2019
T149417	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	88.2 km NW. of Newman	-23.06007	118.9316	9/03/2019
T116840	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Gaius tealei	epigean	widespread	only G. tealei known from the Pilbara {Rix, 2018 #41849}	Mudlark, 102 km W. of Newman	-23.09028	118.8106	3/07/2011
T103249	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 81.6 km NW. of Newman	-22.96611	119.0475	26/06/2010
T103254	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 84 km NW. of Newman	-23.01417	118.9886	25/06/2010
T105879	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 87.3 km NW. of Newman	-23.01111	118.9708	16/08/2010
T103261	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 84 km NW. of Newman	-23.01417	118.9886	25/06/2010
T103247	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 84.1 km NW. of Newman	-22.95444	119.0417	26/06/2010
T105896	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 97.6 km NW. of Newman	-23.01083	118.8608	18/08/2010
T103192	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 84 km NW. of Newman	-23.015	118.9883	28/06/2010
T105897	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 97.6 km NW. of Newman	-23.01083	118.8608	18/08/2010
T103184	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 84 km NW. of Newman	-23.015	118.9883	28/06/2010
T103273	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 84 km NW. of Newman	-23.01417	118.9886	25/06/2010
T105878	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 87.3 km NW. of Newman	-23.01111	118.9706	16/08/2010
T105857	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 96 km NW. of Newman	-23.01333	118.8753	14/08/2010
T136541	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 80.5 km NE. of Tom Price	-22.19498	118.3556	26/10/2013
T116545	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Marillana, 89.7 km NW. of Newman	-22.66222	119.29	17/06/2007
T116546	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Marillana, 89.7 km NW. of Newman	-22.66222	119.29	17/06/2007
T116547	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Marillana, 89.7 km NW. of Newman	-22.66222	119.29	17/06/2007
T116548	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Marillana, 89.7 km NW. of Newman	-22.66222	119.29	17/06/2007
T115973	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Angelo River	-23.27864	118.7535	23/06/2011
T135140	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	34 km NNW. of Cowra Line Camp, Pilbara Biological Survey site RHNW09	-22.06881	118.9787	26/08/2003
T135144	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	6 km N. of Cowra Line Camp, Mulga Downs Station, Pilbara Biological Survey site RHNW06	-22.30178	119.0133	21/11/2003
T135134	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	1.5 km W. of Giles point, Pilbara Biological Survey site RHNC04	-23.25094	119.1447	30/08/2003
T116764	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Mudlark, 112 km W. of Newman	-23.0325	118.6892	1/07/2011
T136519	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Koodaideri, 83 km NE. of Tom Price	-22.23635	118.4253	24/10/2013
T113559	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Jinidi, 65 km NW. of Newman	-22.98917	119.5375	14/04/2011
T113560	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Jinidi, 68 km NW. of Newman	-22.94806	119.2333	15/04/2011
T113616	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	117.3 km NW. of Newman	-22.62846	118.9024	25/05/2011
T135135	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	14 km WSW. of Roy Hill Station, Pilbara Biological Survey site RHNE05	-22.67567	119.8406	19/11/2003
T134290	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'B02'	epigean	potential SRE: DD	Genus contains SREs and potential SREs	ca. 40 km E. of Mount McRae, Solomon Mine	-22.14622	118.1726	22/04/2014
T134289	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'B02'	epigean	potential SRE: DD	Genus contains SREs and potential SREs	ca. 40 km E. of Mount McRae, Solomon Mine	-22.08413	118.227	22/04/2014
T134288	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'B02'	epigean	potential SRE: DD	Genus contains SREs and potential SREs	ca. 40 km E. of Mount McRae, Solomon Mine	-22.08413	118.227	22/04/2014
T84013	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'Cloudbreak sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 18)	-22.3097	119.3447	26/09/2006
T96999	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	5.5 km NE. of Giles Point, Pilbara Biological Survey site RHNC05B	-23.21356	119.2024	30/08/2003
T91910	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Hamersley Range, Weeli Wolli Creek region, Area C, site 09-9D	-22.92525	119.0377	15/06/2008
T91909	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Hamersley Range, Weeli Wolli Creek region, Area C, site 09-9B	-22.92525	119.0377	12/06/2008
T114052	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	FMG Nyidinghu Project, near Marillana Station, site s1wt7	-22.31791	119.1156	10/05/2011
T114047	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	FMG Nyidinghu Project, near Marillana Station, site s3wt4	-22.33602	119.1277	10/05/2011
T114048	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	FMG Nyidinghu Project, near Marillana Station, site s3wt3	-22.3358	119.1279	10/05/2011
T115828	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 77 km heading 288° from Newman	-23.13937	119.0182	19/05/2011

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T115823	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 77 km heading 288° from Newman	-23.13937	119.0182	19/05/2011
T115827	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 79 km heading 286° from Newman	-23.15929	118.9928	17/05/2011
T114050	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	FMG Nyidinghu Project, near Marillana Station, site s3wt2	-22.33562	119.1281	10/05/2011
T114053	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	FMG Nyidinghu Project, near Marillana Station, site s1wt17	-22.3167	119.1135	10/05/2011
T112078	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 79 km heading 286° from Newman	-23.159208	118.992805	17/05/2011
T114051	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	FMG Nyidinghu Project, near Marillana Station, site s1wt18	-22.3167	119.1135	10/05/2011
T114049	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	FMG Nyidinghu Project, near Marillana Station, site s2wt9	-22.31863	119.1155	10/05/2011
T112086	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 79 km [NW. of] heading 286° from Newman	-23.15929	118.9928	17/05/2011
T112235	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Marillana, 100 km NW. of Newman, site 10	-22.5048	119.3733	20/05/2011
T112460	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 72 km heading 290° from Newman	-23.12832	119.0736	19/05/2011
T112234	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Marillana, 100 km NW. of Newman, site 1	-22.53547	119.1966	19/05/2011
T115825	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 72 km heading 290° from Newman	-23.13091	119.0689	19/05/2011
T112079	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 79 km heading 286° from Newman	-23.15929	118.9928	17/05/2011
T115826	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 80 km heading 285° from Newman	-23.16326	118.977	17/05/2011
T128636	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	ca. 18 km N. of Wittenoom	-22.08333	118.3713	20/05/2013
T115824	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 77 km heading 290° from Newman	-23.11423	119.0229	23/05/2011
T112075	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 80 km heading 285° from Newman	-23.16326	118.977	17/05/2011
T112083	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG083'	epigean	widespread	W.A. Museum assessment	Wonmunna, ca. 72 km heading 290° from Newman	-23.12832	119.0736	19/05/2011
T98158	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG085'	epigean	widespread	W.A. Museum assessment	Roy Hill Station, Ecologia Project 1106	-22.45477	119.8709	27/05/2009
T98153	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG085'	epigean	widespread	W.A. Museum assessment	Roy Hill Station, Ecologia Project 1106	-22.55656	119.9703	25/05/2009
T98156	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG085'	epigean	widespread	W.A. Museum assessment	Roy Hill Station, Ecologia Project 1106	-22.55916	119.9424	26/05/2009
T98151	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG085'	epigean	widespread	W.A. Museum assessment	Roy Hill Station, Ecologia Project 1106	-22.57691	119.9952	25/05/2009
T112228	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG085'	epigean	widespread	W.A. Museum assessment	Marillana, 100 km NW. of Newman, site 11	-22.53386	119.197	13/05/2011
T112236	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG085'	epigean	widespread	W.A. Museum assessment	Marillana, 100 km NW. of Newman, site 11	-22.62322	119.3212	15/05/2011
T112230	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG085'	epigean	widespread	W.A. Museum assessment	Marillana, 100 km NW. of Newman, site 10	-22.50453	119.3733	14/05/2011
T112227	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG085'	epigean	widespread	W.A. Museum assessment	Marillana, 100 km NW. of Newman, site 2	-22.53067	119.1909	12/05/2011
T112229	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG085'	epigean	widespread	W.A. Museum assessment	Marillana, 100 km NW. of Newman, site 11	-22.62458	119.3251	11/05/2011
T134284	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG085'	epigean	widespread	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.14715	118.173	22/04/2014
T97001	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG086'	epigean	Potential SRE: DD	W.A. Museum assessment	6 km SW. of Roy Hill Station, Pilbara Biological Survey site RHNE06	-22.66105	119.9187	9/08/2003
T114601	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG086'	epigean	Potential SRE: DD	W.A. Museum assessment	IOH, Iron Valley Project, near Marillana Station, site rios2d11	-22.4346	119.1956	10/05/2011
T114603	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG086'	epigean	Potential SRE: DD	W.A. Museum assessment	IOH, Iron Valley Project, near Marillana Station, site iohs1d6	-22.44372	119.1838	10/05/2011
T114604	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG086'	epigean	Potential SRE: DD	W.A. Museum assessment	IOH, Iron Valley Project, near Marillana Station, site iohs1d12	-22.44398	119.1833	10/05/2011
T114605	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG086'	epigean	Potential SRE: DD	W.A. Museum assessment	IOH, Iron Valley Project, near Marillana Station, site iohs1d5	-22.44384	119.1839	10/05/2011
T114602	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG086'	epigean	Potential SRE: DD	W.A. Museum assessment	IOH, Iron Valley Project, near Marillana Station, site rios2	-22.43389	119.1958	10/05/2011
T131210	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG126'	epigean	widespread	W.A. Museum assessment	Roy Hill Mine 1, ca. 90 km N. of Newman	-22.51743	119.9314	29/05/2013
T131209	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG126'	epigean	widespread	W.A. Museum assessment	Roy Hill Mine 1, ca. 90 km N. of Newman	-22.52247	119.9186	17/04/2013
T122088	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG126'	epigean	widespread	W.A. Museum assessment	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.47156	119.8655	8/02/2011
T131208	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG126'	epigean	widespread	W.A. Museum assessment	Roy Hill Mine 1, ca. 90 km N. of Newman	-22.46875	119.8648	18/04/2013
T110590	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG233'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 100 km NW. of Newman, site 1	-22.53553	119.1998	19/05/2011
T114055	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG233'	epigean	Potential SRE: DD	W.A. Museum assessment	FMG Nyidinghu Project, near Marillana Station, site s3wt2	-22.33562	119.1281	10/05/2011
T114054	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG233'	epigean	Potential SRE: DD	W.A. Museum assessment	FMG Nyidinghu Project, near Marillana Station, site s12d	-22.35057	119.1847	10/05/2011
T125346	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG300'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri Western Corridor, 148.9 km NW. of Newman	-22.35108	118.7659	2/04/2012

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T125338	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG300'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri Western Corridor, 155.1 km NW. of Newman	-22.32036	118.7225	1/04/2012
T122214	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG300'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri Corridor West, 88.1 km NE. of Tom Price	-22.26547	118.5205	20/02/2012
T122206	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG300'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri Corridor West, 93.3 km NE. of Tom Price	-22.32839	118.6116	20/02/2012
T119983	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG300'	epigean	Potential SRE: DD	W.A. Museum assessment	105.3 km NW. of Newman	-22.51194	119.2592	28/07/2011
T125337	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG300'	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri Western Corridor, 153.8 km NW. of Newman	-22.32067	118.7225	1/04/2012
T122349	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG303'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West, 121.1 km NW. of Newman	-22.87844	118.6484	6/02/2012
T122836	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG303'	epigean	Potential SRE: DD	W.A. Museum assessment	127.6 km NW. of Newman	-22.88111	118.5956	29/03/2012
T122851	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG303'	epigean	Potential SRE: DD	W.A. Museum assessment	117.2 km NW. of Newman	-22.89056	118.7061	1/04/2012
T122845	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG303'	epigean	Potential SRE: DD	W.A. Museum assessment	115.4 km NW. of Newman	-22.90861	118.7175	31/03/2012
T126265	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG305'	epigean	Potential SRE: DD	W.A. Museum assessment	118.3 km NW. of Newman	-22.61111	118.9072	18/11/2011
T119735	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG305'	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 116 km NW. of Newman	-22.605	118.9256	7/05/2011
T103905	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG306'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas, 114 km SE. of Tom Price	-23.32139	118.6744	26/06/2010
T116774	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG306'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 113 km W. of Newman	-23.03806	118.6828	1/07/2011
T122813	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG306'	epigean	Potential SRE: DD	W.A. Museum assessment	108.6 km NW. of Newman	-22.94278	118.7706	28/03/2012
T113610	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG384'	epigean	Potential SRE: DD	W.A. Museum assessment	Southern Flank, 71 km NW. of Newman	-22.99417	119.1664	17/04/2011
T113606	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG384'	epigean	Potential SRE: DD	W.A. Museum assessment	Southern Flank, 71 km NW. of Newman	-22.99417	119.1633	16/04/2011
T113604	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG384'	epigean	Potential SRE: DD	W.A. Museum assessment	Southern Flank, 71 km NW. of Newman	-22.99389	119.1642	16/04/2011
T113605	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG384'	epigean	Potential SRE: DD	W.A. Museum assessment	Southern Flank, 71 km NW. of Newman	-22.99417	119.1636	16/04/2011
T119971	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG384'	epigean	Potential SRE: DD	W.A. Museum assessment	84.8 km NW. of Newman	-22.66861	119.375	27/07/2011
T113572	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG384'	epigean	Potential SRE: DD	W.A. Museum assessment	South Parmelia, 66 km NW. of Newman	-23.03472	119.1819	12/04/2011
T119981	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG384'	epigean	Potential SRE: DD	W.A. Museum assessment	100.9 km NW. of Newman	-22.5425	119.2886	27/07/2011
T116865	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG384'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 94 km W. of Newman	-23.08111	118.8578	6/07/2011
T119994	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG384'	epigean	Potential SRE: DD	W.A. Museum assessment	81.2 km NW. of Newman	-22.70028	119.3778	29/07/2011
T119986	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG384'	epigean	Potential SRE: DD	W.A. Museum assessment	105.3 km NW. of Newman	-22.51167	119.2594	28/07/2011
T119985	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG384'	epigean	Potential SRE: DD	W.A. Museum assessment	105.3 km NW. of Newman	-22.51167	119.2592	28/07/2011
T120007	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma 'MYG384'	epigean	Potential SRE: DD	W.A. Museum assessment	76 km NW. of Newman	-22.79333	119.3094	31/07/2011
T77542	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 46.2 km ESE. of Juna Downs Homestead, site WES	-23.0688	118.89	9/09/2005
T77541	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 31.6 km SE. of Juna Downs Homestead, site WES	-23.085	118.7047	7/09/2005
T93554	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.98925	119.2363	29/08/2008
T62547	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Weeli Wolli Creek, ca. 17 km SW. of Marillana (65 km SW. of Roy Hill Homestead), site FMG08	-22.7716	119.3669	13/07/2004
T38490	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	10.5 km N. of West Angela Hill	-23.0277	118.6869	1/06/1998
T98155	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Ecologia Project 1106	-22.55656	119.9703	25/05/2009
T107404	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; TDS8	-22.74446	119.3097	5/05/2010
T78149	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Port Hedland-Newman Railway, Chichester Rge, Fortescue Metals Group, site FMG10	-22.7261	119.3953	31/03/2004
T77531	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 46.2 km ESE. of Juna Downs Homestead, site WES	-23.0688	118.89	9/09/2005
T107402	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; TDS7	-22.74474	119.31	5/05/2010
T101168	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 98.2 km NW. of Newman	-23.00778	118.8533	21/02/2010
T107381	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; TDS10	-22.76391	119.3006	5/05/2010
T107380	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; TDS11	-22.76335	119.2989	5/05/2010
T107377	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; TDS4	-22.74472	119.3097	5/05/2010
T107405	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; TDS9	-22.76334	119.3	5/05/2010
T103265	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 84 km NW. of Newman	-23.01861	118.9989	25/06/2010
T105866	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 92.1 km NW. of Newman	-23.01083	118.9175	16/08/2010
T105865	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 92.1 km NW. of Newman	-23.01056	118.9183	15/08/2010
T105864	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 92.1 km NW. of Newman	-23.01056	118.9183	15/08/2010
T105863	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 92.1 km NW. of Newman	-23.01028	118.9183	15/08/2010
T103258	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 84 km NW. of Newman	-23.01805	118.9983	25/06/2010
T105895	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 97.6 km NW. of Newman	-23.01056	118.8603	18/08/2010
T77553	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 46.2 km ESE. of Juna Downs Homestead, site WES	-23.0688	118.89	9/09/2005
T109480	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 100 km N. of Newman	-22.08855	119.2913	8/08/2011

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T77546	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 46.2 km ESE. of Juna Downs Homestead, site WES	-23.0688	118.89	9/09/2005
T93463	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs 4, ca. 30 km NW. of Newman, HD4-14B, 27	-23.09253	119.2059	21/09/2008
T105850	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 96 km NW. of Newman	-23.01306	118.8753	14/08/2010
T103189	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 84 km NW. of Newman	-23.015	118.9883	28/06/2010
T103187	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 98 km NW. of Newman	-23.00833	118.8536	30/06/2010
T103269	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 84 km NW. of Newman	-23.01417	118.9886	25/06/2010
T77545	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 46.2 km ESE. of Juna Downs Homestead, site WES	-23.0688	118.89	9/09/2005
T103272	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 84 km NW. of Newman	-23.01861	118.9989	25/06/2010
T103181	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 98 km NW. of Newman	-23.00833	118.8536	30/06/2010
T105876	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 92.1 km NW. of Newman	-23.01056	118.9178	16/08/2010
T77547	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 31.6 km SE. of Juna Downs Homestead, site WES	-23.085	118.7047	7/09/2005
T77534	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 41 km SE. of Juna Downs Homestead, site WES	-23.1002	118.8106	10/09/2005
T103257	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 84 km NW. of Newman	-23.01805	118.9983	25/06/2010
T77537	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 31.6 km SE. of Juna Downs Homestead, site WES	-23.085	118.7047	7/09/2005
T107186	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Fortescue Marsh	-22.30777	119.1282	2/06/2010
T97352	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.09086	119.1998	25/04/2009
T77533	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 41 km SE. of Juna Downs Homestead, site WES	-23.1002	118.8106	10/09/2005
T77538	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 31.6 km SE. of Juna Downs Homestead, site WES	-23.085	118.7047	7/09/2005
T77540	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 31.6 km SE. of Juna Downs Homestead, site WES	-23.085	118.7047	7/09/2005
T122842	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	115.4 km NW. of Newman	-22.90861	118.7175	31/03/2012
T122841	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	115.4 km NW. of Newman	-22.90861	118.7175	31/03/2012
T113607	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Southern Flank, 71 km NW. of Newman	-22.99417	119.1667	17/04/2011
T115963	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 100 km N. of Newman	-22.265	119.0252	8/08/2011
T136725	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi Oxbow, 86.9 km NW. of Newman	-22.78778	119.1456	1/05/2015
T127210	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	78.2 km NW. of Newman	-23.02056	119.0603	4/11/2011
T125352	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Western Corridor, 204.1 km NW. of Newman	-22.1552	118.225	2/04/2012
T113613	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Southern Flank, 71 km NW. of Newman	-22.99444	119.1656	17/04/2011
T125354	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Western Corridor, 103.5 km NW. of Newman	-22.15664	118.2265	2/04/2012
T136724	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi Oxbow, 86.9 km NW. of Newman	-22.78778	119.1461	1/05/2015
T113573	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	South Parmelia, 66 km NW. of Newman	-23.03472	119.1817	12/04/2011
T116851	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 87 km WNW. of Newman	-23.08556	118.9289	4/07/2011
T113611	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Southern Flank, 71 km NW. of Newman	-22.99389	119.1664	17/04/2011
T127209	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	78.2 km NW. of Newman	-23.02056	119.0603	4/11/2011
T127196	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	81.5 km NW. of Newman	-23.02333	119.0208	6/11/2011
T125320	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Western Corridor, 208.2 km NW. of Newman	-22.148	118.1735	30/03/2012
T114594	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	FMG Nyidinghu Project, near Marillana Station, site s13d	-22.39125	119.224	10/05/2011
T122338	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 92.3 km NW. of Newman	-22.61714	119.3161	6/02/2012
T122337	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 92.4 km NW. of Newman	-22.61708	119.316	6/02/2012
T122336	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 95.2 km NW. of Newman	-22.60103	119.2841	6/02/2012
T122335	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 95.2 km NW. of Newman	-22.60086	119.284	6/02/2012
T114595	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	FMG Nyidinghu Project, near Marillana Station, site s12c	-22.34237	119.1718	10/05/2011
T128637	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	ca. 18 km N. of Wittenoom	-22.08333	118.4099	20/05/2013
T116845	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 88 km WNW. of Newman	-23.03583	118.9467	4/07/2011
T116821	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 102 km W. of Newman	-23.0975	118.7744	3/07/2011
T116824	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 102 km W. of Newman	-23.10556	118.7722	3/07/2011
T122828	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	127.3 km NW. of Newman	-22.86083	118.6039	29/03/2012
T122829	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	127.3 km NW. of Newman	-22.86083	118.6039	29/03/2012
T136726	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi Oxbow, 86 km NW. of Newman	-22.78944	119.1544	2/05/2015
T113567	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinidi, 65 km NW. of Newman	-22.98917	119.2311	15/04/2011
T113568	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinidi, 65 km NW. of Newman	-22.98917	119.2311	15/04/2011
T125344	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Western Corridor, 146.3 km NW. of Newman	-22.35797	118.8015	2/04/2012

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T122816	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	111.6 km NW. of Newman	-22.89139	118.7644	29/03/2012
T114606	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	IOH, Iron Valley Project, near Marillana Station, site rios2	-22.44389	119.1958	10/05/2011
T125332	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Western Corridor, 185.6 km NW. of Newman	-22.23367	118.3964	31/03/2012
T118794	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 122.1 km NW. of Newman	-22.47528	119.0164	14/10/2011
T136496	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 124.3 km ENE. of Tom Price	-22.43424	118.9657	7/05/2012
T116854	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 87 km WNW. of Newman	-23.08583	118.9292	4/07/2011
T113571	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	South Parmelia, 66 km NW. of Newman	-23.03472	119.1819	12/04/2011
T116815	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 102 km W. of Newman	-23.09805	118.775	3/07/2011
T116754	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 111 km WNW. of Newman	-23.08694	118.6864	30/06/2011
T127214	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	75.4 km NW. of Newman	-23.01972	119.0903	3/11/2011
T116799	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 108 km W. of Newman	-23.03944	118.7658	2/07/2011
T116777	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 113 km W. of Newman	-23.03806	118.6828	1/07/2011
T116801	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 108 km W. of Newman	-23.03944	118.7658	2/07/2011
T119978	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	94.4 km NW. of Newman	-22.6075	119.2922	27/07/2011
T112074	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	112 km NNE. of Newman	-22.36219	119.9691	23/03/2011
T120009	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	76 km NW. of Newman	-22.79361	119.3094	31/07/2011
T120008	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	76 km NW. of Newman	-22.79333	119.3094	31/07/2011
T116782	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 111 km W. of Newman	-23.05194	118.6783	1/07/2011
T116791	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 108 km W. of Newman	-23.04278	118.7294	2/07/2011
T118331	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mulga Downs Station, Cowra, site 994-13	-22.22709	119.0137	16/04/2012
T116784	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 111 km W. of Newman	-23.05194	118.6783	1/07/2011
T119989	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	102.1 km NW. of Newman	-22.54361	119.2517	28/07/2011
T126319	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mt Florance Station, 70 km NW. of Tom Price	-22.1575	118.1478	12/03/2012
T126321	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mt Florance Station, 72 km NW. of Tom Price	-22.14806	118.1736	12/03/2012
T119967	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	84.8 km NW. of Newman	-22.66833	119.375	27/07/2011
T115965	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 100 km N. of Newman	-22.60131	119.2913	8/08/2011
T132742	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi, 80.5 km NNW. Newman	-22.74333	119.3086	13/03/2014
T116752	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 111 km WNW. of Newman	-23.08667	118.6864	30/06/2011
T132741	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi, 80.5 km NNW. Newman	-22.74333	119.3086	13/03/2014
T116804	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 108 km W. of Newman	-23.03944	118.7656	2/07/2011
T115977	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Angelo River	-23.30565	118.7881	20/06/2011
T127212	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	75.4 km NW. of Newman	-23.01972	119.0903	3/11/2011
T132743	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi, 80.5 km NNW. Newman	-22.74306	119.3086	13/03/2014
T119992	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	102.1 km NW. of Newman	-22.54361	119.2508	28/07/2011
T114057	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	FMG Nyidinghu Project, near Marillana Station, site s13c	-22.399	119.2144	10/05/2011
T115964	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 100 km N. of Newman	-22.62858	119.3485	8/08/2011
T116869	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 94 km W. of Newman	-23.07972	118.8583	6/07/2011
T116745	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 107 km W. of Newman	-23.09417	118.7194	30/06/2011
T131586	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 107 km NW. of Newman	-22.54339	119.1678	22/05/2013
T116748	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 94 km W. of Newman	-23.09139	118.67	30/06/2011
T116749	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 94 km W. of Newman	-23.09139	118.67	30/06/2011
T122818	Arachnida	Araneae (spiders)	Araneae	Idiopidae	Idiosoma sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	111.6 km NW. of Newman	-22.89167	118.7639	29/03/2012
T145733	Arachnida	Araneae (spiders)	Araneae	Oonopidae	Pelicinus sp.	epigean	Potential SRE: DD		Koodaideri, c. 107 km NW. of Newman	-22.57367	119.1232	3/02/2014
T131510	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA003'	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28 km ENE. of Newman	-23.32522	120.0243	27/08/2013
T131509	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA003'	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28 km ENE. of Newman	-23.31909	120.0262	27/08/2013
T131513	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA003'	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28 km ENE. of Newman	-23.32106	120.0426	27/08/2013
T131492	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA003'	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28 km ENE. of Newman	-23.32247	119.9894	27/08/2013
T131491	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA003'	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28 km ENE. of Newman	-23.32469	120.012	27/08/2013
T130971	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA003'	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28 km ENE. of Newman	-23.33314	120.018	24/05/2013
T131488	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA003'	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28 km ENE. of Newman	-23.32269	119.9822	27/08/2013
T131487	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA003'	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28 km ENE. of Newman	-23.32767	119.9861	27/08/2013
T131486	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA003'	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28 km ENE. of Newman	-23.33136	120.0187	27/08/2013
T131508	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA003'	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28 km ENE. of Newman	-23.31909	120.0262	27/08/2013
T131097	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 25, ca. 5 km N. of Newman	-23.32689	119.7685	29/04/2013
T131102	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28349	119.7695	29/04/2013
T131101	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28181	119.7724	29/04/2013
T131100	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.2967	119.8616	29/04/2013
T131099	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.27398	119.8542	29/04/2013
T131098	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.27398	119.8542	29/04/2013
T131103	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28462	119.7733	29/04/2013
T131093	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28446	119.7403	29/04/2013
T131094	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28446	119.7403	29/04/2013
T131092	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.27416	119.7399	29/04/2013
T131091	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28526	119.7435	29/04/2013

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T131090	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28658	119.7444	29/04/2013
T131089	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28501	119.7418	5/04/2013
T131088	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.29045	119.7257	5/04/2013
T131087	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.29307	119.7571	5/04/2013
T131095	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.29102	119.7941	29/04/2013
T131234	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 25, ca. 5 km N. of Newman	-23.32689	119.7685	5/08/2013
T131104	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28462	119.7733	29/04/2013
T131239	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.29004	119.7706	5/08/2013
T131238	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28462	119.7733	5/08/2013
T131235	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 25, ca. 5 km N. of Newman	-23.32835	119.7723	5/08/2013
T131233	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 25, ca. 5 km N. of Newman	-23.32152	119.7733	5/08/2013
T131231	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.27416	119.7399	5/08/2013
T131224	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28787	119.7468	5/08/2013
T131236	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 25, ca. 5 km N. of Newman	-23.32736	119.7717	5/08/2013
T131223	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.29307	119.7571	5/08/2013
T131230	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28253	119.7497	5/08/2013
T131225	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 25, ca. 5 km N. of Newman	-23.32342	119.7903	5/08/2013
T131227	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28526	119.7435	5/08/2013
T131228	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28253	119.7497	5/08/2013
T131229	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'ARA005'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28253	119.7497	5/08/2013
T101159	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 87.3 km NW. of Newman	-22.89528	119.045	17/02/2010
T130408	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.7736	119.1247	14/05/2013
T149406	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	Potential SRE: DD	W.A. Museum assessment	84.2 km NW. of Newman	-23.06062	118.9743	12/03/2019
T130416	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.71406	119.0203	14/05/2013
T130414	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.74041	119.0636	14/05/2013
T130413	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.73217	119.05	14/05/2013
T130412	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.73046	119.0472	14/05/2013
T130411	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.73046	119.0472	14/05/2013
T130410	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.77604	119.1213	14/05/2013
T130409	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.77458	119.1234	14/05/2013
T130415	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.74148	118.9929	14/05/2013
T130407	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.77441	119.1288	14/05/2013
T130406	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.77441	119.1288	14/05/2013
T130405	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.73984	119.0037	14/05/2013
T130403	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.70919	119.0043	14/05/2013
T130402	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.70919	119.0043	14/05/2013
T130401	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.71103	119.014	14/05/2013
T134071	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.74614	119.0084	2/04/2014
T128901	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Hamersley Range, ca. 30 km ESE. of Juna Downs	-22.59313	118.9881	1/04/2014
T149407	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	Potential SRE: DD	W.A. Museum assessment	71.9 km NW. of Newman	-23.04277	119.1169	11/03/2019
T130400	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.71103	119.014	14/05/2013
T134081	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.74844	119.0302	2/04/2014
T134094	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.70213	119.0037	2/04/2014
T134093	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.70213	119.0037	2/04/2014
T134092	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.69281	119.0132	2/04/2014

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T134091	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.69331	119.0089	2/04/2014
T134090	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.69108	119.0057	2/04/2014
T134089	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.72869	119.0864	8/09/2014
T134088	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.75236	119.0422	8/09/2014
T134087	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.75236	119.0422	8/09/2014
T134086	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.75236	119.0422	8/09/2014
T134085	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.75236	119.0422	2/04/2014
T134084	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.75236	119.0422	2/04/2014
T134065	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.72283	118.9751	8/09/2014
T134082	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.74764	119.0441	2/04/2014
T134097	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.75022	119.0592	8/09/2014
T134080	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.74844	119.0302	2/04/2014
T134079	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.74844	119.0302	2/04/2014
T134078	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.74983	119.0297	8/09/2014
T134077	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7478	119.0256	8/09/2014
T134076	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7478	119.0256	8/09/2014
T134075	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7478	119.0256	2/04/2014
T134125	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.72286	118.9867	8/09/2014
T134074	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7478	119.0256	2/04/2014
T134070	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.76636	119.1059	8/09/2014
T134068	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.76636	119.1059	2/04/2014
T134067	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.75001	119.0755	8/09/2014
T134066	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.77267	119.0947	2/04/2014
T134083	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.74764	119.0441	8/09/2014
T134110	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7012	119.0942	8/09/2014
T134124	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.72286	118.9867	8/09/2014
T134123	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.75232	119.0871	8/09/2014
T134122	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.74936	119.0854	8/09/2014
T134121	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.75142	119.0894	8/09/2014
T134120	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.74283	118.9903	8/09/2014
T134119	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.744	118.984	8/09/2014
T134118	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.744	118.984	8/09/2014
T134117	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.71231	119.0857	8/09/2014

T134116	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.71231	119.0857	8/09/2014
T134115	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.71075	119.0896	8/09/2014
T134114	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7012	119.0942	8/09/2014
T134113	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7012	119.0942	8/09/2014
T134095	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.70867	119.0434	8/09/2014
T134111	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7012	119.0942	8/09/2014
T134096	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.75022	119.0592	8/09/2014
T134109	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7012	119.0942	8/09/2014
T134108	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.6995	119.0977	8/09/2014
T134107	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.70917	119.0691	8/09/2014
T134106	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.70917	119.0691	8/09/2014
T134105	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.70961	119.0715	2/04/2014
T134104	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.75104	119.1316	8/09/2014
T134103	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.72881	119.1215	8/09/2014
T134102	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.75076	119.1556	8/09/2014
T134101	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.75553	119.149	2/04/2014
T134099	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.74806	119.0716	2/04/2014
T134098	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.74806	119.0716	2/04/2014
T134073	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.74739	119.0172	8/09/2014
T134112	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7012	119.0942	8/09/2014
T135556	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, Hancock Gorge	-22.35917	118.2844	15/03/2015
T149465	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	Potential SRE: DD	W.A. Museum assessment	71.9 km NW. of Newman	-23.04277	119.1169	11/03/2019
T135465	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, Dales Gorge	-22.47806	118.5622	12/03/2015
T135466	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, Dales Gorge	-22.47806	118.5622	12/03/2015
T134064	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.72283	118.9751	8/09/2014
T135555	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, Hancock Gorge	-22.35917	118.2844	15/03/2015
T140241	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	South Flank, ca. 95 km NW. of Newman	-22.95283	118.9758	16/03/2016
T134069	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops banyjima	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.76636	119.1059	2/04/2014
T112016	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'BD1'	epigean	Potential SRE: DD	W.A. Museum assessment	114 km NNW. of Newman	-22.32572	119.7392	22/03/2011
T112018	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'BD1'	epigean	Potential SRE: DD	W.A. Museum assessment	113 km NNW. of Newman	-22.33519	119.6531	22/03/2011
T112015	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'BD1'	epigean	Potential SRE: DD	W.A. Museum assessment	114 km NNW. of Newman	-22.32572	119.7392	22/03/2011
T112017	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'BD1'	epigean	Potential SRE: DD	W.A. Museum assessment	115 km NNW. of Newman	-22.31787	119.7476	24/03/2011
T155573	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops 'cf. nyang/bany'	epigean	Potential SRE: DD	W.A. Museum assessment	c. 5 km NNW. of Mt Meharry, hillside at E. bend of Mt Meharry track	-22.93915	118.5673	14/05/2016
T111456	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops feedtime	epigean	SRE	W.A. Museum assessment	Bonney Downs, 115 km NNW. of Newman	-22.31667	119.7333	14/03/2011
T79407	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops forteyi	epigean	SRE	W.A. Museum assessment	27.5 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW08	-22.10683	119.0007	26/08/2003
T79408	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops forteyi	epigean	SRE	W.A. Museum assessment	24.5 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW10	-22.13467	119.0242	27/08/2003
T132485	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops forteyi	epigean	SRE	W.A. Museum assessment	24.5 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW08	-22.10683	119.0007	26/08/2003
T116571	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyangumarta	epigean	widespread	W.A. Museum assessment	Mudlark, 98 km WNW. of Newman	-23.07306	118.82	6/07/2011
T116570	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyangumarta	epigean	widespread	W.A. Museum assessment	Mudlark, 98 km WNW. of Newman	-23.07306	118.82	6/07/2011

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T116575	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyangumarta	epigean	widespread	W.A. Museum assessment	Mudlark, 98 km WNW. of Newman	-23.07306	118.825	6/07/2011
T117879	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyangumarta	epigean	widespread	W.A. Museum assessment	98.5 km W. of Newman	-23.07055	118.8211	5/08/2011
T116569	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyangumarta	epigean	widespread	W.A. Museum assessment	Mudlark, 98 km WNW. of Newman	-23.07306	118.82	6/07/2011
T116568	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyangumarta	epigean	widespread	W.A. Museum assessment	Mudlark, 98 km WNW. of Newman	-23.07306	118.82	6/07/2011
T116567	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyangumarta	epigean	widespread	W.A. Museum assessment	Mudlark, 96 km WNW. of Newman	-23.04028	118.8517	5/07/2011
T130404	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyangumarta	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7259	118.984	14/05/2013
T117875	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyangumarta	epigean	widespread	W.A. Museum assessment	98.5 km W. of Newman	-23.07055	118.8211	5/08/2011
T117876	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyangumarta	epigean	widespread	W.A. Museum assessment	98.5 km W. of Newman	-23.07055	118.8211	5/08/2011
T134072	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyangumarta	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.74614	119.0084	2/04/2014
T117878	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyangumarta	epigean	widespread	W.A. Museum assessment	98.5 km W. of Newman	-23.07055	118.8211	5/08/2011
T134063	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyangumarta	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.72283	118.9751	8/09/2014
T149408	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyangumarta	epigean	widespread	W.A. Museum assessment	82.5 km NW. of Newman	-23.04504	118.9991	14/03/2019
T112019	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyiyaparli	epigean	widespread	W.A. Museum assessment	115 km N. of Newman	-22.31347	119.7886	25/03/2011
T111455	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyiyaparli	epigean	widespread	W.A. Museum assessment	Bonney Downs, 115 km NNW. of Newman	-22.33333	119.65	22/03/2011
T123594	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyiyaparli	epigean	widespread	W.A. Museum assessment	BHP Main Rail, 208 km SSE. of Port Hedland	-22.20485	119.0299	23/04/2012
T123596	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyiyaparli	epigean	widespread	W.A. Museum assessment	BHP Main Rail, 190 km SSE. of Port Hedland	-22.02648	119.0029	23/04/2012
T155589	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyiyiparli	epigean	widespread	W.A. Museum assessment	Bonney Downs Station, Roy Hill Railway line, c. 14 km SW. of Bonney Downs homestead	-22.29675	119.8754	16/05/2016
T155606	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops nyiyiparli	epigean	widespread	W.A. Museum assessment	beside BHP Rail Line, c. 59 km SSW. of Mt Webber	-22.13704	119.0245	17/05/2016
T76978	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	NW. of Newman, Ore Body 24, site 1 (waypoint 119)	-23.2911	119.7647	9/03/2006
T97630	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.74191	119.2068	4/04/2009
T97629	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.7316	119.1931	4/04/2009
T76982	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	NE. of Newman, Ore Body 25, site 5 (waypoint 133)	-23.3222	119.7703	11/03/2006
T76980	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	NE. of Newman, Ore Body 25, site 1 (waypoint 128)	-23.3219	119.7669	12/03/2006
T76981	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	NE. of Newman, Ore Body 25, site 1 (waypoint 128)	-23.3219	119.7669	12/03/2006
T76979	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	NW. of Newman, Ore Body 24, site 1 (waypoint 119)	-23.2911	119.7647	9/03/2006
T77791	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Yandi, 24 km SW. of Marillana, YEX75	-22.83	119.26	30/08/2004
T79406	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	0.5 km NW. of Weeli Wolli Spring, Pilbara Biological Survey site RHNC11	-22.91472	119.2089	1/09/2003
T97631	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.7361	119.1834	4/04/2009
T97632	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.73661	119.1811	4/04/2009
T155578	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	small outcrop beside road, c. 47 km NNW. of Newman, on Great Northern Highway	-23.15187	119.3295	15/05/2016
T155584	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	"Cathedral Gorge", outcrop beside road, c. 14 km NW. of Newman	-23.27517	119.6249	15/05/2016
T136193	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Hillside Station, ca. 60 km W. of Nullagine	-21.89619	119.3531	23/05/2014
T155583	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	"Cathedral Gorge", outcrop beside road, c. 14 km NW. of Newman	-23.27517	119.6249	15/05/2016
T155567	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, c. 27 km NW. of Mt Meharry on W. side of Juna Downs Road, "Wildflower Range"	-22.7939	118.4224	14/05/2016
T116574	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 98 km WNW. of Newman	-23.07306	118.825	6/07/2011
T116573	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 98 km WNW. of Newman	-23.07306	118.825	6/07/2011
T140244	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	genus contains SREs and potential SREs	South Flank, ca. 95 km NW. of Newman	-22.96958	118.9445	16/03/2016
T140243	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	genus contains SREs and potential SREs	South Flank, ca. 95 km NW. of Newman	-22.96097	118.9173	16/03/2016
T140242	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	genus contains SREs and potential SREs	South Flank, ca. 95 km NW. of Newman	-22.96206	118.9125	16/03/2016
T122810	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	119.4 km NW. of Newman	-22.93389	118.6639	31/03/2012
T116572	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 98 km WNW. of Newman	-23.07306	118.825	6/07/2011

T155582	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	"Cathedral Gorge", outcrop beside road, c. 14 km NW. of Newman	-23.27517	119.6249	15/05/2016
T155566	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Dales Gorge	-22.47811	118.5621	14/05/2016
T136518	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 113.4 km E. of Tom Price	-22.68634	118.8932	7/05/2012
T155581	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	small outcrop beside road, c. 47 km NNW. of Newman, on Great Northern Highway	-23.15187	119.3295	15/05/2016
T155580	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	small outcrop beside road, c. 47 km NNW. of Newman, on Great Northern Highway	-23.15187	119.3295	15/05/2016
T115976	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Angelo River	-23.26478	118.7539	20/06/2011
T115975	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Angelo River	-23.29012	118.6822	20/06/2011
T130972	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32131	120.0082	19/03/2013
T155577	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	small outcrop beside road, c. 47 km NNW. of Newman, on Great Northern Highway	-23.15187	119.3295	15/05/2016
T155587	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	c. 3 km NNW. of Opthalmia Dam	-23.31467	119.869	15/05/2016
T155571	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	c. 5 km NNW. of Mt Meharry, hillside at E. bend of Mt Meharry track	-22.93915	118.5673	14/05/2016
T155570	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	c. 5 km NNW. of Mt Meharry, hillside at E. bend of Mt Meharry track	-22.93915	118.5673	14/05/2016
T155590	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Bonney Downs Station, Roy Hill Railway line, c. 14 km SW. of Bonney Downs homestead	-22.29675	119.8754	16/05/2016
T155569	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, c. 27 km NW. of Mt Meharry on Juna Downs Road, "Wildflower Range"	-22.7939	118.4224	14/05/2016
T155591	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Bonney Downs Station, Roy Hill Railway line, c. 14 km SW. of Bonney Downs homestead	-22.29675	119.8754	16/05/2016
T155592	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Bonney Downs Station, Roy Hill Railway line, c. 14 km SW. of Bonney Downs homestead	-22.29675	119.8754	16/05/2016
T155593	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Bonney Downs Station, Roy Hill Railway line, c. 14 km SW. of Bonney Downs homestead	-22.29675	119.8754	16/05/2016
T155594	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Bonney Downs Station, Roy Hill Railway line, c. 13 km SW. of Bonney Downs homestead	-22.28739	119.885	16/05/2016
T155595	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Bonney Downs Station, Roy Hill Railway line, c. 13 km SW. of Bonney Downs homestead	-22.28739	119.885	16/05/2016
T155596	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Bonney Downs Station, Roy Hill Railway line, c. 13 km SW. of Bonney Downs homestead	-22.28739	119.885	16/05/2016
T155576	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	small outcrop beside road, c. 47 km NNW. of Newman, on Great Northern Highway	-23.15187	119.3295	15/05/2016
T155604	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	beside BHP Rail Line, c. 59 km SSW. of Mt Webber	-22.13704	119.0245	17/05/2016
T117880	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	98.5 km W. of Newman	-23.07055	118.8211	5/08/2011
T155586	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	"Cathedral Gorge", outcrop beside road, c. 14 km NW. of Newman	-23.27517	119.6249	15/05/2016
T155585	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	"Cathedral Gorge", outcrop beside road, c. 14 km NW. of Newman	-23.27517	119.6249	15/05/2016
T117877	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	98.5 km W. of Newman	-23.07055	118.8211	5/08/2011
T155572	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	c. 5 km NNW. of Mt Meharry, hillside at E. bend of Mt Meharry track	-22.93915	118.5673	14/05/2016
T155574	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	small outcrop beside road, c. 47 km NNW. of Newman, on Great Northern Highway	-23.15187	119.3295	15/05/2016
T155605	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	beside BHP Rail Line, c. 59 km SSW. of Mt Webber	-22.13704	119.0245	17/05/2016
T155575	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	small outcrop beside road, c. 47 km NNW. of Newman, on Great Northern Highway	-23.15187	119.3295	15/05/2016
T131096	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Orebody 25, ca. 5 km N. of Newman	-23.33228	119.7798	29/04/2013
T155607	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	beside BHP Rail Line, c. 59 km SSW. of Mt Webber	-22.13704	119.0245	17/05/2016
T155588	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Bonney Downs Station, Roy Hill Railway line, c. 14 km SW. of Bonney Downs homestead	-22.29843	119.8724	16/05/2016
T155568	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, c. 27 km NW. of Mt Meharry on Juna Downs Road, "Wildflower Range"	-22.7939	118.4224	14/05/2016
T155597	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Bonney Downs Station, Roy Hill Railway line, c. 13 km SW. of Bonney Downs homestead	-22.28739	119.885	16/05/2016
T131507	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32157	120.0226	27/08/2013
T132728	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Ophthalmia Range, ca. 20 km N. of Newman	-23.17531	119.7338	25/03/2014
T155565	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Dales Gorge	-22.47811	118.5621	14/05/2016
T122807	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	127.1 km NW. of Newman	-22.83694	118.6286	30/03/2012

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T155579	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	small outcrop beside road, c. 47 km NNW. of Newman, on Great Northern Highway	-23.15187	119.3295	15/05/2016
T131511	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32045	120.0389	27/08/2013
T155559	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Dales Gorge	-22.47811	118.5621	14/05/2016
T155560	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Dales Gorge	-22.47811	118.5621	14/05/2016
T155561	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Dales Gorge	-22.47811	118.5621	14/05/2016
T155562	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Dales Gorge	-22.47811	118.5621	14/05/2016
T155564	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Dales Gorge	-22.47811	118.5621	14/05/2016
T121790	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	87.5 km NW. of Newman, Area C, site SUR 19	-22.90556	119.0286	18/02/2010
T131493	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32064	119.9962	27/08/2013
T122806	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	127.1 km NW. of Newman	-22.83694	118.6286	30/03/2012
T155563	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Dales Gorge	-22.47811	118.5621	14/05/2016
T134100	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.74478	119.0726	8/09/2014
T123595	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	BHP Main Rail, 190 km SSE. of Port Hedland	-22.05214	118.9871	23/04/2012
T124818	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	67.5 km ESE. of Paraburdoo, site 1000-tur03	-23.32424	118.3173	23/06/2012
T123838	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	100 km N. of Newman	-22.41707	119.8941	10/04/2011
T122804	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	129.2 km NW. of Newman	-22.83167	118.6025	30/03/2012
T124821	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	63 km E. of Paraburdoo, site 1000-tuX1	-23.20412	118.2882	1/04/2012
T122369	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 98.4 km NW. of Newman	-23.07136	118.8221	6/02/2012
T122368	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 98.5 km NW. of Newman	-23.07172	118.8221	6/02/2012
T122805	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Karaops sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	129.2 km NW. of Newman	-22.83167	118.6025	30/03/2012
T139719	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82997	119.0735	2/04/2015
T139721	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82997	119.0735	2/04/2015
T139722	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.81465	119.1166	2/09/2015
T139712	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.83268	119.1297	3/09/2015
T139723	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.81465	119.1166	2/09/2015
T139720	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82997	119.0735	2/04/2015
T139718	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82664	119.072	2/04/2015
T139717	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82555	119.1488	2/09/2015
T139716	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82555	119.1488	2/09/2015
T139724	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.84775	119.1102	1/09/2015
T139715	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82825	119.144	2/09/2015
T139714	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82825	119.144	2/09/2015
T139709	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.8156	119.082	31/08/2015
T139710	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.81782	119.0947	1/09/2015
T139711	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.84092	119.1019	1/09/2015
T139713	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82825	119.144	2/09/2015
T139737	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.83915	119.1399	3/09/2015
T139736	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.84442	119.1288	3/09/2015
T139735	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.84158	119.1336	3/09/2015
T139732	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82565	119.1402	2/09/2015
T139734	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.83694	119.1392	3/09/2015
T139725	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.81216	119.0723	31/08/2015
T139733	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.83694	119.1392	3/09/2015
T139731	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.84279	119.1159	1/09/2015
T139730	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.84279	119.1159	1/09/2015
T139729	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.83547	119.1204	2/09/2015
T139728	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82743	119.1276	2/09/2015
T139727	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.81253	119.0985	31/08/2015
T139726	Arachnida	Araneae (spiders)	Araneae	Selenopidae	Selenopidae sp.	epigean	potential SRE: DD	Family contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.81253	119.0985	31/08/2015
T113579	Arachnida	Araneae (spiders)	Araneae	Theraphosidae	Selenotholus 'MYG381'	epigean	potential SRE: DD	W.A. Museum assessment	South Parmelia, 58 km NW. of Newman	-23.06194	119.2714	13/04/2011
T113581	Arachnida	Araneae (spiders)	Araneae	Theraphosidae	Selenotholus 'MYG381'	epigean	potential SRE: DD	W.A. Museum assessment	South Parmelia, 58 km NW. of Newman	-23.06167	119.2708	13/04/2011
T147689	Arachnida	Araneae (spiders)	Araneae	Theraphosidae	Theraphosidae sp.	epigean	potential SRE: DD	Family contains at least one otential SRE in the Pilbara	81 km WNW. of Newman	-23.05667	119.0042	15/03/2019
T17788	Arachnida	Harvestmen	Opiliones	Indet	Opiliones sp.	epigean	Potential SRE: DD	Order likely to contain SREs and potential SREs	West Angelas	-22.9833	118.25	1/12/1979
T135640	Arachnida	Harvestmen	Opiliones	`Assamiidae?`	Assamiidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	18/03/2015
T112014	Arachnida	Harvestmen	Opiliones	Indet	Opiliones sp.	epigean	Potential SRE: DD	Order likely to contain SREs and potential SREs	114 km NNW. of Newman	-22.32572	119.7392	22/03/2011
T138639	Arachnida	Harvestmen	Opiliones	`Phalangodidae`	Phalangodidae 'S2`	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	North Shaw, Quarry 8, 200 km S. of Port Hedland	-22.10292	119.004	3/06/2008
T101037	Arachnida	Harvestmen	Opiliones	Assamiidae	Assamiidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Chichester Range, Cloud Break mine area@	-22.26472	119.3003	4/07/2006

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T101051	Arachnida	Harvestmen	Opiliones	Assamiidae	Assamiidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Chichester Range, Cloud Break mine area@	-22.32333	119.4428	6/07/2006
T54029	Arachnida	Harvestmen	Opiliones	Assamiidae	Assamiidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Chichester Range, ca. 40 km E. of Peak Hester, site HDD 2	-22.09	118.9925	1/05/2003
T132230	Arachnida	Harvestmen	Opiliones	Assamiidae	Assamiidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Chichester Range, Cloudbreak mine lease, site 35	-22.33333	119.4194	8/09/2006
T135459	Arachnida	Harvestmen	Opiliones	Assamiidae	Assamiidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	12/03/2015
T145731	Arachnida	Harvestmen	Opiliones	Assamiidae	Assamiidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Koodaideri, c. 120 km NW. of Newman	-22.53028	118.9694	20/03/2014
T135448	Arachnida	Harvestmen	Opiliones	Assamiidae	Assamiidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	12/03/2015
T135449	Arachnida	Harvestmen	Opiliones	Assamiidae	Assamiidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	12/03/2015
T135455	Arachnida	Harvestmen	Opiliones	Assamiidae	Assamiidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	12/03/2015
T151330	Arachnida	Harvestmen	Opiliones	Assamiidae	Dampetrus 'HBI-6519'	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Mulga Downs Station, ca. 31 km NW. of Munjina	-22.12727	118.6273	16/03/2020
T126753	Arachnida	Harvestmen	Opiliones	Assamiidae	Dampetrus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	4.5 km SW. of Redmont Airport, site 994-08	-22.00204	118.9813	15/04/2012
T123598	Arachnida	Harvestmen	Opiliones	Assamiidae	Dampetrus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	BHP Main Rail, 170 km SSE. of Port Hedland	-21.91512	118.9686	23/04/2012
T153980	Arachnida	Palpigrade	Palpigradi	Eukoeneniidae	Eukoenenia sp.	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, Mt Meharry, 150 m E. of summit	-22.97944	118.5889	31/05/2021
T82329	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Fortescue Metals Group, Chichester Ridge, Port Hedland - Newman Railway (FMG19)	-22.2594	119.0267	12/03/2004
T73317	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Hamersley Range, The Governor, cliff base face	-23.07972	118.81083	12/09/2005
T144088	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Cloudbreak, Northern Tenements, 15 km N. of Fortescue Marsh	-22.2409	119.2652	22/11/2016
T114941	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandi Mine, 86.6 km NW. of Newman (OXBF05)	-22.79889	119.1389	5/07/2008
T114942	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandi Mine, 86.6 km NW. of Newman (OXBF05)	-22.79889	119.1389	9/07/2008
T114940	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandi Mine, 86.6 km NW. of Newman (OXBF05)	-22.79889	119.1389	5/07/2008
T121755	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	87.5 km NW. of Newman, Area C, site SUR 19	-22.90556	119.0286	18/02/2010
T114938	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandi Mine, 86.6 km NW. of Newman (OXBF05)	-22.79889	119.1389	9/07/2008
T114943	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandi Mine, 86.6 km NW. of Newman (OXBF05)	-22.79889	119.1389	5/07/2008
T114944	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandi Mine, 86.6 km NW. of Newman (OXBF05)	-22.79889	119.1389	9/07/2008
T118905	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Marillana, ca. 100 km NW. of Newman	-22.36129	119.1735	10/05/2011
T143381	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	c. 44 km NNW. of Roy Hill Station homestead, 113 km NNW. of Newman	-22.33519	119.6531	22/03/2011
T143384	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	c. 40 km NNW. of Roy Hill Station homestead, 115 km NNW. of Newman	-22.31787	119.7476	24/03/2011
T132233	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Roy Hill Station, Marillana Creek area @	-22.555	119.2286	6/09/2008
T143385	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	c. 39 km NNW. of Roy Hill Station homestead, 118 km N. of Newman	-22.29548	119.8109	24/03/2011
T143386	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	c. 40 km NNW. of Roy Hill Station homestead, 115 km NNW. of Newman	-22.31347	119.7886	25/03/2011
T143382	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	c. 29 km NNE. of Roy Hill Station homestead, 112 km NNE. of Newman	-22.36219	119.9691	23/03/2011
T143380	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	c. 40 km NNW. of Roy Hill Station homestead, 114 km NNW. of Newman	-22.32572	119.7392	22/03/2011
T143379	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	c. 40 km NNW. of Roy Hill Station homestead, 114 km NNW. of Newman	-22.32633	119.7494	24/03/2011
T143376	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	c. 40 km NNW. of Roy Hill Station homestead, 115 km NNW. of Newman	-22.31787	119.7476	24/03/2011
T143368	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	c. 40 km NNW. of Roy Hill Station homestead, 114 km NNW. of Newman	-22.32572	119.7392	22/03/2011

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T137628	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandi mine [lease], 86.6 km NW. of Newman	-22.79889	119.1389	5/07/2008
T114937	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Yandi Mine, 88 km NW. of Newman (OXBF04)	-22.78889	119.1369	9/07/2008
T143383	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	c. 40 km NNW. of Roy Hill Station homestead, 115 km NNW. of Newman	-22.31787	119.7476	24/03/2011
T128128	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Indet	Pseudoscorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	ca. 15 km NE. of Roy Hill	-22.51156	120.0362	18/04/2013
T149450	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Anatemnus sp.	epigean	Potential SRE: DD	Family contains SRE representatives	78.5 km NW. of Newman	-23.08382	119.0235	17/03/2019
T128278	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Atemnidae sp.	epigean	Potential SRE: DD	Family contains SRE representatives	ca. 18 km N. of Wittenoom	-22.05	118.309	20/05/2013
T128282	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Atemnidae sp.	epigean	Potential SRE: DD	Family contains SRE representatives	ca. 18 km N. of Wittenoom	-22.1	118.3878	20/05/2013
T128281	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Atemnidae sp.	epigean	Potential SRE: DD	Family contains SRE representatives	ca. 18 km N. of Wittenoom	-22.06667	118.3876	20/05/2013
T128246	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Atemnidae sp.	epigean	Potential SRE: DD	Family contains SRE representatives	ca. 18 km N. of Wittenoom	-22.1	118.3878	20/05/2013
T128245	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Atemnidae sp.	epigean	Potential SRE: DD	Family contains SRE representatives	ca. 18 km N. of Wittenoom	-22.06667	118.3876	20/05/2013
T128229	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Atemnidae sp.	epigean	Potential SRE: DD	Family contains SRE representatives	ca. 18 km N. of Wittenoom	-22.05	118.388	20/05/2013
T128279	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Atemnidae sp.	epigean	Potential SRE: DD	Family contains SRE representatives	ca. 18 km N. of Wittenoom	-22.06667	118.3876	20/05/2013
T123603	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus 'PSE060'	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	BHP Main Rail, 170 km SSE. of Port Hedland	-21.87316	118.938	23/04/2012
T123602	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus 'PSE061'	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	BHP Main Rail, 170 km SSE. of Port Hedland	-21.91512	118.9686	23/04/2012
T123601	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus 'PSE061'	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	BHP Main Rail, 170 km SSE. of Port Hedland	-21.91512	118.9686	23/04/2012
T112023	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	118 km N. of Newman	-22.29725	119.8633	24/03/2011
T109489	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Cloudbreak mine lease, c. 87 km SW. of Nullagine	-22.39737	119.4634	26/10/2010
T107242	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Fortescue Marsh, ca. 50 km NE. of Newman	-22.17161	119.1022	12/05/2010
T107232	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Chichester Range	-22.85863	119.6728	20/04/2010
T107265	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Fortescue Marsh, ca. 50 km NE. of Newman	-22.13221	119.1983	12/05/2010
T112024	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	118 km N. of Newman	-22.29725	119.8633	24/03/2011
T101053	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Chichester Range, Cloud Break mine area@	-22.32167	119.4419	6/07/2006
T93761	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Murray Hills, Mulga Downs Station, Ecologia project 1142	-22.12919	118.5051	19/04/2009
T101046	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Chichester Range, Cloud Break mine area@	-22.32111	119.4439	6/07/2006
T107239	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Chichester Range	-22.85863	119.6728	20/04/2010
T104886	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site13-P5	-23.39471	119.6384	12/03/2010

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T93272	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Roy Hill Station, Ecologia Project 1106	-22.53832	119.9424	26/05/2009
T108019	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Chichester Range	-22.92727	119.7217	20/04/2010
T107142	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Fortescue Marsh	-22.48899	119.0858	22/04/2010
T111834	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Christmas Creek, 110 km N. of Newman	-22.43144	119.9154	8/04/2011
T96844	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	ca. 60 km ESE. of Auski Roadhouse, East Pilbara (Ecologia 974)	-22.65702	119.3083	10/10/2008
T109416	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site5-P8	-23.41007	119.5715	12/03/2010
T109415	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site8-P4	-23.41555	119.5917	14/03/2010
T109414	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site12-P5	-23.39936	119.5844	12/03/2010
T109413	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site5-P3	-23.41051	119.5716	12/03/2010
T109412	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site12-P2	-23.39946	119.5844	12/03/2010
T109411	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site12-P10	-23.39944	119.5843	12/03/2010
T109410	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site5-P2	-23.41063	119.5715	12/03/2010
T109409	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site13-P8	-23.39457	119.639	12/03/2010
T93566	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Jinary, ca. 60 km NW. of Newman	-22.97836	119.2609	31/08/2008
T100115	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Roy Hill, Ecologia project 1209	-22.74864	119.922	20/11/2009
T100124	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Roy Hill, Ecologia project 1209	-22.73957	119.9264	20/11/2009
T96796	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Roadhouse, project 974	-22.55305	119.2228	6/09/2008
T96845	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	ca. 60 km ESE. of Auski Roadhouse, East Pilbara (Ecologia 974)	-22.62928	119.278	10/10/2008
T111837	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Christmas Creek, 110 km N. of Newman	-22.34728	119.6333	10/04/2011
T96840	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	ca. 60 km ESE. of Auski Roadhouse, East Pilbara (Ecologia 974)	-22.62603	119.2834	10/10/2008
T96839	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	ca. 60 km ESE. of Auski Roadhouse, East Pilbara (Ecologia 974)	-22.56664	119.2327	10/10/2008
T96799	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Roadhouse, project 974	-22.56639	119.2308	30/06/2008

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T107233	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Chichester Range	-22.85863	119.6728	20/04/2010
T96797	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Roadhouse, project 974	-22.56889	119.2325	6/09/2008
T93985	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Chichester Range, Pilbara, site 17	-22.14652	119.0184	13/07/2008
T109023	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Cloudbreak mine lease, c. 87 km SW. of Nullagine	-22.39737	119.4634	26/10/2010
T93449	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Hope Downs 4, ca. 30 km NW. of Newman, HD4-3 Gully, 12	-23.15347	119.5329	17/09/2008
T107224	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Chichester Range	-23.32892	119.8398	20/04/2010
T93448	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Hope Downs 4, ca. 30 km NW. of Newman, HD4 Eagle Rock Falls	-23.10302	119.5821	18/09/2008
T107228	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Chichester Range	-23.32892	119.8398	20/04/2010
T109054	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Cloudbreak [Chichester Range]	-22.32517	119.4458	26/10/2010
T91901	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	10 km NE. of Newman, Ore-body 24, site 05-5C	-23.31192	119.7934	26/06/2008
T94698	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.58611	119.2506	6/09/2008
T109498	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Cloudbreak mine lease, c. 86 km SW. of Nullagine	-22.40119	119.4756	26/10/2010
T94711	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.58611	119.2506	6/09/2008
T94729	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	ca. 60 km ESE. of Auski Roadhouse, East Pilbara (Ecologia 974)	-22.57394	119.2562	3/09/2008
T110548	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Chichester Range, Cloud Break mine area, station FMG #13, NE. slope	-22.29803	119.3922	5/07/2006
T91900	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	10 km NE. of Newman, Ore-body 24, site 05-5B	-23.31192	119.7934	26/06/2008
T112025	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	118 km N. of Newman	-22.29725	119.8633	24/03/2011
T94727	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	ca. 60 km ESE. of Auski Roadhouse, East Pilbara (Ecologia 974)	-22.30592	119.3059	7/08/2008
T107263	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Fortescue Marsh, ca. 50 km NE. of Newman	-22.01871	119.0342	12/05/2010
T94721	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.56639	119.2308	30/06/2008
T94728	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	ca. 60 km ESE. of Auski Roadhouse, East Pilbara (Ecologia 974)	-22.58514	119.3142	7/08/2008

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T107271	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Fortescue Marsh, ca. 50 km NE. of Newman	-22.13221	119.1983	12/05/2010
T107270	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Fortescue Marsh, ca. 50 km NE. of Newman	-22.10906	119.2235	12/05/2010
T94725	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.58694	119.2508	30/06/2008
T99244	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Roy Hill	-22.63723	119.9836	29/10/2009
T94699	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.56639	119.2308	6/09/2008
T94715	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.55389	119.2283	6/09/2008
T94710	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.62667	119.2789	6/09/2008
T94713	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.58528	119.2508	6/09/2008
T94706	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.58528	119.2508	30/06/2008
T94723	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.58694	119.2508	30/06/2008
T114688	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Angelo River, 100 km W. of Newman	-23.28798	118.754	20/06/2011
T114691	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Angelo River, 97 km W. of Newman	-23.31283	118.7808	20/06/2011
T122315	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Koodaideri Corridor West, 116.6 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T130112	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	SW Jimblebar, ca. 35 km E. of Newman	-23.41331	120.0447	15/02/2013
T130111	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	SW Jimblebar, ca. 35 km E. of Newman	-23.39914	120.0246	15/02/2013
T130110	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	SW Jimblebar, ca. 35 km E. of Newman	-23.399	120.0292	15/02/2013
T130094	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	SW Jimblebar, ca. 35 km E. of Newman	-23.41331	120.0447	15/02/2013
T130093	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	SW Jimblebar, ca. 35 km E. of Newman	-23.399	120.0292	15/02/2013
T130394	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.7259	118.984	14/05/2013
T126381	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Christmas Creek, 110 km N. Newman	-22.34728	119.6333	10/04/2011
T122322	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Koodaideri Corridor West, 116.6 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T126755	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	6 km SW. of Redmont Airport, site 994-10	-22.01957	118.9816	15/04/2012

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T122187	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Area C West to Yandi, 110 km NW. of Newman	-22.7425	118.88	5/02/2012
T122185	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Area C West to Yandi, 110 km NW. of Newman	-22.7425	118.88	5/02/2012
T126488	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	67.5 km ESE. of Paraburdoo, site 1000-tur03	-23.32424	118.3173	23/06/2012
T126487	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	57 km E. of Paraburdoo, site 1000-tur09	-23.23015	118.2276	27/04/2012
T126486	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	57 km E. of Paraburdoo, site 1000-tur09	-23.23015	118.2276	21/06/2012
T126484	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	57 km E. of Paraburdoo, site 1000-tur09	-23.23015	118.2276	27/04/2012
T118345	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	ca. 120 km NW. of Newman	-22.88139	118.8044	5/04/2012
T122194	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Area C West to Yandi, 110 km NW. of Newman	-22.7425	118.88	5/02/2012
T126481	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	67.5 km ESE. of Paraburdoo, site 1000-tur03	-23.32424	118.3173	23/06/2012
T149475	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	79.9 km NW. of Newman	-23.07775	119.0114	16/03/2019
T122184	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Area C West to Yandi, 110 km NW. of Newman	-22.7425	118.88	5/02/2012
T122182	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Area C West to Yandi, 110 km NW. of Newman	-22.7425	118.8814	8/02/2012
T122181	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Area C West to Yandi, 110 km NW. of Newman	-22.7425	118.88	5/02/2012
T122179	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Area C West to Yandi, 110 km NW. of Newman	-22.7425	118.88	5/02/2012
T118901	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.31811	119.114	14/06/2011
T118900	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.34929	119.1511	19/05/2011
T118879	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.42599	119.2031	22/05/2011
T118877	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.42958	119.1923	23/05/2011
T126485	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	63.5 km ESE. of Paraburdoo, site 1000-tur01	-23.28848	118.2849	22/06/2012
T146554	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Greater Hope Downs, Hope Downs 1 mine, ca. 81.4 km NW. of Newman	-23.07826	118.9955	25/05/2018
T126482	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	57 km E. of Paraburdoo, site 1000-tur09	-23.23015	118.2276	27/04/2012
T122318	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Koodaideri Corridor West, 116.6 km NE. of Tom Price	-22.41653	118.8796	20/02/2012

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T129092	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Christmas Creek, 110 km N. Newman	-22.34728	119.6333	10/04/2011
T115838	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Wonmunna, ca. 78 km heading 288° from Newman	-23.14284	119.0099	18/05/2011
T128740	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	ca. 56 km NE. of Auski Roadhouse	-21.92352	118.9326	13/04/2013
T115839	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Wonmunna, ca. 81 km, heading 286° from Newman	-23.15965	118.9703	18/05/2011
T115840	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Wonmunna, ca. 79 km heading 286° from Newman	-23.15466	118.9932	18/05/2011
T115841	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Wonmunna, ca. 79 km heading 286° from Newman	-23.15466	118.9932	18/05/2011
T115842	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Wonmunna, ca. 78 km heading 288° from Newman	-23.14284	119.0099	18/05/2011
T115843	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Wonmunna, ca. 79 km heading 286° from Newman	-23.15466	118.9932	18/05/2011
T115844	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Wonmunna, ca. 79 km heading 286° from Newman	-23.15466	118.9932	18/05/2011
T122192	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Area C West to Yandi, 110 km NW. of Newman	-22.7425	118.88	5/02/2012
T122323	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Koodaideri Corridor West, 116.6 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T115837	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Wonmunna, ca. 81 km, heading 286° from Newman	-23.15965	118.9703	18/05/2011
T122313	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Koodaideri Corridor West, 116.6 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T122312	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Koodaideri Corridor West, 116.6 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T122304	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Koodaideri Corridor West, 116.6 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T122303	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Koodaideri Corridor West, 116.6 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T122301	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Koodaideri Corridor West, 116.6 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T122299	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Koodaideri Corridor West, 116.6 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T122298	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Koodaideri Corridor West, 116.6 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T149472	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	80.3 km NW. of Newman	-23.04843	119.0211	9/03/2019
T149473	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	81.6 km NW. of Newman	-23.07701	118.9937	17/03/2019
T149474	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	79.9 km NW. of Newman	-23.07775	119.0114	16/03/2019

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T115845	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Wonmunna, ca. 81 km, heading 286° from Newman	-23.15965	118.9703	18/05/2011
T136558	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Koodaideri, 80.6 km NE. of Tom Price	-22.23203	118.3919	25/10/2013
T131281	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28646	119.8081	5/08/2013
T131007	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32914	119.7692	5/04/2013
T131008	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32746	119.7644	5/04/2013
T131409	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.33222	120.0162	27/08/2013
T131279	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.27626	119.7414	5/08/2013
T131276	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	"Homestead", ca. 6 km N. of Newman	-23.30134	119.757	5/08/2013
T131270	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32914	119.7692	5/08/2013
T131258	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.29871	119.7516	5/08/2013
T131372	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	ca.15 km NE. of Roy Hill	-22.51667	120.0354	18/04/2013
T131835	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32201	119.7775	5/04/2013
T131277	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28526	119.7435	5/08/2013
T140233	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	South Flank, ca. 95 km NW. of Newman	-23.00556	118.8275	16/03/2016
T140232	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	South Flank, ca. 95 km NW. of Newman	-23.00556	118.8275	16/03/2016
T140229	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	South Flank, ca. 95 km NW. of Newman	-23.03278	118.7928	16/03/2016
T140227	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	South Flank, ca. 95 km NW. of Newman	-23.01808	118.8176	16/03/2016
T132709	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Ophthalmia Range, ca. 20 km N. of Newman	-23.13989	119.6826	25/03/2014
T131032	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28276	119.7396	29/04/2013
T132714	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Ophthalmia Range, ca. 20 km N. of Newman	-23.12322	119.6198	25/03/2014
T132716	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Ophthalmia Range, ca. 20 km N. of Newman	-23.12228	119.6241	25/03/2014
T140238	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	South Flank, ca. 95 km NW. of Newman	-22.95386	118.889	16/03/2016

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T131319	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	"Homestead", ca. 6 km N. of Newman	-23.30706	119.7536	5/08/2013
T126483	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	57 km E. of Paraburdoo, site 1000-tur09	-23.23015	118.2276	27/04/2012
T131004	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.27956	119.799	5/04/2013
T131003	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.27934	119.7946	5/04/2013
T130995	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28263	119.7389	5/04/2013
T131338	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	ca.15 km NE. of Roy Hill	-22.48333	120.0185	18/04/2013
T134172	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T130993	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	"Homestead", ca. 6 km N. of Newman	-23.31273	119.7462	5/04/2013
T134813	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.72	118.9618	8/09/2014
T130992	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	"Homestead", ca. 6 km N. of Newman	-23.30226	119.7252	5/04/2013
T131005	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.29096	119.8613	5/04/2013
T131321	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Oratemnus sp.	epigean	Potential SRE: DD	genus contains multiple undescribed species in W.A., some may be SREs (Alacran unpublished data)	"Homestead", ca. 6 km N. of Newman	-23.31893	119.7475	5/08/2013
T76972	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Paratemnoides sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Kalamina Gorge, Karijini National Park	-22.41711	118.40173	7/07/2006
T76970	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Atemnidae	Paratemnoides sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Kalamina Gorge, Karijini National Park	-22.41711	118.40173	7/07/2006
T112027	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Cheiridiidae	Cheiridiidae sp.	epigean	widespread	W.A. Museum assessment	Roy Hill, ca. 110 km N. of Newman	-22.38718	119.9664	29/04/2011
T118352	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Cheiridiidae	Cheiridiidae sp.	epigean	widespread	W.A. Museum assessment	ca. 120 km NW. of Newman	-22.80639	118.8853	6/04/2012
T122173	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Austrochernes 'PSE072'	epigean	Potential SRE: DD	W.A. Museum assessment	South Parmelia, 67.4 km NW. of Newman	-23.0325	119.1781	3/02/2012
T122172	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Austrochernes 'PSE072'	epigean	Potential SRE: DD	W.A. Museum assessment	South Parmelia, 52.1 km NW. of Newman	-23.03389	119.1761	3/02/2012
T122169	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Austrochernes 'PSE072'	epigean	Potential SRE: DD	W.A. Museum assessment	South Parmelia, 67.4 km NW. of Newman	-23.0325	119.1781	3/02/2012
T122167	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Austrochernes 'PSE072'	epigean	Potential SRE: DD	W.A. Museum assessment	South Parmelia, 67.4 km NW. of Newman	-23.0325	119.1781	3/02/2012
T122174	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Austrochernes 'PSE072'	epigean	Potential SRE: DD	W.A. Museum assessment	South Parmelia, 67.4 km NW. of Newman	-23.0325	119.1781	3/02/2012
T112028	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Austrochernes sp.	epigean	Potential SRE: DD	Presence of SRE or potential SRE species in this genus	Roy Hill, ca. 110 km N. of Newman	-22.31347	119.7886	24/03/2011
T134032	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Austrochernes sp.	epigean	Potential SRE: DD	Presence of SRE or potential SRE species in this genus	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T76966	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'PSE131'	epigean	Potential SRE: DD	W.A. Museum assessment	Kalamina Gorge, upstream, Karijini National Park	-22.42583	118.39583	9/07/2006
T65259	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'slender chela'	epigean	Potential SRE: DD	W.A. Museum assessment	Kalamina Gorge, upstream, Karijini National Park	-22.42583	118.39583	9/07/2006
T65258	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'slender chela'	epigean	Potential SRE: DD	W.A. Museum assessment	Kalamina Gorge, upstream, Karijini National Park	-22.42583	118.39583	9/07/2006

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T76963	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Weano Gorge, upstream, Karijini National Park	-22.35262	118.28506	9/07/2006
T62924	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana Creek, Marillana Station, Yandi Extension site YEX80	-22.7819	119.2561	1/09/2004
T62919	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana Station, 23 km SW. of Marillana Homestead, Yandi Extension site YEX85	-22.7933	119.2583	3/09/2004
T62907	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Station, 23 km SW. of Marillana Homestead, Yandi Extension site YEX81	-22.7877	119.2539	2/09/2004
T62920	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Creek, Marillana Station, Yandi Extension site YEX80	-22.7819	119.2561	1/09/2004
T62925	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Station, 23.1 km SW. of Marillana Homestead, Yandi Extension site YEX86	-22.7813	119.2436	3/09/2004
T73306	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Station, 23.3 km SW. of Marillana Homestead (RTYE23, Yandi YEX84)	-22.78714	119.24685	2/09/2004
T62916	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Station, 23 km SW. of Marillana Homestead, Yandi Extension site YEX81	-22.7877	119.2539	2/09/2004
T62912	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Creek, Marillana Station, 22.5 km SW. of Marillana Homestead, Yandi Extension site YEX79	-22.7819	119.2561	1/09/2004
T62915	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Station, 23 km SW. of Marillana Homestead, Yandi Extension site YEX85	-22.7933	119.2583	3/09/2004
T62913	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Station, 23.3 km SW. of Marillana Homestead, Yandi Extension site YEX84	-22.7872	119.2469	2/09/2004
T62918	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Station, 23.3 km SW. of Marillana Homestead, Yandi Extension site YEX84	-22.7872	119.2469	2/09/2004
T76969	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Dales Gorge, upstream from Fernpool, Karijini National Park	-22.47749	118.54584	8/07/2006
T76968	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Dales Gorge, Karijini National Park	-22.47833	118.56167	8/07/2006
T73305	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Station, 27 km SW. of Marillana Homestead (RTYE30, Yandi YEX87)	-22.78389	119.23639	3/09/2004
T62922	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Creek, Marillana Station, Yandi Extension site YEX80	-22.7819	119.2561	1/09/2004
T91719	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs 4, ca. 100 km NW. of Newman, HD4-1	-23.12856	119.5601	11/05/2008
T62917	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Creek, Marillana Station, Yandi Extension site YEX79	-22.7819	119.2561	1/09/2004
T62909	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Station, 27 km SW. of Marillana Homestead, Yandi Extension site YEX	-22.788	119.2411	2/09/2004
T62906	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Creek, Marillana Station, Yandi Extension site YEX80	-22.7819	119.2561	1/09/2004
T62926	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Station, 25 km SW. of Marillana Homestead, Yandi Extension site YEX	-22.7811	119.2472	2/09/2004
T76971	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Kalamina Gorge, Karijini National Park	-22.41711	118.40173	7/07/2006
T111896	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinidi, 68.7 km NW. of Newman	-22.94278	119.2325	14/04/2011
T62923	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Creek, Marillana Station, Yandi Extension site YEX79	-22.7819	119.2561	1/09/2004
T73303	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana Station, SW. of Marillana Homestead (RTYE30, Yandi YEX87)	-22.78389	119.23639	3/09/2004
T135642	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae PSEAAF 'sp. 1'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Kalamina Gorge	-22.41722	118.4025	18/03/2015
T103404	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Roy Hill	-22.4321	119.8909	11/03/2010
T153978	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, Mt Meharry, 150 m E. of summit	-22.97944	118.5889	31/05/2021
T153977	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, Mt Meharry, 150 m E. of summit	-22.97944	118.5889	31/05/2021
T153979	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, Mt Meharry, 150 m E. of summit	-22.97944	118.5889	31/05/2021
T118904	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Marillana, ca. 100 km NW. of Newman	-22.4285	119.2043	20/05/2011
T136730	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi Oxbow, 86.3 km NW. of Newman	-22.79	119.1517	30/04/2015
T153976	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Chernetidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, Mt Meharry, 150 m E. of summit	-22.97944	118.5889	31/05/2021

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T107401	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Haplochernes sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Hope Downs, 75.1 km NW. of Newman	-22.97556	119.1483	26/06/2010
T134168	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Haplochernes sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Yandi Oxbow, 86.8 km NW. Newman	-22.78778	119.1467	14/09/2014
T134170	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Haplochernes sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Yandi Oxbow, 89.2 km NW. Newman	-22.78222	119.1217	15/09/2014
T135624	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Haplochernes sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Karijini National Park, Karijini Drive	-22.56	118.4492	14/03/2015
T135625	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Haplochernes sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Karijini National Park, Karijini Drive	-22.56	118.4492	14/03/2015
T113221	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Haplochernes sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Southern Flank to Jinidi, 68.1 km NW. of Newman	-22.96333	119.2161	15/04/2011
T133181	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Haplochernes sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Yandi Oxbow, 89.2 km NW. Newman	-22.78222	119.1217	15/09/2014
T100101	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Nesidiochernes sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Roy Hill, Ecologia project 1209	-22.64427	119.9653	20/11/2009
T100100	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Nesidiochernes sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Roy Hill, Ecologia project 1209	-22.64308	119.9646	20/11/2009
T130398	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Nesidiochernes sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.73969	118.9999	14/05/2013
T134000	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Sundochernes 'PSE090'	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.72283	118.9751	8/09/2014
T149476	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chernetidae	Sundochernes sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	79.9 km NW. of Newman	-23.07775	119.0114	16/03/2019
T111454	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius 'muchmorei?'	epigean	widespread	W.A. Museum assessment	Roy Hill Mine, 75 km N. of Newman	-22.47892	119.9421	5/02/2011
T97608	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius 'PSE135, pilbara'	epigean	widespread	W.A. Museum assessment	Phils Creek, ca. 25 km SW. of Marillana Homestead	-22.73408	119.1851	2/04/2009
T131525	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius 'PSE135, pilbara'	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28 km ENE. of Newman	-23.32311	120.0081	19/03/2013
T122156	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius 'PSE135, pilbara'	epigean	widespread	W.A. Museum assessment	Southern Flank to Jinidi, 71.5 km NW. of Newman	-23.00389	119.1389	1/02/2012
T122161	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius 'PSE135, pilbara'	epigean	widespread	W.A. Museum assessment	Southern Flank to Jinidi, 71.5 km NW. of Newman	-23.00389	119.1389	1/02/2012
T134043	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius 'PSE135, pilbara'	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T127188	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius 'PSE135, pilbara'	epigean	widespread	W.A. Museum assessment	South Parmelia, 67.4 km NW. of Newman	-23.0325	119.1781	3/02/2012
T118350	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius 'PSE135, pilbara'	epigean	widespread	W.A. Museum assessment	ca. 120 km NW. of Newman	-22.85833	118.8417	4/04/2012
T122146	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius 'PSE135, pilbara'	epigean	widespread	W.A. Museum assessment	Southern Flank to Jinidi, 71.5 km NW. of Newman	-23.00389	119.1389	1/02/2012
T122159	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius 'PSE135, pilbara'	epigean	widespread	W.A. Museum assessment	Southern Flank to Jinidi, 74.7 km NW. of Newman	-23.02944	119.0931	31/01/2012
T127190	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius 'PSE135, pilbara'	epigean	widespread	W.A. Museum assessment	South Parmelia, 60.9 km NW. of Newman	-23.04778	119.2392	2/02/2012
T122150	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius 'PSE135, pilbara'	epigean	widespread	W.A. Museum assessment	Southern Flank to Jinidi, 74.7 km NW. of Newman	-23.02944	119.0931	31/01/2012
T122139	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius 'PSE135, pilbara'	epigean	widespread	W.A. Museum assessment	Southern Flank to Jinidi, 74.7 km NW. of Newman	-23.02944	119.0931	31/01/2012
T122147	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius 'PSE135, pilbara'	epigean	widespread	W.A. Museum assessment	Southern Flank to Jinidi, 71.5 km NW. of Newman	-23.00389	119.1389	1/02/2012
T109425	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site 18-P4	-23.41813	119.5845	14/03/2010
T91926	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Hamersley Range, Weeli Wolli Creek region, Area C, site 02-2B	-22.93697	119.0391	13/06/2008
T109420	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site 3-P10	-23.40474	119.6055	14/03/2010
T109421	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site 17-P4	-23.40452	119.6247	12/03/2010
T109422	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site 4-P8	-23.40242	119.5968	12/03/2010
T109424	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site 3-P2	-23.40471	119.6054	14/03/2010
T109426	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site 12-P5	-23.39936	119.5844	12/03/2010

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T111830	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.38902	119.8553	9/04/2011
T109419	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site 19-P7	-23.40455	119.6211	14/03/2010
T109423	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site 3-P7	-23.40499	119.6052	14/03/2010
T139673	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.81159	119.0909	31/03/2015
T115836	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 72 km heading 291° from Newman	-23.12558	119.0797	23/06/2011
T130397	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.73869	118.9958	14/05/2013
T122882	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	119.4 km NW. of Newman	-22.93389	118.6639	31/03/2012
T128261	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	ca. 18 km N. of Wittenoom	-22.06667	118.3625	19/06/2013
T115835	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Austrochthonius sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 79 km heading 286° from Newman	-23.15929	118.9928	17/05/2011
T135451	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Chthoniidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	12/03/2015
T114449	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Chthoniidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	18/03/2015
T114445	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Chthoniidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	18/03/2015
T135620	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Chthoniidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, Hancock Gorge	-22.35917	118.2844	16/03/2015
T104875	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site19-P6	-23.40434	119.6212	14/03/2010
T109395	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site4-P8	-23.40242	119.5968	12/03/2010
T109394	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site2-P6	-23.40362	119.6106	13/03/2010
T109401	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site3-P7	-23.40499	119.6052	14/03/2010
T112033	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	112 km NNE. of Newman	-22.38718	119.9664	26/03/2011
T109393	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site18-P10	-23.41765	119.585	14/03/2010
T112032	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	113 km NNW. of Newman	-22.33519	119.6531	22/03/2011
T51523	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Weeli Wolli Creek, site HDA20	-22.9031	119.2411	27/04/2003
T112031	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	118 km N. of Newman	-22.29548	119.8109	24/03/2011
T109404	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site19-P3	-23.40425	119.6212	14/03/2010
T109397	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site1-P6	-23.39449	119.6317	13/03/2010
T91929	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Hamersley Range, Weeli Wolli Creek region, Area C, site 15-15F	-22.93136	119.047	13/06/2008
T109396	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site19-P10	-23.40483	119.621	14/03/2010
T109399	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site17-P7	-23.40458	119.6249	12/03/2010
T109403	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site11-P7	-23.42069	119.5677	12/03/2010
T109402	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site6-P4	-23.40153	119.5749	12/03/2010
T74842	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Weeli Wolli Creek, site HDA20	-22.9031	119.2411	27/04/2003
T109398	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site20-P7	-23.39511	119.592	12/03/2010
T91902	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	10 km NE. of Newman, Ore-body 24, site 06-6C	-23.30361	119.8042	26/06/2008
T109400	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site1-P2	-23.39436	119.6316	13/03/2010

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T93981	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Chichester Range, Pilbara, site 17	-22.14652	119.0184	7/04/2008
T104957	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site3-P2	-23.40471	119.6054	14/03/2010
T109406	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site20-P1	-23.39474	119.5913	12/03/2010
T93933	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Chichester Range, Pilbara, site 22	-22.05167	118.9884	7/04/2008
T109407	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site20-P3	-23.39499	119.5915	12/03/2010
T93931	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Chichester Range, Pilbara, site 4	-22.15635	119.0109	9/06/2008
T93890	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Chichester Range, Ecologia site 13	-22.14972	119.0178	13/07/2008
T109408	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site7-P1	-23.40534	119.6221	14/03/2010
T97618	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Phils Creek, Pilbara, Ecologia project 1038	-22.73661	119.1811	4/04/2009
T93889	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Chichester Range, Ecologia site 12	-22.1475	119.0253	13/07/2008
T97616	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Phils Creek, Pilbara, Ecologia project 1038	-22.7316	119.1931	4/04/2009
T109405	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site12-P5	-23.39936	119.5844	12/03/2010
T74841	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Weeli Wolli Creek, site HDA20	-22.9031	119.2411	27/04/2003
T91925	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Hamersley Range, Weeli Wolli Creek region, Area C, site 02-2C	-22.93697	119.0391	13/06/2008
T93984	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Chichester Range, Pilbara, site 19	-22.13873	119.0137	6/05/2008
T104977	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site3-P8	-23.40478	119.6052	14/03/2010
T115854	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Wonmunna, ca. 71 km heading 290° from Newman	-23.13149	119.07739	19/05/2011
T134126	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T115853	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Wonmunna, ca. 78 km heading 288° from Newman	-23.1437	119.00642	18/05/2011
T115852	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Wonmunna, ca. 76 km heading 290° from Newman	-23.11689	119.03964	20/05/2011
T115851	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Wonmunna, ca. 73 km heading 291° from Newman	-23.12094	119.06325	20/05/2011
T115850	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Wonmunna, ca. 75 km heading 289° from Newman	-23.13545	119.03841	19/05/2011
T119473	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Deposit F, ca. 100 km NW. of Newman	-22.94444	118.8768	5/02/2008
T115849	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Wonmunna, ca. 77 km heading 289° from Newman	-23.13318	119.01538	23/05/2011
T115848	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Wonmunna, ca. 73 km heading 291° from Newman	-23.11849	119.06487	20/05/2011
T115847	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Wonmunna, ca. 73 km heading 291° from Newman	-23.12094	119.06325	20/05/2011
T119442	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 24, ca. 9 km NE. of Newman	-23.31061	119.8336	26/07/2008
T122145	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Southern Flank to Jinidi, 71.5 km NW. of Newman	-23.00389	119.1389	1/02/2012
T122164	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Southern Flank to Jinidi, 71.5 km NW. of Newman	-23.00389	119.1389	1/02/2012
T126804	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	63 km E. of Paraburdoo, site 1000-tuX1	-23.20412	118.2882	1/01/2012
T118898	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.43986	119.2298	21/05/2011
T122154	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Southern Flank to Jinidi, 71.5 km NW. of Newman	-23.00389	119.1389	1/02/2012
T122153	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Southern Flank to Jinidi, 71.5 km NW. of Newman	-23.00389	119.1389	1/02/2012

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T122152	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Southern Flank to Jinidi, 74.7 km NW. of Newman	-23.02944	119.0931	31/01/2012
T122183	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Southern Flank to Jinidi, 74.7 km NW. of Newman	-23.02944	119.0931	31/01/2012
T126803	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	69 km E. of Paraburdoo, site 1000-tur10	-23.25557	118.2624	27/04/2012
T115846	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Wonmunna, ca. 73 km heading 291° from Newman	-23.11849	119.06487	20/05/2011
T122148	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Southern Flank to Jinidi, 74.7 km NW. of Newman	-23.02944	119.0931	31/01/2012
T115906	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Wonmunna, ca. 72 km heading 291° from Newman	-23.12558	119.0797	21/05/2011
T126801	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	69 km E. of Paraburdoo, site 1000-tur10	-23.25557	118.2624	27/04/2012
T122144	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Southern Flank to Jinidi, 71.5 km NW. of Newman	-23.00389	119.1389	1/02/2012
T122142	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Southern Flank to Jinidi, 74.7 km NW. of Newman	-23.02944	119.0931	31/01/2012
T130554	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.32469	120.012	19/03/2013
T122160	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Southern Flank to Jinidi, 74.7 km NW. of Newman	-23.02944	119.0931	31/01/2012
T146555	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Greater Hope Downs, Hope Downs 1 mine, ca. 76.2 km NW. of Newman	-23.0391	119.0718	22/05/2018
T122157	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Southern Flank to Jinidi, 71.5 km NW. of Newman	-23.00389	119.1389	1/02/2012
T115907	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Wonmunna, ca. 70 km heading 291° from Newman	-23.13187	119.09642	21/05/2011
T122149	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius aridus	epigean	Potential SRE: DD	contains multiple species, some may be SREs (Alacran unpublished data)	Southern Flank to Jinidi, 74.7 km NW. of Newman	-23.02944	119.0931	31/01/2012
T149477	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius 'HD1'	epigean	Potential SRE: DD	W.A. Museum assessment	78.5 km NW. of Newman	-23.08382	119.0235	17/03/2019
T97281	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius sp.	epigean	Potential SRE: DD	Presence of SRE species in this genus {Edward, 2008 #31319}	Hamersley Range, `Packsaddle Range`, Packsaddle deposit 6, bore hole PSF0008R	-22.89917	119.0589	19/04/2008
T97280	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius sp.	epigean	Potential SRE: DD	Presence of SRE species in this genus {Edward, 2008 #31319}	Hamersley Range, `Packsaddle Range`, Packsaddle deposit 6, bore hole PSF0004R	-22.8975	119.0589	10/12/2008
T96816	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius sp.	epigean	Potential SRE: DD	Presence of SRE species in this genus {Edward, 2008 #31319}	Hope Downs, 35 km NW. of Newman	-23.13111	119.5336	16/02/2009
T139671	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius sp.	epigean	Potential SRE: DD	Presence of SRE species in this genus {Edward, 2008 #31319}	Ministers North, ca. 93 km NW. of Newman	-22.81159	119.0909	31/03/2015
T153968	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius sp.	epigean	Potential SRE: DD	Presence of SRE species in this genus {Edward, 2008 #31319}	Karijini National Park, Mt Meharry, 150 m E. of summit	-22.97944	118.5889	31/05/2021
T153969	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius sp.	epigean	Potential SRE: DD	Presence of SRE species in this genus {Edward, 2008 #31319}	Karijini National Park, Mt Meharry, 150 m E. of summit	-22.97944	118.5889	31/05/2021
T153970	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius sp.	epigean	Potential SRE: DD	Presence of SRE species in this genus {Edward, 2008 #31319}	Karijini National Park, Mt Meharry, 150 m E. of summit	-22.97944	118.5889	31/05/2021
T130721	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius sp.	epigean	Potential SRE: DD	Presence of SRE species in this genus {Edward, 2008 #31319}	SW Jimblebar, ca. 35 km E. of Newman	-23.40497	120.027	15/02/2013
T131834	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius sp.	epigean	Potential SRE: DD	Presence of SRE species in this genus {Edward, 2008 #31319}	Orebody 24, ca. 7 km N. of Newman	-23.28501	119.7418	5/04/2013
T131837	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius sp.	epigean	Potential SRE: DD	Presence of SRE species in this genus {Edward, 2008 #31319}	"Homestead", ca. 6 km N. of Newman	-23.30941	119.743	29/04/2013
T122380	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius sp.	epigean	Potential SRE: DD	Presence of SRE species in this genus {Edward, 2008 #31319}	Mudlark, 92.3 km NW. of Newman	-23.04739	118.8852	6/02/2012
T130113	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Chthoniidae	Tyrannochthonius sp.	epigean	Potential SRE: DD	Presence of SRE species in this genus {Edward, 2008 #31319}	SW Jimblebar, ca. 35 km E. of Newman	-23.40239	120.0205	15/02/2013
T131838	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Feaellidae	Feaella callani	epigean	SRE	{Harvey, 2016 #41815}	Orebody 24, ca. 7 km N. of Newman	-23.28253	119.7497	29/04/2013
T131028	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Feaellidae	Feaella callani	epigean	SRE	{Harvey, 2016 #41815}	Orebody 24, ca. 7 km N. of Newman	-23.28253	119.7497	29/04/2013
T131841	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Feaellidae	Feaella callani	epigean	SRE	{Harvey, 2016 #41815}	Orebody 24, ca. 7 km N. of Newman	-23.28253	119.7497	29/04/2013
T131840	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Feaellidae	Feaella callani	epigean	SRE	{Harvey, 2016 #41815}	Orebody 24, ca. 7 km N. of Newman	-23.28253	119.7497	29/04/2013
T131839	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Feaellidae	Feaella callani	epigean	SRE	{Harvey, 2016 #41815}	Orebody 24, ca. 7 km N. of Newman	-23.28253	119.7497	29/04/2013

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T76965	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus '8/2 Pilbara'	epigean	widespread	W.A. Museum assessment	Dales Gorge, upstream from Fernpool, Karijini National Park	-22.47749	118.54584	8/07/2006
T76967	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus '8/2 Pilbara'	epigean	widespread	W.A. Museum assessment	Dales Gorge, Karijini National Park	-22.47833	118.56167	8/07/2006
T730	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus gracilis	epigean	SRE	W.A. Museum assessment	Marillana Station, Roy Hill	-22.6333	119.4	8/07/1924
T73315	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus gracilis	epigean	SRE	W.A. Museum assessment	Hamersley Range, The Governor, cliff base face	-23.07972	118.81083	12/09/2005
T122377	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus gracilis	epigean	SRE	W.A. Museum assessment	Mudlark, 92.4 km NW. of Newman	-23.04756	118.885	6/02/2012
T122376	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus gracilis	epigean	SRE	W.A. Museum assessment	Mudlark, 92.3 km NW. of Newman	-23.04739	118.8852	6/02/2012
T122374	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus gracilis	epigean	SRE	W.A. Museum assessment	Mudlark, 92.3 km NW. of Newman	-23.04739	118.8852	6/02/2012
T122373	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus gracilis	epigean	SRE	W.A. Museum assessment	Mudlark, 92.3 km NW. of Newman	-23.04739	118.8852	6/02/2012
T122372	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus gracilis	epigean	SRE	W.A. Museum assessment	Mudlark, 95.6 km NW. of Newman	-23.03883	118.8527	6/02/2012
T122371	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus gracilis	epigean	SRE	W.A. Museum assessment	Mudlark, 92.3 km NW. of Newman	-23.04739	118.8852	6/02/2012
T62911	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus heptatrichus	epigean	widespread	W.A. Museum assessment	Marillana Creek, Marillana Station, 22.5 km SW. of Marillana Homestead, Yandi Extension site YEX79	-22.7819	119.2561	1/09/2004
T111895	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus heptatrichus	epigean	widespread	W.A. Museum assessment	South Parmelia, 61.9 km NW. of Newman	-23.04472	119.2289	18/04/2011
T62921	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus heptatrichus	epigean	widespread	W.A. Museum assessment	Marillana Creek, Marillana Station, Yandi Extension site YEX80	-22.7819	119.2561	1/09/2004
T126263	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus heptatrichus	epigean	widespread	W.A. Museum assessment	118.3 km NW. of Newman	-22.61111	118.9072	21/11/2011
T133153	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus heptatrichus	epigean	widespread	W.A. Museum assessment	118.3 km NW. of Newman	-22.61111	118.9072	21/11/2011
T133151	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus heptatrichus	epigean	widespread	W.A. Museum assessment	South Parmelia, 61.9 km NW. of Newman	-23.04472	119.2289	18/04/2011
T133150	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus heptatrichus	epigean	widespread	W.A. Museum assessment	South Parmelia, 61.9 km NW. of Newman	-23.04472	119.2289	18/04/2011
T133152	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus heptatrichus	epigean	widespread	W.A. Museum assessment	118.3 km NW. of Newman	-22.61111	118.9072	21/11/2011
T133148	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus heptatrichus	epigean	widespread	W.A. Museum assessment	South Parmelia, 61.9 km NW. of Newman	-23.04472	119.2289	18/04/2011
T133149	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus heptatrichus	epigean	widespread	W.A. Museum assessment	South Parmelia, 61.9 km NW. of Newman	-23.04472	119.2289	18/04/2011
T111843	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE006'	epigean	Potential SRE: DD	W.A. Museum assessment	Christmas Creek, 110 km N. of Newman	-22.36917	119.7387	11/04/2011
T105083	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE014 long hand 2'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 87.3 km NW. of Newman	-22.89528	119.045	1/05/2010
T115889	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE014 long hand 2'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, ca. 76 km heading 290° from Newman	-23.1169	119.0396	20/05/2011
T102753	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE085'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas mine lease, 99.6 km NW. of Newman @	-23.07983	118.8109	9/09/2005
T102754	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE085'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas mine lease, 99.6 km NW. of Newman @	-23.07983	118.8109	9/09/2005
T133197	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE085'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas mine lease, 99.6 km NW. of Newman @	-23.07983	118.8109	9/09/2005
T134143	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE085'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas mine lease, 99.6 km NW. of Newman	-23.07983	118.8109	9/09/2005
T134144	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE085'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas mine lease, 99.6 km NW. of Newman	-23.07983	118.8109	9/09/2005
T134145	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE085'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas mine lease, 99.6 km NW. of Newman	-23.07983	118.8109	9/09/2005
T134142	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE085'	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas mine lease, 99.6 km NW. of Newman	-23.07983	118.8109	9/09/2005
T132717	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE086'	epigean	Potential SRE: DD	W.A. Museum assessment	Ophthalmia Range, ca. 20 km N. of Newman	-23.14953	119.6599	25/03/2014
T134202	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE089, hillside'	epigean	Potential SRE: DD	W.A. Museum assessment	Hillside Station, ca. 150 km SE. of Wodgina Mine	-21.89531	119.2989	23/05/2014

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T136296	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE089, hillside'	epigean	Potential SRE: DD	W.A. Museum assessment	Hillside Station, ca. 60 km W. of Nullagine	-21.89531	119.2989	31/05/2014
T101201	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 84.7 km NW. of Newman	-22.9025	119.0708	17/02/2010
T101180	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 93.7 km NW. of Newman	-22.99861	118.9067	24/02/2001
T101192	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 84.7 km NW. of Newman	-22.9025	119.0708	17/02/2010
T101195	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 90.6 km NW. of Newman	-22.99778	119.0297	22/02/2010
T101182	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 84.9 km NW. of Newman	-22.98167	119.0136	21/02/2010
T110435	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	64 km NW. of Newman	-22.90444	119.3408	12/03/2011
T101178	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 89.6 km NW. of Newman	-23.00083	118.9469	18/02/2010
T101183	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 89.5 km NW. of Newman	-22.98	118.9619	23/02/2010
T101177	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 89.3 km NW. of Newman	-22.90639	119.0122	19/02/2010
T101181	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 88.3 km NW. of Newman	-22.93583	119.0044	20/02/2010
T101198	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 93.7 km NW. of Newman	-22.99861	118.9067	18/02/2010
T101186	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 89 km NW. of Newman	-22.95611	118.9831	23/02/2010
T101208	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 61.8 km NW. of Newman	-22.99889	118.8692	25/02/2010
T101187	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 78.2 km NW. of Newman	-22.91778	119.1392	18/02/2010
T101202	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-23.005	119.0239	21/02/2010
T101203	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 89.4 km NW. of Newman	-22.98	118.9619	23/02/2010
T91718	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Hope Downs 4, ca. 100 km NW. of Newman, HD4-6	-23.15436	119.5817	14/05/2008
T111892	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Southern Flank to Jinidi, 68.1 km NW. of Newman	-22.96333	119.2161	15/04/2011
T101204	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 85.2 km NW. of Newman	-23.00389	118.9947	22/02/2010
T82340	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Marandoo Mine Expansion, 35 km ENE. of Tom Price (PSEUD3)	-22.6619	118.1803	12/04/2007
T101205	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 86.2 km NW. of Newman	-23.01194	118.9814	22/02/2010
T107400	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Hope Downs, 74 km NW. of Newman	-22.99055	119.0911	25/06/2010
T82336	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Marandoo Mine Expansion, 35 km ENE. of Tom Price (MAR10)	-22.12694	118.3331	12/04/2007
T82334	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Marandoo Mine Expansion, 35 km ENE. of Tom Price (MAR02)	-22.10556	118.3061	13/04/2007
T101184	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 90.6 km NW. of Newman	-22.99778	119.0297	22/02/2010
T91720	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Hope Downs 4, ca. 100 km NW. of Newman, HD4-3	-23.15297	119.529	12/05/2008
T91721	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Hope Downs 4, ca. 100 km NW. of Newman, HD4-6	-23.15436	119.5817	10/05/2008
T101174	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 83.6 km NW. of Newman	-22.99167	118.9589	23/02/2010
T127413	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Hope Downs, 74 km NW. of Newman	-22.99055	119.0911	25/06/2010
T117776	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Mudlark, 111 km W. of Newman	-23.08083	118.6842	2/07/2011
T133172	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 86.2 km NW. of Newman	-23.01194	118.9814	22/02/2010
T133433	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Hope Downs, 74 km NW. of Newman	-22.99055	119.0911	25/06/2010

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T155131	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Marandoo Mine Expansion, 35 km ENE. of Tom Price (MAR02)	-22.1	118.3061	13/04/2007
T155130	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Marandoo Mine Expansion, 35 km ENE. of Tom Price (MAR02)	-22.10556	118.3061	13/04/2007
T133413	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C, 86.2 km NW. of Newman	-23.01194	118.9814	22/02/2010
T134245	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Hillside Station, ca. 150 km SE. of Wodgina Mine	-21.91392	119.2322	23/05/2014
T135549	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Karijini National Park, c. 20 km SW. of Hancock Gorge	-22.48389	118.1475	15/03/2015
T135584	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Karijini National Park, c. 20 km SW. of Hancock Gorge	-22.48389	118.1475	15/03/2015
T126241	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	114.4 km NW. of Newman	-22.58083	119.0017	20/11/2011
T131262	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28787	119.7468	5/08/2013
T117771	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C West to Yandi, 108.6 km NW. of Newman	-22.61667	119.0217	10/09/2011
T133145	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	114.4 km NW. of Newman	-22.58083	119.0017	20/11/2011
T117772	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C West to Yandi, 108.6 km NW. of Newman	-22.61667	119.0217	10/09/2011
T133147	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	114.4 km NW. of Newman	-22.58083	119.0017	20/11/2011
T117773	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C West to Yandi, 108.6 km NW. of Newman	-22.61667	119.0217	10/09/2011
T117774	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C West to Yandi, 101.8 km NW. of Newman	-22.63333	119.1017	12/09/2011
T117775	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C West to Yandi, 101.8 km NW. of Newman	-22.63333	119.1017	12/09/2011
T133137	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	64 km NW. of Newman	-22.90444	119.3408	12/03/2011
T140230	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	South Flank, ca. 95 km NW. of Newman	-22.97083	118.7927	16/03/2016
T133146	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	114.4 km NW. of Newman	-22.58083	119.0017	20/11/2011
T117770	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Area C West to Yandi, 108.6 km NW. of Newman	-22.61667	119.0217	10/09/2011
T129071	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Marandoo Mine Expansion, 35 km ENE. of Tom Price (MAR02)	-22.1	118.3061	13/04/2007
T129070	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE093'	epigean	widespread	W.A. Museum assessment	Marandoo Mine Expansion, 35 km ENE. of Tom Price (MAR02)	-22.10556	118.3061	13/04/2007
T131012	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus 'PSE129'	epigean	Potential SRE: DD	W.A. Museum assessment	"Homestead", ca. 6 km N. of Newman	-23.30846	119.7459	29/04/2013
T107499	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Orebody 35, ca. 8 km W. of Newman, site 24-SS598	-23.41372	119.5826	16/08/2010
T104956	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Orebody 35, ca. 8 km W. of Newman, Site 1-P7	-23.39447	119.6319	13/03/2010
T108974	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Cloudbreak [Chichester Range]	-22.30827	119.2163	26/10/2010
T109418	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Orebody 35, ca. 8 km W. of Newman, Site 20-P3	-23.39499	119.5915	12/03/2010
T73304	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Marillana Creek, Marillana Station (RTYE9, Yandi YEX80)	-22.78194	119.25611	1/09/2004
T103480	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T109417	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Orebody 35, ca. 8 km W. of Newman, Site 12-P10	-23.39944	119.5843	12/03/2010
T122382	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Mudlark, 92.3 km NW. of Newman	-23.04739	118.8852	6/02/2012
T132713	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Ophthalmia Range, ca. 20 km N. of Newman	-23.11672	119.6318	25/03/2014
T122379	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypidae	Synsphyronus sp.	epigean	Potential SRE: DD	Genus contains SREs or potential SREs	Mudlark, 92.4 km NW. of Newman	-23.04756	118.885	6/02/2012
T140265	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypinidae	Amblyolpium sp.	epigean	Potential SRE: DD	Alacran, unpublished data	South Flank, ca. 95 km NW. of Newman	-23.03278	118.7928	16/03/2016

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T108757	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypinidae	Solinus sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri, 119.2 km NW. of Newman	-22.495	119.0219	23/08/2010
T110438	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypinidae	Solinus sp.	epigean	Potential SRE: DD	W.A. Museum assessment	74.1 km NW. of Newman	-22.78139	119.3606	14/03/2011
T111813	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypinidae	Solinus sp.	epigean	Potential SRE: DD	W.A. Museum assessment	70.7 km NW. of Newman	-22.81194	119.3733	14/03/2011
T108753	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypinidae	Solinus sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri, 118.6 km NW. of Newman	-22.53528	119.0028	22/08/2010
T108756	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypinidae	Solinus sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri, 116.9 km NW. of Newman	-22.53306	119.0156	20/08/2010
T117833	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypinidae	Solinus sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Jinidi to Mainline Rail, 74.6 km NW. of Newman	-22.76667	119.3514	29/07/2011
T119938	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypinidae	Solinus sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 112 km NW. of Newman	-22.64444	118.9525	9/05/2011
T135585	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypinidae	Solinus sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 15 km SW. of Hancock Gorge	-22.46083	118.1947	15/03/2015
T126385	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypinidae	Solinus sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Juna Downs Station, 112 km NW. of Newman	-22.64444	118.9525	9/05/2011
T134171	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypinidae	Solinus sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi Oxbow, 89.2 km NW. Newman	-22.78222	119.1217	15/09/2014
T126356	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Garypinidae	Solinus sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri, 118.6 km NW. of Newman	-22.53528	119.0028	22/08/2010
T109849	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Gymnobisiidae	Gymnobisiidae PSEAAH 'Mt Meharry'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, Mount Meharry	-22.97976	118.5891	26/07/2010
T112022	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Hyidae	Indohya 'PSE002'	epigean	widespread	W.A. Museum assessment	114 km NNW. of Newman	-22.32572	119.7392	22/03/2011
T112021	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Hyidae	Indohya 'PSE002'	epigean	widespread	W.A. Museum assessment	115 km NNW. of Newman	-22.31787	119.7476	24/03/2011
T112020	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Hyidae	Indohya 'PSE002'	epigean	widespread	W.A. Museum assessment	115 km NNW. of Newman	-22.31787	119.7476	24/03/2011
T118292	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Hyidae	Indohya 'PSE002'	epigean	widespread	W.A. Museum assessment	ca. 104 km 53.8° NE. of Tom Price	-22.12303	118.5793	22/10/2011
T128113	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Hyidae	Indohya 'PSE002'	epigean	widespread	W.A. Museum assessment	ca. 19 km SW. of Nullagine	-22.00981	119.9807	7/05/2013
T123599	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Hyidae	Indohya 'PSE002'	epigean	widespread	W.A. Museum assessment	BHP Main Rail, 208 km SSE. of Port Hedland	-22.19432	118.9865	23/04/2012
T132652	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Hyidae	Indohya 'PSE002'	epigean	widespread	W.A. Museum assessment	Christmas Creek, ca. 67 km SSW. of Nullagine	-22.44089	119.8408	14/04/2012
T137073	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Hyidae	Indohya 'PSE002'	epigean	widespread	W.A. Museum assessment	Christmas Creek, ca. 67 km SSW. of Nullagine	-22.44089	119.8408	14/04/2012
T137074	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Hyidae	Indohya 'PSE002'	epigean	widespread	W.A. Museum assessment	Christmas Creek, ca. 67 km SSW. of Nullagine	-22.44089	119.8408	14/04/2012
T137075	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Hyidae	Indohya 'PSE002'	epigean	widespread	W.A. Museum assessment	Christmas Creek, ca. 67 km SSW. of Nullagine	-22.44089	119.8408	14/04/2012
T137076	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Hyidae	Indohya 'PSE002'	epigean	widespread	W.A. Museum assessment	Christmas Creek, ca. 67 km SSW. of Nullagine	-22.44089	119.8408	14/04/2012
T137077	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Hyidae	Indohya 'PSE002'	epigean	widespread	W.A. Museum assessment	Christmas Creek, ca. 67 km SSW. of Nullagine	-22.44089	119.8408	14/04/2012
T118294	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Hyidae	Indohya 'PSE002'	epigean	widespread	W.A. Museum assessment	ca. 104 km 53.8° NE. of Tom Price	-22.12303	118.5793	16/02/2012
T118293	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Hyidae	Indohya 'PSE002'	epigean	widespread	W.A. Museum assessment	ca. 104 km 53.8° NE. of Tom Price	-22.12303	118.5793	16/02/2012
T126756	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'chunky'	epigean	Potential SRE: DD	W.A. Museum assessment	4.5 km SW. of Redmont Airport, site 994-08	-22.00204	118.9813	15/04/2012
T128248	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'chunky'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 18 km N. of Wittenoom	-22.05	118.388	19/06/2013
T128907	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'M1'	epigean	Potential SRE: DD	W.A. Museum assessment	Hamersley Range, ca. 30 km ESE. of Juna Downs	-22.6828	119.0524	1/04/2014
T128908	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'M2'	epigean	Potential SRE: DD	W.A. Museum assessment	Hamersley Range, ca. 30 km ESE. of Juna Downs	-22.69533	119.0584	30/03/2014
T140270	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'PSE119'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North ca. 93 km NW. of Newman	-22.81159	119.0909	31/03/2015
T139687	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'PSE119'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.81465	119.1166	2/09/2015
T139702	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'PSE119'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.83547	119.1204	2/09/2015

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T139680	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'PSE119'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.83268	119.1297	3/09/2015
T139676	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'PSE119'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.81661	119.1126	31/03/2015
T139700	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'PSE119'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.82743	119.1276	2/09/2015
T139697	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'PSE119'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.81253	119.0985	31/08/2015
T139703	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'PSE119'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.84279	119.1159	1/09/2015
T139670	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'PSE119'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.8156	119.082	31/08/2015
T140271	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'PSE120'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North ca. 93 km NW. of Newman	-22.80702	119.0779	31/03/2015
T139681	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'PSE121'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.82825	119.144	2/09/2015
T139706	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'PSE122'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.84158	119.1336	3/09/2015
T139707	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'PSE122'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.84442	119.1288	3/09/2015
T108025	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Fortescue Marsh	-22.50113	119.1042	22/04/2010
T107268	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.13221	119.1983	12/05/2010
T93263	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Station, Ecologia Project 1106	-22.48111	119.8844	27/05/2009
T93257	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Station, Ecologia Project 1106	-22.48111	119.8844	27/05/2009
T108027	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Fortescue Marsh	-22.48899	119.0858	22/04/2010
T109429	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 35, ca. 8 km W. of Newman, Site1-P10	-23.39453	119.6318	13/03/2010
T97610	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.7316	119.1931	4/04/2009
T102572	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill	-22.51806	119.9128	11/03/2010
T108705	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Chichester Range, northern slopes @	-22.175	118.9535	22/08/2008
T97598	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Juna Downs Station, Area A, Ecologia project 997	-22.89269	118.6845	1/03/2009
T107256	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.12372	119.043	12/05/2010
T107255	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.17161	119.1022	12/05/2010
T109430	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 35, ca. 8 km W. of Newman, Site10-P2	-23.40002	119.6523	12/03/2010
T107264	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.01917	119.0336	12/05/2010
T109431	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 35, ca. 8 km W. of Newman, Site4-P5	-23.40233	119.5971	12/03/2010
T93254	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Station, Ecologia Project 1106	-22.50397	120.021	24/05/2009
T102583	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill	-22.4321	119.8909	11/03/2010
T93983	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Chichester Range, Pilbara, site 22	-22.05167	118.9884	6/05/2008
T76976	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	NE. of Newman, Ore Body 25, site 2 (waypoint 130)	-23.3213	119.7678	10/03/2006
T98456	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Station, Ecologia Project 1106	-22.50397	120.021	25/05/2009
T98454	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Station, Ecologia Project 1106	-22.81269	119.9421	26/05/2009
T76977	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	NE. of Newman, Ore Body 25, site 5 (waypoint 133)	-23.3222	119.7703	11/03/2006
T97615	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.73175	119.1798	2/04/2009

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T93763	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Murray Hills, Mulga Downs Station, Ecologia project 1142	-22.11471	118.5221	20/04/2009
T97537	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.7361	119.1834	4/04/2009
T103494	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Area C, 81.4 km NW. of Newman	-22.95806	119.0692	1/05/2010
T109494	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Cloudbreak mine lease, c. 86 km SW. of Nullagine	-22.39856	119.4748	26/10/2010
T97536	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.7316	119.1931	4/04/2009
T109428	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 35, ca. 8 km W. of Newman, Site10-P1	-23.4003	119.6524	12/03/2010
T76975	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	NW. of Newman, Ore Body 24, site 4 (waypoint 124)	-23.308	119.8108	8/03/2006
T93271	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Station, Ecologia Project 1106	-22.55656	119.9703	25/05/2009
T109433	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 35, ca. 8 km W. of Newman, Site8-P4	-23.41555	119.5917	14/03/2010
T97538	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.73661	119.1811	4/04/2009
T100109	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill, Ecologia project 1209	-22.64308	119.9646	20/11/2009
T109490	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Cloudbreak mine lease, c. 95 km SW. of Nullagine	-22.25987	119.2786	26/10/2010
T109427	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 35, ca. 8 km W. of Newman, Site1-P6	-23.39449	119.6317	13/03/2010
T112030	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill, ca. 110 km N. of Newman	-22.31787	119.7476	24/03/2011
T103414	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill	-22.59335	120.0333	11/03/2010
T92481	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Jimblebar, 40 km ESE. of Newman, site 08-8G	-23.3765	120.0295	26/08/2008
T104826	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 35, ca. 8 km W. of Newman, Site12-P9	-23.39946	119.5849	12/03/2010
T103401	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill	-22.59335	120.0333	11/03/2010
T100190	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill	-22.63634	119.9641	20/11/2009
T107161	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Fortescue Marsh	-22.50113	119.1042	22/04/2010
T93259	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Station, Ecologia Project 1106	-22.45477	119.8709	27/05/2009
T93270	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Station, Ecologia Project 1106	-22.43963	119.9453	23/05/2009
T107217	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Chichester Range	-23.11648	119.8865	20/04/2010
T94824	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.92989	119.2185	12/02/2009
T100106	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill, Ecologia project 1209	-22.68326	119.9512	20/11/2009
T97606	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.7316	119.1931	4/04/2009
T96794	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Maralina Station, 60 km ESE. of Auski Roadhouse, project 974	-22.62639	119.2842	6/09/2008
T96818	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Hope Downs, 35 km NW. of Newman	-23.13305	119.5417	16/02/2009
T97601	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.7361	119.1834	4/04/2009
T101179	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	19/02/2010
T102659	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill	-22.54898	120.036	11/03/2010
T100105	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill, Ecologia project 1209	-22.68326	119.9512	20/11/2009
T82328	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Fortescue Metals Group, Chichester Ridge, Port Hedland - Newman Railway (FMG18)	-22.2838	119.025	12/03/2004

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T97620	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.73661	119.1811	4/04/2009
T98170	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Station, Ecologia Project 1106	-22.45477	119.8709	27/05/2009
T100104	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill, Ecologia project 1209	-22.68326	119.9512	20/11/2009
T76991	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	NE. of Newman, Ore Body 25, site 1 (waypoint 128)	-23.3219	119.7669	12/03/2006
T93268	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Station, Ecologia Project 1106	-22.4943	119.9217	26/05/2006
T96795	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Maralina Station, 60 km ESE. of Auski Roadhouse, project 974	-22.58222	119.3119	6/09/2008
T93264	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Station, Ecologia Project 1106	-22.55656	119.9703	25/05/2009
T109432	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 35, ca. 8 km W. of Newman, Site15-P10	-23.37179	119.6117	12/03/2010
T98161	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Station, Ecologia Project 1106	-22.57717	120.0247	25/05/2009
T97605	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.73519	119.1856	2/04/2009
T102590	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill	-22.50509	119.9143	11/03/2010
T93940	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Chichester Range, Pilbara, site 16	-22.14653	119.019	7/04/2008
T93250	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Station, Ecologia Project 1106	-22.49618	120.0104	24/05/2009
T94779	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Chichester Range, site 27	-22.11	118.9033	13/07/2008
T105176	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Area C, 87.2 km NW. of Newman	-22.98917	118.9822	1/05/2010
T107156	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Fortescue Marsh	-22.48899	119.0858	22/04/2010
T109017	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Cloudbreak [mine lease], c. 90 km SW. of Nullagine	-22.3395	119.2775	26/10/2010
T109434	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 35, ca. 8 km W. of Newman, Site15-P2	-23.37127	119.6126	12/03/2010
T103407	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill	-22.59335	120.0333	11/03/2010
T101062	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Chichester Range, Cloud Break mine area@	-22.29972	119.3736	3/07/2006
T102600	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill	-22.50304	119.891	11/03/2010
T102603	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill	-22.54898	120.036	11/03/2010
T98162	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Station, Ecologia Project 1106	-22.4943	119.9217	26/05/2009
T103406	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill	-22.50304	119.891	11/03/2010
T112029	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill, ca. 110 km N. of Newman	-22.33519	119.6531	24/03/2011
T98164	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Station, Ecologia Project 1106	-22.50397	120.021	24/05/2009
T103408	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill	-22.58467	120.0265	11/03/2010
T131047	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 25, ca. 5 km N. of Newman	-23.32957	119.7813	29/04/2013
T121167	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.3775	119.0104	8/08/2011
T130561	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32075	120.0014	19/03/2013
T131218	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Roy Hill Mine 1, ca. 90 km N. of Newman	-22.50653	119.8976	18/04/2013
T118965	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.21295	119.0649	22/07/2011
T131256	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.29039	119.7755	5/08/2013

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T126535	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	69 km E. of Paraburdoo, site 1000-tur10	-23.25557	118.2624	27/04/2012
T139684	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82555	119.1488	2/09/2015
T130559	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32311	120.0081	19/03/2013
T130558	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32075	120.0014	19/03/2013
T130556	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32355	120.0112	19/03/2013
T131275	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	"Homestead", ca. 6 km N. of Newman	-23.30134	119.757	5/08/2013
T146556	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Greater Hope Downs, Hope Downs 1 mine, ca. 81.8 km NW. of Newman	-23.04347	119.1166	22/05/2018
T118977	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.3775	119.0104	8/08/2011
T118957	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.09895	119.2183	19/07/2011
T126534	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	45 km ESE. of Paraburdoo, site 1000-tur06	-23.2738	118.202	27/04/2012
T130547	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.33256	120.0013	19/03/2013
T126536	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	63 km E. of Paraburdoo, site 1000-tur08	-23.23551	118.2876	27/04/2012
T126541	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	63 km E. of Paraburdoo, site 1000-tur08	-23.23551	118.2876	27/04/2012
T126545	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	63 km E. of Paraburdoo, site 1000-tur08	-23.23551	118.2876	27/04/2012
T126546	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	57 km E. of Paraburdoo, site 1000-tur09	-23.23015	118.2276	27/04/2012
T126547	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	45 km ESE. of Paraburdoo, site 1000-tur06	-23.2738	118.202	27/04/2012
T126548	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	65 km E. of Paraburdoo, site 1000-tur02	-23.21099	118.3054	3/05/2012
T118978	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.36672	119.0048	8/08/2011
T130990	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.29307	119.7571	5/04/2013
T139679	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.83268	119.1297	3/09/2015
T115933	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 75 km heading 289° from Newman	-23.13545	119.03841	19/05/2011
T126532	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	69 km E. of Paraburdoo, site 1000-tur10	-23.25557	118.2624	22/06/2012
T122876	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	129.2 km NW. of Newman	-22.83167	118.6025	30/03/2012
T131694	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.33256	120.0126	27/08/2013
T130118	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	SW Jimblebar, ca. 35 km E. of Newman	-23.40497	120.027	15/02/2013
T118878	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.637	119.1271	19/05/2011
T128123	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	ca. 15 km NE. of Roy Hill	-22.51156	120.0362	18/04/2013
T131423	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32311	120.0081	27/08/2013
T131421	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32064	119.9962	27/08/2013
T131420	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32247	119.9981	27/08/2013
T118902	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.3476	119.1518	20/05/2011
T131033	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.29102	119.7941	29/04/2013
T118914	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.42882	119.1917	23/05/2011

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T118920	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.399	119.2144	22/05/2011
T118921	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.42909	119.21	22/05/2011
T131309	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.28689	119.7542	5/08/2013
T118954	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.37397	119.1948	22/05/2011
T122186	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Area C West to Yandi, 110 km NW. of Newman	-22.7425	118.88	5/02/2012
T139698	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82482	119.0982	1/09/2015
T131475	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32023	120.033	27/08/2013
T130543	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.33136	120.0187	19/03/2013
T131030	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.27626	119.7414	29/04/2013
T123618	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	BHP Main Rail 190 km SSE. of Port Hedland	-22.05214	118.9871	23/04/2012
T131307	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.28773	119.7719	5/08/2013
T123606	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	BHP Main Rail 250 km SSE. of Port Hedland	-22.5393	119.1681	23/04/2012
T118923	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.12692	119.2123	19/07/2011
T131295	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 25, ca. 5 km N. of Newman	-23.32152	119.7733	5/08/2013
T122885	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	119.4 km NW. of Newman	-22.93389	118.6639	31/03/2012
T122880	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	119.4 km NW. of Newman	-22.93389	118.6639	31/03/2012
T122878	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	129.2 km NW. of Newman	-22.83167	118.6025	30/03/2012
T122877	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	129.2 km NW. of Newman	-22.83167	118.6025	30/03/2012
T131314	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	"Homestead", ca. 6 km N. of Newman	-23.31494	119.7372	5/08/2013
T123612	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	BHP Main Rail 208 km SSE. of Port Hedland	-22.15153	119.0194	23/04/2012
T115904	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 72 km heading 290° from Newman	-23.12682	119.06727	19/05/2011
T115902	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 75 km heading 289° from Newman	-23.13487	119.03381	19/05/2011
T115901	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.129	119.09042	19/05/2011
T115900	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 72 km heading 290° from Newman	-23.13091	119.06888	19/05/2011
T123600	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	BHP Main Rail, 190 km SSE. of Port Hedland	-22.04271	119.0071	23/04/2012
T115899	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 80 km heading 285° from Newman	-23.16325	118.97698	17/05/2011
T115898	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 76 km heading 290° from Newman	-23.11689	119.03964	20/05/2011
T115897	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 72 km heading 291° from Newman	-23.12558	119.0797	21/05/2011
T115893	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.13187	119.09642	21/05/2011
T115896	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 72 km heading 291° from Newman	-23.12558	119.0797	21/05/2011
T115891	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 71 km heading 290° from Newman	-23.13149	119.07739	19/05/2011
T115892	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 78 km heading 286° from Newman	-23.1615	119.002	18/05/2011
T115903	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 72 km heading 290° from Newman	-23.12682	119.06727	19/05/2011

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T131080	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.28689	119.7542	29/04/2013
T115895	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 71 km heading 290° from Newman	-23.13146	119.0774	19/05/2011
T115890	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 78 km heading 286° from Newman	-23.16154	119.00198	18/05/2011
T115894	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus sp.	epigean	Potential SRE: DD	Genus contains potential SREs	Wonmunna, ca. 72 km heading 291° from Newman	-23.12558	119.0797	21/05/2011
T93886	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Austrohorus 'sp. 1 (big)'	epigean	Potential SRE: DD	W.A. Museum assessment	Chichester Range, Ecologia site 38	-22.195	118.91	13/07/2008
T97358	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Austrohorus?' sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.09139	119.209	28/04/2009
T62933	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '1'	epigean	potential SRE: DD	W.A. Museum assessment	Marillana Station, 25 km SW. of Marillana Homestead, Yandi Extension site YEX	-22.7811	119.2472	2/09/2004
T62910	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '1'	epigean	potential SRE: DD	W.A. Museum assessment	Marillana Station, 25 km SW. of Marillana Homestead, Yandi Extension site YEX82	-22.7811	119.2472	2/09/2004
T118801	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '7/2'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 119.7 km NW. of Newman	-22.50028	119.0192	16/10/2011
T131016	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/1'	epigean	potential SRE: DD	W.A. Museum assessment	"Homestead", ca. 6 km N. of Newman	-23.30114	119.7312	29/04/2013
T109450	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site14-P9	-23.38308	119.6481	12/03/2010
T109461	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site10-P1	-23.4003	119.6524	12/03/2010
T109448	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site17-P6	-23.40444	119.6247	12/03/2010
T109495	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Cloudbreak mine lease, c. 86 km SW. of Nullagine	-22.39856	119.4748	26/10/2010
T109454	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site14-P5	-23.38341	119.6479	12/03/2010
T109455	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site9-P2	-23.39013	119.6431	12/03/2010
T109456	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site6-P4	-23.40153	119.5749	12/03/2010
T109457	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site15-P1	-23.37125	119.6127	12/03/2010
T109458	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site14-P6	-23.38333	119.6479	12/03/2010
T109452	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site15-P10	-23.37179	119.6117	12/03/2010
T109460	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site1-P5	-23.39446	119.6318	13/03/2010
T109496	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Cloudbreak mine lease, c. 85 km SW. of Nullagine	-22.28271	119.4037	26/10/2010
T109462	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site20-P3	-23.39499	119.5915	12/03/2010
T109463	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site9-P5	-23.38991	119.6433	12/03/2010
T109464	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site16-P2	-23.40481	119.6111	14/03/2010
T109465	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site4-P3	-23.40223	119.5971	12/03/2010
T109491	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Cloudbreak mine lease, c. 95 km SW. of Nullagine	-22.25987	119.2786	26/10/2010
T109492	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Cloudbreak mine lease, c. 99 km SW. of Nullagine	-22.3395	119.2775	26/10/2010
T109493	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Cloudbreak mine lease, c. 86 km SW. of Nullagine	-22.39856	119.4748	26/10/2010
T109459	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site4-P7	-23.40233	119.5969	12/03/2010
T109445	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site7-P1	-23.40534	119.6221	14/03/2010
T109436	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site3-P7	-23.40499	119.6052	14/03/2010
T109437	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site5-P8	-23.41007	119.5715	12/03/2010

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T109438	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site9-P3	-23.40166	119.575	12/03/2010
T109439	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site9-P4	-23.39	119.6432	12/03/2010
T109440	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site4-P8	-23.40242	119.5968	12/03/2010
T109441	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site18-P4	-23.41813	119.5845	14/03/2010
T109442	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site5-P2	-23.41063	119.5715	12/03/2010
T109453	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site14-P3	-23.38359	119.6478	12/03/2010
T109444	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site3-P3	-23.40488	119.6054	14/03/2010
T109435	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site9-P7	-23.38976	119.6433	12/03/2010
T109446	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site14-P5	-23.38341	119.6479	12/03/2010
T109447	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site5-P1	-23.4108	119.5714	12/03/2010
T109449	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site15-P8	-23.37168	119.612	12/03/2010
T109451	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site15-P5	-23.37151	119.6123	12/03/2010
T109501	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Cloudbreak mine lease, c. 84 km SW. of Nullagine	-22.39496	119.5019	26/10/2010
T109500	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Cloudbreak mine lease, c. 96 km SW. of Nullagine	-22.31462	119.302	26/10/2010
T109497	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Cloudbreak mine lease, c. 88 km SW. of Nullagine	-22.35274	119.4189	26/10/2010
T109443	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site9-P10	-23.38953	119.6433	12/03/2010
T103410	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Roy Hill	-22.51806	119.9128	11/03/2010
T93982	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Chichester Range, Pilbara, site 21	-22.1516	119.0163	6/05/2008
T103398	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Roy Hill	-22.49673	120.0237	11/03/2010
T94697	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Auski Road House, 55.5 km S. of (Ecologia 997)	-22.86972	118.6736	1/09/2008
T96798	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Roadhouse, project 974	-22.56639	119.2308	30/06/2008
T103399	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Roy Hill	-22.51806	119.9128	11/03/2010
T103403	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Roy Hill, Marble Bar Road @	-22.59335	120.0333	11/03/2010
T103405	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Roy Hill	-22.4266	119.9424	11/03/2010
T96843	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	ca. 60 km ESE. of Auski Roadhouse, East Pilbara (Ecologia 974)	-22.55514	119.2286	6/09/2008
T94703	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.55305	119.2228	6/09/2008
T103412	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Roy Hill	-22.50509	119.9143	11/03/2010
T102663	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Roy Hill	-22.52711	120.0421	11/03/2010
T102591	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Roy Hill	-22.44107	119.9789	11/03/2010
T104948	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site5-P10	-23.4096	119.5716	12/03/2010
T104955	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site2-P5	-23.4036	119.611	13/03/2010
T104852	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site18-P3	-23.41788	119.5843	14/03/2010
T103409	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Roy Hill	-22.50509	119.9143	11/03/2010

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T104854	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site18-P8	-23.41778	119.5847	14/03/2010
T103411	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Roy Hill	-22.50509	119.9143	11/03/2010
T94819	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Jinayri, ca. 60 km NW. of Newman	-23.04078	119.2798	9/02/2009
T103413	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Roy Hill	-22.59335	120.0333	11/03/2010
T102567	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Roy Hill	-22.51743	119.9314	11/03/2010
T109055	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Cloudbreak [Chichester Range]	-22.39496	119.5019	26/10/2010
T102580	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Roy Hill	-22.52711	120.0421	11/03/2010
T131478	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Mesa Gap, ca. 33 km ENE. of Newman	-23.35023	120.0296	27/08/2013
T131842	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.32392	119.79	29/04/2013
T131026	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	"Homestead", ca. 6 km N. of Newman	-23.30385	119.754	29/04/2013
T118346	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	ca. 120 km NW. of Newman	-22.80667	118.8806	5/04/2012
T134024	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T140228	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	South Flank, ca. 95 km NW. of Newman	-23.01808	118.8176	16/03/2016
T131843	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32341	119.77	29/04/2013
T131014	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	"Homestead", ca. 6 km N. of Newman	-23.30846	119.7459	29/04/2013
T118351	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	ca. 120 km NW. of Newman	-22.80667	118.8806	5/04/2012
T122297	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Koodaideri Corridor West, 83.4 km NW. of Tom Price	-22.25253	118.4548	20/02/2012
T122360	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Area C West, 122.2 km NW. of Newman	-22.87886	118.6573	6/02/2012
T131865	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28533	119.7728	5/08/2013
T114697	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/2'	epigean	potential SRE: DD	Beierolpium '8/2' may represent a species complex (Alacran unpublished data)	Angelo River, 105 km W. of Newman	-23.32493	118.6994	20/06/2011
T112034	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	110 km NNE. of Newman	-22.38275	119.97274	23/03/2011
T98302	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Jinayri mine site, ca. 65 km NW. of Newman	-22.93333	119.2236	19/06/2009
T107498	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, site 18-SS597	-23.41822	119.5847	14/08/2010
T107493	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, site 18-HC586	-23.41822	119.5847	14/08/2010
T107492	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, site 9-P4	-23.39	119.6432	16/08/2010
T112035	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	115 km N. of Newman	-22.31347	119.78861	25/03/2011
T97696	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Phils Creek, Ecologia Project 1038	-22.73175	119.1798	2/04/2009
T107169	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Fortescue Marsh	-22.29384	119.0732	22/04/2010
T107157	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Fortescue Marsh	-22.40839	119.0055	22/04/2010
T107141	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Fortescue Marsh	-22.40839	119.0055	22/04/2010
T93760	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Murray Hills, Mulga Downs Station, Ecologia project 1142	-22.117	118.5032	21/04/2009
T107227	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Chichester Range	-23.36711	119.7874	20/04/2010
T97612	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Phils Creek, Pilbara, Ecologia project 1038	-22.73845	119.1916	3/04/2009

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T109212	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Iron Valley, 5 km NE. of Yandicoogina mine; S3P3	-22.73973	119.3072	5/05/2010
T98301	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Jinayri mine site, ca. 65 km NW. of Newman	-22.91667	119.1956	19/06/2009
T97697	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Phils Creek, Ecologia Project 1038	-22.73199	119.194	4/04/2009
T107489	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, site 9-P9	-23.3896	119.6433	16/08/2010
T111815	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	74.3 km NW. of Newman	-22.77889	119.3614	14/03/2011
T106675	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	West Angelas, 116 km SE. of Tom Price	-23.37417	118.6575	26/06/2010
T112036	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	118 km N. of Newman	-22.29725	119.8633	24/03/2011
T98300	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Jinayri mine site, ca. 65 km NW. of Newman	-22.90583	119.2	21/06/2009
T107168	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Fortescue Marsh	-22.40839	119.0055	22/04/2010
T107414	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Iron Valley, 5 km NE. of Yandicoogina mine; site4 vacuum	-22.75391	119.3028	20/06/2010
T110436	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	68.5 km NW. of Newman	-22.83055	119.38	13/03/2011
T107454	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Iron Valley, 5 km NE. of Yandicoogina mine; LT44	-22.74113	119.3122	5/05/2010
T97621	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Phils Creek, Pilbara, Ecologia project 1038	-22.7316	119.1931	4/04/2009
T82338	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Marandoo Mine Expansion, 35 km ENE. of Tom Price (PSEUD2)	-22.6705	118.1953	12/04/2007
T98483	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Mulga Downs Station, ca. 33 km ENE. of Wittenoom, site BP08	-22.13973	118.6416	1/08/2009
T97599	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Phils Creek, Pilbara, Ecologia project 1038	-22.74126	119.1959	3/04/2009
T98481	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Mulga Downs Station, ca. 33 km ENE. of Wittenoom, site Ref01	-22.16267	118.7306	1/08/2009
T98480	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Mulga Downs Station, ca. 33 km ENE. of Wittenoom, site Ref03	-22.12245	118.5689	1/08/2009
T112041	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	113 km NNW. of Newman	-22.33513	119.65311	22/03/2011
T112039	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	118 km N. of Newman	-22.29725	119.8633	24/03/2011
T97613	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Phils Creek, Pilbara, Ecologia project 1038	-22.74631	119.2056	4/04/2009
T82339	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Marandoo Mine Expansion, 35 km ENE. of Tom Price (PSEUD2)	-22.6705	118.1953	12/04/2007
T98482	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Mulga Downs Station, ca. 33 km ENE. of Wittenoom, site BP05	-22.16198	118.705	1/08/2009
T82337	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Marandoo Mine Expansion, 35 km ENE. of Tom Price (PSEUD2)	-22.6705	118.1953	12/04/2007
T109208	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Iron Valley, 5 km NE. of Yandicoogina mine; S3P1	-22.74083	119.3078	5/05/2010
T109209	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Iron Valley, 5 km NE. of Yandicoogina mine; LT24	-22.72917	119.3195	5/05/2010
T109210	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Iron Valley, 5 km NE. of Yandicoogina mine; S4P12	-22.75363	119.3014	5/05/2010
T101199	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Area C, 89.6 km NW. of Newman	-22.90861	119.0069	19/02/2010
T109211	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Iron Valley, 5 km NE. of Yandicoogina mine; S5P6	-22.7578	119.2981	5/05/2010
T97018	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Jinayri, ca. 65 km NW. of Newman	-22.92639	119.2039	27/03/2009
T97603	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Phils Creek, Pilbara, Ecologia project 1038	-22.7361	119.1834	4/04/2009
T97602	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Phils Creek, Pilbara, Ecologia project 1038	-22.73845	119.1916	3/04/2009
T97609	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Phils Creek, Pilbara, Ecologia project 1038	-22.74631	119.2056	4/04/2009

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T112037	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	110 km NNE. of Newman	-22.38275	119.97274	23/03/2011
T98308	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Jinayri mine site, ca. 65 km NW. of Newman	-22.93139	119.1469	18/06/2009
T118349	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	ca. 120 km NW. of Newman	-22.88139	118.8044	5/04/2012
T128124	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	ca. 15 km NE. of Roy Hill	-22.51156	120.0362	18/04/2013
T118893	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.3022	119.2238	21/05/2011
T140264	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	South Flank, ca. 95 km NW. of Newman	-23.01808	118.8176	16/03/2016
T128125	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	ca. 15 km NE. of Roy Hill	-22.51156	120.0362	18/04/2013
T118912	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.30119	119.2241	21/05/2011
T151328	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Mulga Downs Station, ca. 31 km NW. of Munjina	-22.16747	118.5191	16/03/2020
T118944	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.42909	119.21	20/05/2011
T128126	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	ca. 15 km NE. of Roy Hill	-22.53944	120.0287	18/04/2013
T125634	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	BHP Main Rail 208 km SSE. of Port Hedland	-22.15153	119.0194	23/04/2012
T130555	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.32355	120.0112	19/03/2013
T121168	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.5625	119.2311	8/08/2011
T123620	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	BHP Main Rail 222 km SSE. of Port Hedland	-22.34506	119.0097	23/04/2012
T123615	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	BHP Main Rail 208 km SSE. of Port Hedland	-22.18854	119.0312	23/04/2012
T118948	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.36308	119.1731	19/05/2011
T122193	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/3'	epigean	potential SRE: DD	Beierolpium '8/3' may represent a species complex (Alacran unpublished data)	Area C West to Yandi, 110 km NW. of Newman	-22.7425	118.8814	8/02/2012
T105097	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Area C, 89.6 km NW. of Newman	-23.00111	118.9478	1/05/2010
T91898	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	10 km NE. of Newman, Ore-body 24, site 08-8A	-23.31281	119.833	26/06/2008
T91899	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	10 km NE. of Newman, Ore-body 24, site 08-8B	-23.31281	119.833	26/06/2008
T105185	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Area C, 93.1 km NW. of Newman	-23	118.9131	1/05/2010
T91903	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	10 km NE. of Newman, Ore-body 24, site 03-3C	-23.29464	119.7559	24/06/2008
T105172	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Area C, 61.8 km NW. of Newman	-22.99861	118.8686	1/05/2010
T105144	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Area C, 89.6 km NW. of Newman	-22.90861	119.0072	1/05/2010
T131060	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32341	119.77	29/04/2013
T131476	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.32023	120.033	27/08/2013
T131407	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.33136	120.0187	27/08/2013

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T131410	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.33222	120.0162	27/08/2013
T131473	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.32129	120.0342	27/08/2013
T131411	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.33039	120.0086	27/08/2013
T131412	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.33256	120.0126	27/08/2013
T131418	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.32355	120.0112	27/08/2013
T131041	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32392	119.79	29/04/2013
T131419	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.32283	120.0099	27/08/2013
T131062	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32508	119.7685	29/04/2013
T131312	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.33078	119.7602	5/08/2013
T134128	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T131460	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.32708	120.0159	27/08/2013
T131040	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.32392	119.79	29/04/2013
T131462	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.32471	120.0165	27/08/2013
T131469	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.33408	120.0239	27/08/2013
T131042	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	epigean species of Beierolpium are generally regarded as being widespread	Orebody 25, ca. 5 km N. of Newman	-23.32326	119.7903	29/04/2013
T131038	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.29223	119.8	29/04/2013
T125166	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	57 km E. of Paraburdoo, site 1000-tur09	-23.23015	118.2276	27/04/2012
T131318	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	"Homestead", ca. 6 km N. of Newman	-23.32077	119.7541	5/08/2013
T131287	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	epigean species of Beierolpium are generally regarded as being widespread	Orebody 25, ca. 5 km N. of Newman	-23.32957	119.7813	5/08/2013
T131286	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32474	119.7824	5/08/2013
T131285	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32474	119.7824	5/08/2013
T131284	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32335	119.7869	5/08/2013
T125152	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	63 km E. of Paraburdoo, site 1000-tur08	-23.23551	118.2876	27/04/2012

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T125154	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	63.5 km ESE. of Paraburdoo, site 1000-tur01	-23.28848	118.2849	27/04/2012
T125159	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	67.5 km ESE. of Paraburdoo, site 1000-tur03	-23.32424	118.3173	3/05/2012
T131289	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	epigean species of Beierolpium are generally regarded as being widespread	Orebody 25, ca. 5 km N. of Newman	-23.33156	119.777	5/08/2013
T125164	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	65 km E. of Paraburdoo, site 1000-tur02	-23.21099	118.3054	3/05/2012
T131290	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.33228	119.7798	5/08/2013
T125169	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	64 km E. of Paraburdoo, site 1000-tur07	-23.21957	118.2932	28/04/2012
T125173	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	57 km E. of Paraburdoo, site 1000-tur09	-23.23015	118.2276	27/04/2012
T131283	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32392	119.79	5/08/2013
T131282	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.29223	119.8	5/08/2013
T131278	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.27626	119.7414	5/08/2013
T131274	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28998	119.7363	5/08/2013
T131273	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28804	119.7285	5/08/2013
T131272	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28804	119.7285	5/08/2013
T125160	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	45 km ESE. of Paraburdoo, site 1000-tur06	-23.2738	118.202	27/04/2012
T131300	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32736	119.7717	5/08/2013
T131405	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.3341	120.0176	27/08/2013
T134151	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T134152	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T131063	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32588	119.7683	29/04/2013
T131043	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32326	119.7903	29/04/2013
T131320	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	"Homestead", ca. 6 km N. of Newman	-23.30558	119.7484	5/08/2013
T131313	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.33078	119.7602	5/08/2013

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T131311	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.33294	119.7644	5/08/2013
T131288	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.3288	119.7819	5/08/2013
T131305	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28533	119.7728	5/08/2013
T131406	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.33433	120.0209	27/08/2013
T131298	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32835	119.7723	5/08/2013
T131297	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	epigean species of Beierolpium are generally regarded as being widespread	Orebody 25, ca. 5 km N. of Newman	-23.32508	119.7685	5/08/2013
T131296	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	epigean species of Beierolpium are generally regarded as being widespread	Orebody 25, ca. 5 km N. of Newman	-23.32341	119.77	5/08/2013
T131267	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32201	119.7775	5/08/2013
T131294	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	epigean species of Beierolpium are generally regarded as being widespread	Orebody 25, ca. 5 km N. of Newman	-23.32152	119.7733	5/08/2013
T131293	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	epigean species of Beierolpium are generally regarded as being widespread	Orebody 25, ca. 5 km N. of Newman	-23.32241	119.7835	5/08/2013
T131292	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	epigean species of Beierolpium are generally regarded as being widespread	Orebody 25, ca. 5 km N. of Newman	-23.32241	119.7835	5/08/2013
T131291	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	epigean species of Beierolpium are generally regarded as being widespread	Orebody 25, ca. 5 km N. of Newman	-23.32057	119.7824	5/08/2013
T131306	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28533	119.7728	5/08/2013
T131055	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32057	119.7824	29/04/2013
T131058	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32152	119.7733	29/04/2013
T134004	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.72214	118.9884	2/04/2014
T134003	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.72375	118.99	2/04/2014
T134053	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T131010	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	"Homestead", ca. 6 km N. of Newman	-23.30941	119.743	29/04/2013
T115855	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Wonmunna, ca. 73 km heading 291° from Newman	-23.12209	119.06105	20/05/2011
T115856	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Wonmunna, ca. 74 km heading 289° from Newman	-23.13556	119.04626	19/05/2011
T134052	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T131054	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.33228	119.7798	29/04/2013
T134010	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014

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T130557	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.32283	120.0099	19/03/2013
T130548	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.33351	119.9824	19/03/2013
T131056	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32057	119.7824	29/04/2013
T131057	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32241	119.7835	29/04/2013
T115858	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Wonmunna, ca. 73 km heading 291° from Newman	-23.11849	119.06487	20/05/2011
T130545	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.33039	120.0086	19/03/2013
T115859	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Wonmunna, ca. 79 km heading 286° from Newman	-23.15921	118.99281	17/05/2011
T115857	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Wonmunna, ca. 78 km heading 288° from Newman	-23.1437	119.00642	18/05/2011
T134018	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T130996	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28342	119.7504	5/04/2013
T134031	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134030	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T130998	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32755	119.7733	5/04/2013
T130999	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32186	119.7698	5/04/2013
T134022	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T134021	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T130991	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.2872	119.7242	5/04/2013
T131000	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32201	119.7775	5/04/2013
T131019	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28804	119.7285	29/04/2013
T131001	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32173	119.7858	5/04/2013
T134047	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T134015	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014

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T134048	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134014	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134013	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T134012	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134020	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T131864	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28526	119.7435	5/08/2013
T132718	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Ophthalmia Range, ca. 20 km N. of Newman	-23.14953	119.6599	25/03/2014
T130392	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.72535	119.0636	14/05/2013
T132715	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Ophthalmia Range, ca. 20 km N. of Newman	-23.10469	119.5849	25/03/2014
T115866	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Wonmunna, ca. 70 km heading 291° from Newman	-23.129	119.09042	19/05/2011
T132712	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Ophthalmia Range, ca. 20 km N. of Newman	-23.1587	119.6506	25/03/2014
T132711	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Ophthalmia Range, ca. 20 km N. of Newman	-23.13247	119.6504	25/03/2014
T132707	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Ophthalmia Range, ca. 20 km N. of Newman	-23.17531	119.7338	25/03/2014
T131017	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28873	119.727	29/04/2013
T131271	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32746	119.7644	5/08/2013
T149480	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	80.3 km NW. of Newman	-23.04843	119.0211	9/03/2019
T131059	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32341	119.77	29/04/2013
T134059	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T131034	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.29102	119.7941	29/04/2013
T115868	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Wonmunna, ca. 77 km heading 289° from Newman	-23.13318	119.01538	23/05/2011
T131836	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32746	119.7644	5/04/2013
T131036	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.27582	119.8071	29/04/2013

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T131522	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.33256	120.0013	19/03/2013
T115867	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Wonmunna, ca. 77 km heading 289° from Newman	-23.13318	119.01538	23/05/2011
T115860	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Wonmunna, ca. 75 km heading 289° from Newman	-23.13545	119.03841	19/05/2011
T131521	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 19, ca. 28 km ENE. of Newman	-23.33136	120.0187	19/03/2013
T131020	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28804	119.7285	29/04/2013
T131021	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28756	119.7283	29/04/2013
T131022	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28998	119.7363	29/04/2013
T131023	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28998	119.7363	29/04/2013
T131024	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28998	119.7363	29/04/2013
T122168	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	South Parmelia, 67.4 km NW. of Newman	-23.0325	119.1781	3/02/2012
T132719	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Ophthalmia Range, ca. 20 km N. of Newman	-23.14953	119.6599	25/03/2014
T122170	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	South Parmelia, 67.4 km NW. of Newman	-23.0325	119.1781	3/02/2012
T115865	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Wonmunna, ca. 70 km heading 291° from Newman	-23.129	119.09042	19/05/2011
T130399	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.74166	118.9943	14/05/2013
T122176	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	South Parmelia, 67.4 km NW. of Newman	-23.0325	119.1781	3/02/2012
T115861	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Wonmunna, ca. 74 km heading 290° from Newman	-23.12191	119.04984	20/05/2011
T132723	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Ophthalmia Range, ca. 20 km N. of Newman	-23.21742	119.752	25/03/2014
T115863	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Wonmunna, ca. 74 km heading 290° from Newman	-23.12191	119.04984	20/05/2011
T115864	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Wonmunna, ca. 75 km heading 289° from Newman	-23.13487	119.03381	19/05/2011
T149481	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	84.2 km NW. of Newman	-23.06062	118.9743	12/03/2019
T131018	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28873	119.727	29/04/2013
T131029	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.27416	119.7399	29/04/2013

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T136515	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	a species complex that may contain SREs (Alacran unpublished data)	Koodaideri, 116.7 km ENE. of Tom Price	-22.45016	118.8937	8/05/2012
T134006	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.77267	119.0947	2/04/2014
T131266	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32755	119.7733	5/08/2013
T131265	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32755	119.7733	5/08/2013
T131051	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.33156	119.777	29/04/2013
T131264	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28342	119.7504	5/08/2013
T131046	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32957	119.7813	29/04/2013
T131257	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.29307	119.7571	5/08/2013
T131074	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.2967	119.8616	29/04/2013
T131050	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.3288	119.7819	29/04/2013
T131067	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32689	119.7685	29/04/2013
T127189	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	South Parmelia, 60.9 km NW. of Newman	-23.04778	119.2392	2/02/2012
T131049	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.3288	119.7819	29/04/2013
T131044	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32335	119.7869	29/04/2013
T131066	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32689	119.7685	29/04/2013
T131069	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.27704	119.861	29/04/2013
T131048	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32957	119.7813	29/04/2013
T131078	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28533	119.7728	29/04/2013
T131068	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.27704	119.861	29/04/2013
T131077	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.2967	119.8616	29/04/2013
T131070	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.27398	119.8542	29/04/2013
T131053	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.33228	119.7798	29/04/2013

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T131261	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28787	119.7468	5/08/2013
T131269	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32914	119.7692	5/08/2013
T131045	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32943	119.7791	29/04/2013
T131268	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32173	119.7858	5/08/2013
T131263	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.28342	119.7504	5/08/2013
T131052	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.33156	119.777	29/04/2013
T131064	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 25, ca. 5 km N. of Newman	-23.32588	119.7683	29/04/2013
T131259	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 24, ca. 7 km N. of Newman	-23.2872	119.7242	5/08/2013
T97365	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 lge'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.09086	119.1998	27/04/2009
T97363	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 lge'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.09139	119.209	28/04/2009
T124654	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 lge'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Hamersley Range, 60 km WNW Newman, Hope Downs 4	-23.09086	119.1998	27/04/2009
T114700	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 lge'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Angelo River, 103 km W. of Newman	-23.33333	118.7253	20/06/2011
T122359	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 lge'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Area C West, 122.3 km NW. of Newman	-22.87886	118.6573	6/02/2012
T114690	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 lge'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Angelo River, 95 km W. of Newman	-23.3453	118.8021	20/06/2011
T118939	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 lge'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.44003	119.2281	22/05/2011
T117779	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 lge'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Mudlark, 121 km WNW. of Newman	-23.07806	118.585	6/07/2011
T118952	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 lge'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.43986	119.2298	21/05/2011
T94695	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Auski Road House, 55.5 km S. of (Ecologia 997)	-22.88583	118.6883	29/07/2008
T96848	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Auski Roadhouse, ca. 60 km ESE, East Pilbara, Ecologia project 974	-22.555	119.2214	6/09/2008
T98307	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Jinayri mine site, ca. 65 km NW. of Newman	-22.91694	119.2128	19/06/2009
T94712	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.60556	119.2367	30/06/2008
T94822	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Jinayri, ca. 60 km NW. of Newman	-23.0407	119.2794	2/02/2009

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T96842	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	ca. 60 km ESE. of Auski Roadhouse, East Pilbara (Ecologia 974)	-22.62236	119.2583	10/10/2008
T98441	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Jinayri mine site, ca. 65 km NW. of Newman	-22.93139	119.1469	18/06/2009
T94718	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.55528	119.23	30/06/2008
T104937	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Orebody 35, ca. 8 km W. of Newman, Site5-P6	-23.41014	119.5716	12/03/2010
T94709	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.585	119.3122	30/06/2008
T94719	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.56889	119.2325	6/09/2008
T97361	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.09528	119.2024	25/04/2009
T97364	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.0913	119.1713	27/04/2009
T97362	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.08803	119.161	27/04/2009
T115347	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Angelo River, 97 km W. of Newman	-23.31283	118.7808	20/06/2011
T114696	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Angelo River, 97 km W. of Newman	-23.32351	118.7815	20/06/2011
T115349	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Angelo River, 103 km W. of Newman	-23.33333	118.7253	20/06/2011
T115348	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Angelo River, 102 km W. of Newman	-23.43315	118.7329	20/06/2011
T127401	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Angelo River, 95 km W. Newman	-23.33333	118.8016	20/06/2011
T114692	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Angelo River, 94 km W. of Newman	-23.35	118.8125	20/06/2011
T115346	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Angelo River, 95 km W. of Newman	-23.33464	118.8016	20/06/2011
T114695	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium '8/4 small'	epigean	potential SRE: DD	Beierolpium '8/4' represents a complex that includes SRE (Alacran unpublished data)	Angelo River, 97 km W. of Newman	-23.26311	118.7825	20/06/2011
T134318	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium 'B12'	epigean	potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.08413	118.227	22/04/2014
T134320	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium 'B12'	epigean	potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.08413	118.227	22/04/2014
T134319	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium 'B12'	epigean	potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.08413	118.227	22/04/2014
T118031	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium 'DNA01'	epigean	potential SRE: DD	W.A. Museum assessment	ca. 77 km NW. of Newman	-23.16178	119.0005	23/11/2011
T149478	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium 'HD1'	epigean	potential SRE: DD	W.A. Museum assessment	78.5 km NW. of Newman	-23.08382	119.0235	17/03/2019
T149479	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium 'HD2'	epigean	potential SRE: DD	W.A. Museum assessment	88.2 km NW. of Newman	-23.06007	118.9316	9/03/2019
T128906	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium 'M1'	epigean	potential SRE: DD	W.A. Museum assessment	Hamersley Range, ca. 30 km ESE. of Juna Downs	-22.67994	119.0718	2/04/2014
T139688	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium 'PSE126'	epigean	potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.84918	119.1111	3/04/2015

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T98457	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station	-22.47936	119.9421	26/05/2009
T98172	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station	-22.49618	120.0104	22/06/2009
T93964	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs 4, ca. 30 km NW. of Newman, HD4-3 Gully	-23.15347	119.5329	17/09/2008
T97617	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.74264	119.1929	3/04/2009
T94705	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.55305	119.2228	6/09/2008
T94808	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	genus contains SRE and potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.98428	119.2677	10/02/2009
T103487	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T103481	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 89.6 km NW. of Newman	-23.00111	118.9478	1/05/2010
T107240	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range	-22.63357	119.3289	20/04/2010
T107249	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.10906	119.2235	12/05/2010
T103482	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 83.1 km NW. of Newman	-22.975	119.0378	1/05/2010
T103483	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 89.6 km NW. of Newman	-23.00111	118.9478	1/05/2010
T103484	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T103485	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T107234	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range	-22.63357	119.3289	20/04/2010
T103486	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 85.2 km NW. of Newman	-23.00361	118.9942	1/05/2010
T103478	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 87.3 km NW. of Newman	-22.89528	119.045	1/05/2010
T103488	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 89.5 km NW. of Newman	-22.97806	118.9636	1/05/2010
T105181	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 85.2 km NW. of Newman	-23.00361	118.9942	1/05/2010
T103489	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T103491	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 89 km NW. of Newman	-22.95639	118.9833	1/05/2010
T110437	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	74.1 km NW. of Newman	-22.78139	119.3606	14/03/2011
T103493	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T105138	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 81.8 km NW. of Newman	-23.005	119.0331	1/05/2010
T107260	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.17161	119.1022	12/05/2010
T105154	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 85.2 km NW. of Newman	-23.00361	118.9942	1/05/2010
T93560	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.98428	119.2677	31/08/2008
T93567	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.98428	119.2677	31/08/2008
T105072	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 89.6 km NW. of Newman	-22.90861	119.0072	1/05/2010
T105073	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 90.6 km NW. of Newman	-22.99778	119.0297	1/05/2010
T105152	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 83.1 km NW. of Newman	-22.975	119.0378	1/05/2010
T91715	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs 4, ca. 100 km NW. of Newman, HD4-8	-23.08656	119.3184	13/05/2008
T108028	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Fortescue Marsh	-22.50113	119.1042	22/04/2010

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T105175	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 83.6 km NW. of Newman	-22.99167	118.9592	1/05/2010
T105089	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C, 84.7 km NW. of Newman	-22.90583	119.0289	1/05/2010
T93762	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Murray Hills, Mulga Downs Station, Ecologia project 1142	-22.117	118.5032	21/04/2009
T111836	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.36622	119.6202	26/03/2011
T93558	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.98428	119.2677	31/08/2008
T153973	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Mt Meharry, 150 m E. of summit	-22.97944	118.5889	31/05/2021
T139674	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.81159	119.0909	31/03/2015
T122363	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C West, 121.6 km NW. of Newman	-22.87886	118.6573	6/02/2012
T140231	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	South Flank, ca. 95 km NW. of Newman	-22.95203	118.7628	16/03/2016
T126556	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	45 km ESE. of Paraburdoo, site 1000-tur06	-23.2738	118.202	27/04/2012
T122362	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C West, 121.6 km NW. of Newman	-22.87886	118.6573	6/02/2012
T153975	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Mt Meharry, 150 m E. of summit	-22.97944	118.5889	31/05/2021
T153972	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Mt Meharry, 150 m E. of summit	-22.97944	118.5889	31/05/2021
T153974	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Mt Meharry, 150 m E. of summit	-22.97944	118.5889	31/05/2021
T122884	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	119.4 km NW. of Newman	-22.93389	118.6639	31/03/2012
T123608	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	BHP Main Rail 208 km SSE. of Port Hedland	-22.1879	118.9892	23/04/2012
T122361	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C West, 121.6 km NW. of Newman	-22.87886	118.6573	6/02/2012
T122381	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 104.3 km NW. of Newman	-23.07792	118.7523	6/02/2012
T118347	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	ca. 120 km NW. of Newman	-22.85833	118.8417	4/04/2012
T118348	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	ca. 120 km NW. of Newman	-22.80639	118.8853	6/04/2012
T140266	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	South Flank, ca. 95 km NW. of Newman	-23.01808	118.8176	16/03/2016
T125302	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.36622	119.6202	26/03/2011
T139689	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.84775	119.1102	1/09/2015
T127759	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, ca. 26 km SSE. of Mt Meharry	-23.18751	118.7099	25/09/2012
T122188	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Area C West to Yandi, 110 km NW. of Newman	-22.7425	118.8814	8/02/2012
T118025	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	ca. 71 km NW. of Newman	-23.12907	119.0889	23/09/2011
T118343	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	ca. 120 km NW. of Newman	-22.85833	118.8417	4/04/2012
T118344	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	ca. 120 km NW. of Newman	-22.80639	118.8853	6/04/2012
T139672	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.81159	119.0909	31/03/2015
T125636	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	BHP Main Rail 208 km SSE. of Port Hedland	-22.18398	119.0331	23/04/2012
T122151	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Southern Flank to Jinidi, 71.5 km NW. of Newman	-23.00389	119.1389	1/02/2012
T126600	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	45 km ESE. of Paraburdoo, site 1000-tur06	-23.2738	118.202	27/04/2012
T113158	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.40898	119.8845	8/04/2011

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T128256	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	ca. 18 km N. of Wittenoom	-22.06667	118.3625	20/05/2013
T140269	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Ministers North ca. 93 km NW. of Newman	-22.81253	119.0985	31/08/2015
T128910	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Hamersley Range, ca. 30 km ESE. of Juna Downs	-22.67886	119.0483	2/04/2014
T139692	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.84775	119.1102	1/09/2015
T132866	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Ophthalmia Range, ca. 20 km N. of Newman	-23.13989	119.6826	25/03/2014
T113157	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.35473	119.7704	10/04/2011
T146557	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	Greater Hope Downs, Hope Downs 1 mine, ca. 80.9 km NW. of Newman	-23.07796	119.0009	25/05/2018
T125632	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Beierolpium sp.	epigean	potential SRE: DD	Genus contains SREs and potential SREs	BHP Main Rail 235 km SSE. of Port Hedland	-22.43681	119.0184	23/04/2012
T76986	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	NW. of Newman, Ore Body 24, site 1 (waypoint 119)	-23.2911	119.7647	7/03/2006
T107486	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Orebody 35, ca. 8 km W. of Newman, site 18-HC562	-23.41822	119.5847	14/08/2010
T103415	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Roy Hill	-22.58467	120.0265	11/03/2010
T76989	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	NE. of Newman, Ore Body 25, site 5 (waypoint 133)	-23.3222	119.7703	11/03/2006
T76990	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	NE. of Newman, Ore Body 25, site 3 (waypoint 133)	-23.3255	119.7669	10/03/2006
T76992	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	NE. of Newman, Ore Body 25, site 1 (waypoint 128)	-23.3219	119.7669	12/03/2006
T76993	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	NW. of Newman, Ore Body 24, site 4 (waypoint 124)	-23.308	119.8108	8/03/2006
T107490	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Orebody 35, ca. 8 km W. of Newman, site 25-HC576	-23.4021	119.5625	11/08/2010
T107494	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Orebody 35, ca. 8 km W. of Newman, site 8-HC590	-23.41583	119.592	14/08/2010
T107488	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Orebody 35, ca. 8 km W. of Newman, site 9-HC571	-23.39005	119.6426	12/08/2010
T107487	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Orebody 35, ca. 8 km W. of Newman, site 8-HC565	-23.4159	119.592	11/08/2010
T111894	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	South Parmelia, 61.9 km NW. of Newman	-23.04472	119.2289	18/04/2011

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T107484	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Orebody 35, ca. 8 km W. of Newman, site 25-HC551	-23.4021	119.5625	11/08/2010
T97360	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.08803	119.161	26/04/2009
T97359	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.08803	119.161	26/04/2009
T74146	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Dales Gorge, upstream from Fernpool, Karijini National Park	-22.47749	118.54584	8/07/2006
T91924	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Hamersley Range, Weeli Wolli Creek region, Area C, site 12-12Q	-22.91681	118.9105	13/06/2008
T93816	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Spinifex Ridge, ca. 140 km ESE. of Port Hedland	-22.92694	119.8544	27/11/2008
T94805	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Jinayri, ca. 60 km NW. of Newman	-23.03244	119.2159	12/02/2009
T91927	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Hamersley Range, Weeli Wolli Creek region, Area C, site 04-4A	-22.93119	119.0098	13/06/2008
T115930	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 75 km heading 289° from Newman	-23.13551	119.0384	19/05/2011
T115928	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 75 km heading 289° from Newman	-23.13551	119.0384	19/05/2011
T115929	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 81 km, heading 286° from Newman	-23.15965	118.9703	18/05/2011
T126578	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	67.5 km ESE. of Paraburdoo, site 1000-tur03	-23.32424	118.3173	3/05/2012
T114694	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Angelo River, 100 km W. of Newman	-23.26478	118.7539	20/06/2011
T118963	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.1734	119.0946	21/07/2011
T118959	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.12692	119.2123	20/07/2011
T136298	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna Mining Lease, ca 70 km WNW. of Newman	-23.12877	119.0904	19/05/2011

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T115931	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 70 km heading 291° from Newman	-23.12877	119.0904	19/05/2011
T136299	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna Mining Lease, ca 70 km WNW. of Newman	-23.12877	119.0904	19/05/2011
T140235	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	South Flank, ca. 95 km NW. of Newman	-22.95333	118.96	16/03/2016
T146558	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Greater Hope Downs, Hope Downs 1 mine, ca. 70.4 km NW. of Newman	-23.03724	119.1365	24/05/2018
T115914	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 73 km heading 291° from Newman	-23.12101	119.0632	20/05/2011
T114689	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Angelo River, 95 km W. of Newman	-23.33464	118.8016	20/06/2011
T115920	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 71 km heading 290° from Newman	-23.13146	119.0774	19/05/2011
T116683	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Area C West, ca. 90 km E. of Tom Price	-22.87639	118.6408	27/09/2011
T115919	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 75 km heading 289° from Newman	-23.13551	119.0384	19/05/2011
T115918	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 72 km heading 290° from Newman	-23.13091	119.0689	19/05/2011
T125633	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	BHP Main Rail 208 km SSE. of Port Hedland	-22.12992	119.0217	23/04/2012
T115917	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 70 km heading 291° from Newman	-23.12877	119.0904	19/05/2011
T126985	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	114.4 km NW. of Newman	-22.58083	119.0017	20/11/2011
T115916	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 77 km heading 289° from Newman	-23.13317	119.0154	23/05/2011
T125635	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	BHP Main Rail 208 km SSE. of Port Hedland	-22.15153	119.0194	23/04/2012
T115915	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 71 km heading 290° from Newman	-23.13146	119.0774	19/05/2011

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T123622	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	BHP Main Rail 190 km SSE. of Port Hedland	-22.01464	119.0058	23/04/2012
T115913	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 73 km heading 291° from Newman	-23.11855	119.0649	20/05/2011
T115912	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 78 km heading 286° from Newman	-23.1615	119.002	18/05/2011
T115911	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 70 km heading 291° from Newman	-23.12877	119.0904	19/05/2011
T115910	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 77 km heading 289° from Newman	-23.13317	119.0154	23/05/2011
T115909	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 76 km heading 290° from Newman	-23.1169	119.0396	20/05/2011
T153971	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Karijini National Park, Mt Meharry, 150 m E. of summit	-22.97944	118.5889	31/05/2021
T115908	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 73 km heading 291° from Newman	-23.12202	119.0611	20/05/2011
T130391	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.7415	119.0617	14/05/2013
T139691	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Ministers North, ca. 93 km NW. of Newman	-22.84775	119.1102	1/09/2015
T149482	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	69.8 km NW. of Newman	-23.04071	119.1411	13/03/2019
T123611	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	BHP Main Rail 222 km SSE. of Port Hedland	-22.35344	119	23/04/2012
T122190	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Area C West to Yandi, 110 km NW. of Newman	-22.7425	118.8814	8/02/2012
T122191	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Area C West to Yandi, 110 km NW. of Newman	-22.7425	118.8814	8/02/2012
T122195	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Area C West to Yandi, 110 km NW. of Newman	-22.7425	118.8814	8/02/2012
T115927	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 72 km heading 290° from Newman	-23.13091	119.0689	19/05/2011

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T127762	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	West Angelas, ca. 22 km SSE. of Mt Meharry	-23.14808	118.6912	25/09/2012
T118975	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.265	119.0252	8/08/2011
T118927	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Marillana, ca. 100 km NW. of Newman	-22.17348	119.0937	21/07/2011
T123607	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	BHP Main Rail 235 km SSE. of Port Hedland	-22.43681	119.0184	23/04/2012
T115921	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 71 km heading 290° from Newman	-23.13146	119.0774	19/05/2011
T115925	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 70 km heading 291° from Newman	-23.12877	119.0904	19/05/2011
T122189	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Area C West to Yandi, 110 km NW. of Newman	-22.7425	118.8814	8/02/2012
T115924	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 74 km heading 290° from Newman	-23.12166	119.0498	20/05/2011
T123613	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	BHP Main Rail 208 km SSE. of Port Hedland	-22.16062	119.0162	23/04/2012
T126242	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	114.4 km NW. of Newman	-22.58083	119.0017	20/11/2011
T123616	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	BHP Main Rail 208 km SSE. of Port Hedland	-22.18854	119.0312	23/04/2012
T115923	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 75 km heading 289° from Newman	-23.13551	119.0384	19/05/2011
T115922	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 72 km heading 290° from Newman	-23.13091	119.0689	19/05/2011
T123621	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	BHP Main Rail 190 km SSE. of Port Hedland	-22.02648	119.0029	23/04/2012
T115926	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Euryolpium sp.	epigean	Potential SRE: DD	DNA Sequence data indicated the presence of multiple species in the pilbara however their SRE status is unknown (Alacran. Unpublished data)	Wonmunna, ca. 75 km heading 289° from Newman	-23.13551	119.0384	19/05/2011
T136516	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Euryolpium?' sp.	epigean	potential SRE: DD	genus contains SREs and potential SREs	Koodaideri, 116.7 km ENE. of Tom Price	-22.45016	118.8937	8/05/2012
T136517	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Euryolpium?' sp.	epigean	potential SRE: DD	genus contains SREs and potential SREs	Koodaideri, 105.5 km ENE. of Tom Price	-22.34836	118.744	9/05/2012
T134341	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'B17'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.0996	118.185	22/04/2014

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T134344	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'B17'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.08413	118.227	22/04/2014
T134343	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'B17'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.08413	118.227	22/04/2014
T134333	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'B17'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.08413	118.227	22/04/2014
T134332	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'B17'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.08413	118.227	22/04/2014
T134331	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'B17'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.08413	118.227	22/04/2014
T124976	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'long chelal hand'	epigean	Potential SRE: DD	W.A. Museum assessment	64 km E. of Paraburdoo, site 1000-tur07	-23.21957	118.2932	28/04/2012
T139690	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'PSE118'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.84775	119.1102	1/09/2015
T139696	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'PSE123'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.81253	119.0985	31/08/2015
T139701	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'PSE123'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.82743	119.1276	2/09/2015
T139678	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'PSE123'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.84092	119.1019	1/09/2015
T139705	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'PSE123'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.84279	119.1159	1/09/2015
T139675	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'PSE123'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.81782	119.0947	1/09/2015
T139683	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'PSE123'	epigean	Potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.82825	119.144	2/09/2015
T136334	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'PSE124'	epigean	Potential SRE: DD	W.A. Museum assessment	Hammersley Range, ca. 30 km ESE. of Juna Downs	-22.67516	119.0488	29/03/2014
T105066	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'PSE125'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 78.9 km NW. of Newman	-22.90278	119.1439	1/05/2010
T93929	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, Pilbara, site 17	-22.14652	119.0184	7/04/2008
T93930	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, Pilbara, site 11	-22.14832	119.0254	7/04/2008
T93934	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, Pilbara, site 24	-22.05037	118.9934	6/05/2008
T93932	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, Pilbara, site 13	-22.14972	119.0178	6/05/2008
T94693	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Auski Road House, 55.5 km S. of (Ecologia 997)	-22.88583	118.6883	1/09/2008
T93935	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, Pilbara, site 21	-22.1516	119.0163	6/05/2008
T104837	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site10-P8	-23.39973	119.6519	12/03/2010
T93888	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, Ecologia site 27	-22.11	118.9033	13/07/2008
T93887	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, Ecologia site 25	-22.02833	119.0222	13/07/2008
T93563	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinary, ca. 60 km NW. of Newman	-22.97836	119.2609	31/08/2008
T97643	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.12156	118.513	20/04/2009
T93936	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, Pilbara, site 13	-22.14972	119.0178	6/05/2008
T93937	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, Pilbara, site 14	-22.15081	119.0179	9/06/2008
T97614	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.73199	119.194	4/04/2009
T93938	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, Pilbara, site 22	-22.05167	118.9884	6/05/2008
T93941	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, Pilbara, site 19	-22.13873	119.0137	6/05/2008
T94817	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.98428	119.2677	3/02/2009
T93942	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, Pilbara, site 24	-22.05037	118.9934	7/04/2008

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T97619	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.73661	119.1811	4/04/2009
T94692	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Auski Road House, 55.5 km S. of (Ecologia 997)	-22.88694	118.6408	1/09/2008
T94691	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Auski Road House, 55.5 km S. of (Ecologia 997)	-22.88083	118.6444	1/09/2008
T93943	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, Pilbara, site 17	-22.14652	119.0184	13/07/2008
T93965	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Hope Downs 4, ca. 30 km NW. of Newman, HD4-3 Gully	-23.15347	119.5329	17/09/2008
T77740	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	NW. of Newman, Ore Body 24, site 1 (waypoint 119)	-23.2911	119.7647	7/03/2006
T93939	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, Pilbara, site 15	-22.15019	119.0179	6/05/2008
T73318	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Hamersley Range, The Governor, cliff base face	-23.07972	118.81083	12/09/2005
T93258	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.46975	119.8778	23/05/2009
T93256	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.45909	119.9023	23/05/2009
T93255	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.47936	119.9421	26/05/2009
T93253	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.50397	120.021	24/05/2009
T93252	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.48111	119.8844	27/05/2009
T93251	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.51014	119.927	21/06/2009
T93249	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.47936	119.9421	26/05/2009
T93248	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.47936	119.9421	26/05/2009
T92117	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Hope Downs [Station], bore RC06TE366	-23.12611	119.4892	14/03/2008
T92108	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Hope Downs [Station], bore PC294	-23.15389	119.5728	3/10/2007
T91928	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Hamersley Range, Weeli Wolli Creek region, Area C, site 12-12B	-22.91681	118.9105	13/06/2008
T82325	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Metals Group, Chichester Ridge, Port Hedland - Newman Railway (FMG17)	-22.2994	119.0231	12/03/2004
T94815	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.04078	119.2798	9/02/2009
T82326	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Metals Group, Chichester Ridge, Port Hedland - Newman Railway (FMG17)	-22.2994	119.0231	12/03/2004
T93262	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.55656	119.9703	25/05/2009
T82327	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Metals Group, Chichester Ridge, Port Hedland - Newman Railway (FMG17)	-22.2994	119.0231	12/03/2004
T76973	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	NW. of Newman, Ore Body 24, site 1 (waypoint 119)	-23.2911	119.7647	7/03/2006
T76974	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	NW. of Newman, Ore Body 24, site 2 (waypoint 122)	-23.3013	119.7839	8/03/2006
T76983	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	NW. of Newman, Ore Body 24, site 2 (waypoint 122)	-23.3013	119.7839	8/03/2006
T76984	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	NE. of Newman, Ore Body 25, site 5 (waypoint 133)	-23.3222	119.7703	12/03/2006
T76985	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	NW. of Newman, Ore Body 24, site 5 (waypoint 126)	-23.3091	119.8275	9/03/2006
T76987	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	NW. of Newman, Ore Body 24, site 1 (waypoint 119)	-23.2911	119.7647	9/03/2006
T76988	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	NE. of Newman, Ore Body 25, site 5 (waypoint 133)	-23.3222	119.7703	11/03/2006
T96530	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.04078	119.2798	9/02/2009
T96793	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Maralina Station, 60 km ESE. of Auski Roadhouse, project 974	-22.60556	119.2367	30/06/2008

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T96841	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 60 km ESE. of Auski Roadhouse, East Pilbara (Ecologia 974)	-22.60958	119.2446	10/10/2008
T96846	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 60 km ESE. of Auski Roadhouse, East Pilbara (Ecologia 974)	-22.54972	119.2139	6/09/2008
T96847	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 60 km ESE. of Auski Roadhouse, East Pilbara (Ecologia 974)	-22.555	119.2214	6/09/2008
T73316	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Hamersley Range, The Governor, cliff base face	-23.07972	118.81083	12/09/2005
T94724	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.56639	119.2308	6/09/2008
T97611	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.73408	119.1851	2/04/2009
T94696	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Auski Road House, 55.5 km S. of (Ecologia 997)	-22.8725	118.6747	29/07/2008
T94700	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.60556	119.2367	6/09/2008
T94701	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.54833	119.2128	6/09/2008
T94702	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.62667	119.2789	30/06/2008
T97607	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.74126	119.1959	3/04/2009
T94704	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.58694	119.2508	6/09/2008
T97604	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.7361	119.1834	4/04/2009
T94707	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.54944	119.2114	6/09/2008
T94708	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.56639	119.2308	30/06/2008
T94714	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.58222	119.3119	30/06/2008
T94716	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.62639	119.2842	6/09/2008
T94717	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.58222	119.3119	6/09/2008
T93260	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.55692	119.97	26/05/2009
T94814	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.98428	119.2677	10/02/2009
T94694	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Auski Road House, 55.5 km S. of (Ecologia 997)	-22.88694	118.6408	17/06/2008
T93265	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.4943	119.9217	26/05/2009
T93266	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.50397	120.021	22/06/2009
T93267	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.43963	119.9453	23/05/2009
T93269	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.47936	119.9421	26/05/2006
T94720	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.58222	119.3119	6/09/2008
T94816	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.98428	119.2677	3/02/2009
T94722	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Maralina Station, 60 km ESE. of Auski Road House (Ecologia 974)	-22.55389	119.2283	6/09/2008
T94811	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.04122	119.2907	12/02/2009
T94806	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.03244	119.2159	12/02/2009
T94803	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.04078	119.2798	9/02/2009
T94801	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.04078	119.2797	3/02/2009
T94726	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 60 km ESE. of Auski Roadhouse, East Pilbara (Ecologia 974)	-22.62611	119.2803	6/09/2008

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T93261	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.4943	119.9217	26/05/2009
T94825	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.04119	119.2907	12/02/2009
T105186	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 85.8 km NW. of Newman	-22.89639	119.0619	1/05/2010
T105170	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 81.4 km NW. of Newman	-22.95806	119.0692	1/05/2010
T105171	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010
T105174	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 61.8 km NW. of Newman	-22.99861	118.8686	1/05/2010
T105177	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 92.7 km NW. of Newman	-22.99861	118.9067	1/05/2010
T105178	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 78.9 km NW. of Newman	-22.90278	119.1439	1/05/2010
T105179	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 81.8 km NW. of Newman	-23.005	119.0331	1/05/2010
T105180	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89.4 km NW. of Newman	-22.98028	118.9622	1/05/2010
T107176	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.29301	119.0606	22/04/2010
T105183	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 83.9 km NW. of Newman	-22.99306	119.0156	1/05/2010
T105167	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 92.2 km NW. of Newman	-22.90583	118.9803	1/05/2010
T105187	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010
T105188	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T105189	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89.2 km NW. of Newman	-22.965	118.9756	1/05/2010
T105190	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 92.7 km NW. of Newman	-22.99861	118.9067	1/05/2010
T105191	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	1/05/2010
T105192	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89.2 km NW. of Newman	-22.965	118.9756	1/05/2010
T105193	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 91.3 km NW. of Newman	-22.90055	118.9933	1/05/2010
T105182	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010
T105159	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 78.9 km NW. of Newman	-22.90278	119.1439	1/05/2010
T105147	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 75.8 km NW. of Newman	-22.90583	119.18	1/05/2010
T105148	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T105149	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89 km NW. of Newman	-22.95639	118.9833	1/05/2010
T105150	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T105151	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 84.7 km NW. of Newman	-22.9025	119.0708	1/05/2010
T105153	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	1/05/2010
T105156	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 85.2 km NW. of Newman	-23.00361	118.9942	1/05/2010
T105169	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 83.1 km NW. of Newman	-22.975	119.0378	1/05/2010
T105158	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 92.2 km NW. of Newman	-22.90583	118.9803	1/05/2010
T105168	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 86.2 km NW. of Newman	-23.01194	118.9814	1/05/2010
T105160	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 98.2 km NW. of Newman	-23.00778	118.8536	1/05/2010

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T105161	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 81.4 km NW. of Newman	-22.95806	119.0692	1/05/2010
T105162	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 85.8 km NW. of Newman	-22.89639	119.0619	1/05/2010
T105163	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89.6 km NW. of Newman	-22.92278	119.1628	1/05/2010
T105164	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 92.2 km NW. of Newman	-22.90583	118.9803	1/05/2010
T105165	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 81.4 km NW. of Newman	-22.95806	119.0692	1/05/2010
T105166	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T105196	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 83.1 km NW. of Newman	-22.975	119.0378	1/05/2010
T105157	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89.4 km NW. of Newman	-22.98028	118.9622	1/05/2010
T107165	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.31579	119.2407	22/04/2010
T105194	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89.6 km NW. of Newman	-23.00111	118.9478	1/05/2010
T107154	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.47499	119.0555	22/04/2010
T107155	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.4233	119.0101	22/04/2010
T107158	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.4233	119.0101	22/04/2010
T107159	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.2927	119.069	22/04/2010
T107160	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.53063	119.1685	22/04/2010
T107162	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.30899	119.1537	22/04/2010
T107152	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.29301	119.0606	22/04/2010
T107164	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.47499	119.0555	22/04/2010
T107151	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.53063	119.1685	22/04/2010
T107166	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.50981	119.1274	22/04/2010
T107167	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.50113	119.1042	22/04/2010
T107170	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.31579	119.2407	22/04/2010
T107171	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.48899	119.0858	22/04/2010
T107172	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.29301	119.0606	22/04/2010
T107173	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.47499	119.0555	22/04/2010
T107174	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.50113	119.1042	22/04/2010
T104987	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site6-P10	-23.40217	119.5749	12/03/2010
T107163	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.4233	119.0101	22/04/2010
T107140	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.50113	119.1042	22/04/2010
T105143	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T105198	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 81.8 km NW. of Newman	-23.005	119.0331	1/05/2010
T105200	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 78.9 km NW. of Newman	-22.90278	119.1439	1/05/2010
T105201	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 91.3 km NW. of Newman	-22.90055	118.9933	1/05/2010

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T105202	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T105203	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 91.3 km NW. of Newman	-22.90055	118.9933	1/05/2010
T105204	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 84.7 km NW. of Newman	-22.9025	119.0708	1/05/2010
T107153	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.40839	119.0055	22/04/2010
T107139	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.47499	119.0555	22/04/2010
T105195	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 90.6 km NW. of Newman	-22.89889	119.0019	1/05/2010
T107143	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.4233	119.0101	22/04/2010
T107144	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.30899	119.1537	22/04/2010
T107145	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.29301	119.0606	22/04/2010
T107146	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.47499	119.0555	22/04/2010
T107147	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.30899	119.1537	22/04/2010
T107148	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.2927	119.069	22/04/2010
T107149	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.4233	119.0101	22/04/2010
T107150	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.31579	119.2407	22/04/2010
T105205	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 61.8 km NW. of Newman	-22.99861	118.8686	1/05/2010
T105080	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 61.8 km NW. of Newman	-22.99861	118.8686	1/05/2010
T105091	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 83.1 km NW. of Newman	-22.975	119.0378	1/05/2010
T105069	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89.3 km NW. of Newman	-22.90639	119.0125	1/05/2010
T105071	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 83.6 km NW. of Newman	-22.99167	118.9592	1/05/2010
T105074	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.7 km NW. of Newman	-22.89917	119.0994	1/05/2010
T105075	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 93.1 km NW. of Newman	-23	118.9131	1/05/2010
T105076	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89.6 km NW. of Newman	-22.92278	119.1628	1/05/2010
T105077	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 90.6 km NW. of Newman	-22.89889	119.0019	1/05/2010
T105067	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 93.1 km NW. of Newman	-23	118.9131	1/05/2010
T105079	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T105065	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89.4 km NW. of Newman	-22.98028	118.9622	1/05/2010
T105081	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 87.2 km NW. of Newman	-22.98917	118.9822	1/05/2010
T105082	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010
T105084	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 83.1 km NW. of Newman	-22.975	119.0378	1/05/2010
T105085	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 84.7 km NW. of Newman	-22.90583	119.0289	1/05/2010
T105086	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 84.7 km NW. of Newman	-22.90583	119.0289	1/05/2010
T105087	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T105088	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010

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T105146	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T105078	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 90.6 km NW. of Newman	-22.99778	119.0297	1/05/2010
T105052	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89 km NW. of Newman	-22.95639	118.9833	1/05/2010
T104835	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site10-P2	-23.40002	119.6523	12/03/2010
T104989	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site6-P4	-23.40153	119.5749	12/03/2010
T104990	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site8-P6	-23.41537	119.5915	14/03/2010
T104991	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site6-P5	-23.40157	119.5747	12/03/2010
T104992	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site4-P1	-23.40216	119.5971	12/03/2010
T104993	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site1-P2	-23.39436	119.6316	13/03/2010
T104994	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site16-P5	-23.40462	119.6114	14/03/2010
T105068	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 90.6 km NW. of Newman	-22.99778	119.0297	1/05/2010
T105051	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89.5 km NW. of Newman	-22.97806	118.9636	1/05/2010
T105092	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010
T105053	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89.2 km NW. of Newman	-22.965	118.9756	1/05/2010
T105054	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T105055	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89 km NW. of Newman	-22.95639	118.9833	1/05/2010
T105056	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89.5 km NW. of Newman	-22.97806	118.9636	1/05/2010
T105058	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T105059	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 93.1 km NW. of Newman	-23	118.9131	1/05/2010
T105062	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T105064	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.7 km NW. of Newman	-22.89917	119.0994	1/05/2010
T105050	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89.5 km NW. of Newman	-22.97806	118.9636	1/05/2010
T105132	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 85.8 km NW. of Newman	-23.01722	118.8889	1/05/2010
T105090	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	1/05/2010
T105121	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 92.7 km NW. of Newman	-22.99861	118.9067	1/05/2010
T105122	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 91.3 km NW. of Newman	-22.90055	118.9933	1/05/2010
T105123	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 81.8 km NW. of Newman	-23.005	119.0331	1/05/2010
T105124	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 93.1 km NW. of Newman	-23	118.9131	1/05/2010
T105125	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 93.7 km NW. of Newman	-22.99861	118.9075	1/05/2010
T105126	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 87.3 km NW. of Newman	-22.89528	119.045	1/05/2010
T105119	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	1/05/2010
T105129	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 89.6 km NW. of Newman	-22.90861	119.0072	1/05/2010
T105118	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 88.4 km NW. of Newman	-22.89889	119.0306	1/05/2010

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T105133	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 75.8 km NW. of Newman	-22.90583	119.18	1/05/2010
T105135	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 83.1 km NW. of Newman	-22.975	119.0378	1/05/2010
T105136	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 85.2 km NW. of Newman	-23.00361	118.9942	1/05/2010
T105137	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T105139	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 83.9 km NW. of Newman	-22.99306	119.0156	1/05/2010
T105141	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 81.6 km NW. of Newman	-22.90694	119.1242	1/05/2010
T105142	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T107177	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.40839	119.0055	22/04/2010
T105127	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 75.8 km NW. of Newman	-22.90583	119.18	1/05/2010
T105105	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 81.4 km NW. of Newman	-22.95806	119.0692	1/05/2010
T105093	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 81.6 km NW. of Newman	-22.90694	119.1242	1/05/2010
T105094	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010
T105096	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T105098	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 88.4 km NW. of Newman	-22.89889	119.0306	1/05/2010
T105099	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T105100	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 85.8 km NW. of Newman	-23.01722	118.8889	1/05/2010
T105101	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T105120	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 78.2 km NW. of Newman	-22.91778	119.1339	1/05/2010
T105103	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 85.8 km NW. of Newman	-22.89639	119.0619	1/05/2010
T105145	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T105107	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 84.7 km NW. of Newman	-22.9025	119.0708	1/05/2010
T105108	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 84.7 km NW. of Newman	-22.90583	119.0289	1/05/2010
T105109	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	1/05/2010
T105113	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 87.2 km NW. of Newman	-22.98917	118.9822	1/05/2010
T105114	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 98.2 km NW. of Newman	-23.00778	118.8536	1/05/2010
T105115	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 92.2 km NW. of Newman	-22.90583	118.9803	1/05/2010
T105116	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 85.2 km NW. of Newman	-23.00361	118.9942	1/05/2010
T105117	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	1/05/2010
T105102	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 84.7 km NW. of Newman	-22.90583	119.0289	1/05/2010
T109053	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.29803	119.3936	26/10/2010
T109044	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.35274	119.4189	26/10/2010
T109045	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.40119	119.4756	26/10/2010
T109046	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.37134	119.5516	26/10/2010

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T109047	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.40119	119.4756	26/10/2010
T109048	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.28271	119.4037	26/10/2010
T109049	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.25987	119.2786	26/10/2010
T109050	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.39496	119.5019	26/10/2010
T107175	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.50981	119.1274	22/04/2010
T109052	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.28814	119.236	26/10/2010
T109041	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.40119	119.4756	26/10/2010
T109056	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.33034	119.2322	26/10/2010
T109057	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.32517	119.4458	26/10/2010
T109058	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.32517	119.4458	26/10/2010
T109059	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.3652	119.3409	26/10/2010
T109060	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.25987	119.2786	26/10/2010
T109061	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.35274	119.4189	26/10/2010
T109062	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.39496	119.5019	26/10/2010
T109051	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.31496	119.154	26/10/2010
T109033	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.28058	119.4105	26/10/2010
T109024	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.39737	119.4634	26/10/2010
T109025	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.38944	119.438	26/10/2010
T109026	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.25987	119.2786	26/10/2010
T109027	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.3395	119.2775	26/10/2010
T109028	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.3395	119.2775	26/10/2010
T109029	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.28058	119.4105	26/10/2010
T109030	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.28271	119.4037	26/10/2010
T109043	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.28271	119.4037	26/10/2010
T109032	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.28058	119.4105	26/10/2010
T109042	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.39856	119.4748	26/10/2010
T109034	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.37134	119.5516	26/10/2010
T109035	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.39856	119.4748	26/10/2010
T109036	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.35274	119.4189	26/10/2010
T109037	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.32517	119.4458	26/10/2010
T109038	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.37134	119.5516	26/10/2010
T109039	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.29803	119.3936	26/10/2010
T109040	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.40119	119.4756	26/10/2010

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T109065	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.28814	119.236	26/10/2010
T109031	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.29803	119.3936	26/10/2010
T112051	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	114 km NNW. of Newman	-22.32633	119.74935	24/03/2011
T109063	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.31462	119.302	26/10/2010
T112043	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	114 km NNW. of Newman	-22.32571	119.73924	22/03/2011
T112044	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	118 km N. of Newman	-22.29725	119.8633	24/03/2011
T112045	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	114 km NNW. of Newman	-22.32571	119.73924	22/03/2011
T112046	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	118 km N. of Newman	-22.29725	119.8633	24/03/2011
T112047	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	118 km N. of Newman	-22.29548	119.81087	24/03/2011
T112048	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	115 km NNW. of Newman	-22.31787	119.74757	24/03/2011
T111893	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	South Parmelia, 59.3 km NW. of Newman	-23.07694	119.2356	16/04/2011
T112050	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	118 km N. of Newman	-22.29725	119.8633	24/03/2011
T111842	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. of Newman	-22.38198	119.8184	23/03/2011
T112052	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	115 km NNW. of Newman	-22.31787	119.74757	24/03/2011
T112053	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	115 km N. of Newman	-22.31347	119.78861	25/03/2011
T112054	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	115 km NNW. of Newman	-22.31787	119.74757	24/03/2011
T112055	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	115 km N. of Newman	-22.31347	119.78861	25/03/2011
T112056	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	114 km NNW. of Newman	-22.32571	119.73924	22/03/2011
T112057	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	104 km NNE. of Newman	-22.44815	119.986	26/03/2011
T112058	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	114 km NNW. of Newman	-22.32571	119.73924	22/03/2011
T112059	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	115 km NNW. of Newman	-22.31787	119.74757	24/03/2011
T112049	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	118 km N. of Newman	-22.29725	119.8633	24/03/2011
T111829	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. of Newman	-22.40771	119.8662	8/04/2011
T109020	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [mine lease], c. 90 km SW. of Nullagine	-22.38944	119.438	26/10/2010
T109066	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.31462	119.302	26/10/2010
T109067	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.31462	119.302	26/10/2010
T109068	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.31496	119.154	26/10/2010
T109069	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.39496	119.5019	26/10/2010
T109070	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.28814	119.236	26/10/2010
T109071	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.33034	119.2322	26/10/2010
T112042	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	114 km NNW. of Newman	-22.32571	119.73924	22/03/2011
T110690	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	17 km NE. of Roy Hill Station homestaed, (1215)	-22.48279	119.8811	11/03/2010
T109064	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.31496	119.154	26/10/2010

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T111831	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. of Newman	-22.40149	119.7938	6/04/2011
T111832	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. of Newman	-22.40149	119.7938	6/04/2011
T111833	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. of Newman	-22.40898	119.8845	8/04/2011
T111835	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. of Newman	-22.36568	119.6031	11/04/2011
T111838	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. of Newman	-22.35473	119.7704	10/04/2011
T111839	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. of Newman	-22.38198	119.8184	10/04/2011
T111840	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. of Newman	-22.37891	119.8186	23/03/2011
T111841	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. of Newman	-22.39853	119.793	23/03/2011
T109502	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.39856	119.4748	26/10/2010
T107251	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.26757	119.0282	12/05/2010
T107266	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.01871	119.0342	12/05/2010
T107241	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-23.11648	119.8865	20/04/2010
T107243	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.12816	119.0517	12/05/2010
T107244	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.22039	119.0431	12/05/2010
T107245	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.22762	119.0318	12/05/2010
T107246	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.13221	119.1983	12/05/2010
T107247	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.10906	119.2235	12/05/2010
T107237	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-22.92727	119.7217	20/04/2010
T107250	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.26757	119.0282	12/05/2010
T107236	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-22.63357	119.3289	20/04/2010
T107252	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.26757	119.0282	12/05/2010
T107253	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.28588	119.0282	12/05/2010
T107254	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.21847	119.0585	12/05/2010
T107257	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.21436	119.0332	12/05/2010
T107258	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.17161	119.1022	12/05/2010
T107259	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.12372	119.043	12/05/2010
T107261	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.21847	119.0585	12/05/2010
T109022	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [mine lease], c. 90 km SW. of Nullagine	-22.31934	119.1917	26/10/2010
T107248	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.21436	119.0332	12/05/2010
T107221	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-22.63357	119.3289	20/04/2010
T107178	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.2927	119.069	22/04/2010
T107212	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-22.63357	119.3289	20/04/2010
T107213	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-22.63357	119.3289	20/04/2010

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T107214	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-22.63357	119.3289	20/04/2010
T107215	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-22.98419	119.7707	20/04/2010
T107216	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-22.98419	119.7707	20/04/2010
T107218	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-23.11648	119.8865	20/04/2010
T107238	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-23.36711	119.7874	20/04/2010
T107220	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-22.63357	119.3289	20/04/2010
T107267	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.13221	119.1983	12/05/2010
T107222	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-23.11648	119.8865	20/04/2010
T107223	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-22.92727	119.7217	20/04/2010
T107225	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-22.63357	119.3289	20/04/2010
T107226	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-22.66878	119.4189	20/04/2010
T107229	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-22.66878	119.4189	20/04/2010
T107230	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-22.63357	119.3289	20/04/2010
T107231	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-23.31455	119.8553	20/04/2010
T107235	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-22.92727	119.7217	20/04/2010
T107219	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range	-23.11648	119.8865	20/04/2010
T108972	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.29803	119.3936	26/10/2010
T107262	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.12816	119.0517	12/05/2010
T108717	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, northern slopes @	-22.02017	119.0237	22/08/2008
T108965	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.28058	119.4105	26/10/2010
T108966	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.31462	119.302	26/10/2010
T108967	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.25987	119.2786	26/10/2010
T108968	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.37134	119.5516	26/10/2010
T108969	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.28058	119.4105	26/10/2010
T108026	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Fortescue Marsh	-22.48899	119.0858	22/04/2010
T108971	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.29803	119.3936	26/10/2010
T107500	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, site 22-SS601	-23.38197	119.6133	15/08/2010
T108973	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.37134	119.5516	26/10/2010
T109013	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [mine lease], c. 90 km SW. of Nullagine	-22.31496	119.154	26/10/2010
T109014	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [mine lease], c. 90 km SW. of Nullagine	-22.31496	119.154	26/10/2010
T109015	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [mine lease], c. 90 km SW. of Nullagine	-22.28814	119.236	26/10/2010
T109016	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [mine lease], c. 90 km SW. of Nullagine	-22.35274	119.4189	26/10/2010
T109018	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [mine lease], c. 90 km SW. of Nullagine	-22.3652	119.3409	26/10/2010

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T109019	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [mine lease], c. 90 km SW. of Nullagine	-22.38944	119.438	26/10/2010
T104986	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site6-P9	-23.40203	119.5746	12/03/2010
T108970	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [Chichester Range]	-22.37134	119.5516	26/10/2010
T107421	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; LT74	-22.75947	119.3025	5/05/2010
T107399	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Hope Downs, 75.6 km NW. of Newman	-23.00083	119.1392	25/06/2010
T107411	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; S3P1	-22.74083	119.3078	5/05/2010
T107412	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; LT84	-22.76418	119.3003	5/05/2010
T107413	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; LT44	-22.74113	119.3122	5/05/2010
T107416	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; S4P12	-22.75363	119.3014	5/05/2010
T107417	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; LT86	-22.76501	119.2997	5/05/2010
T107418	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; LT24	-22.72917	119.3195	5/05/2010
T108708	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, northern slopes @	-22.22344	118.9285	22/08/2008
T107420	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; S2P17	-22.72779	119.3122	5/05/2010
T109021	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Cloudbreak [mine lease], c. 90 km SW. of Nullagine	-22.31462	119.302	26/10/2010
T107422	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; S5P6	-22.7578	119.2981	5/05/2010
T107423	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; S3P12	-22.74056	119.3067	5/05/2010
T107424	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; LT44	-22.74113	119.3122	5/05/2010
T107425	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; S3P3	-22.73973	119.3072	5/05/2010
T107485	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, site 5-P5	-23.41028	119.5716	17/08/2010
T107495	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, site 1-SS594	-23.39433	119.6316	15/08/2010
T107496	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, site 4-SS595	-23.40216	119.5971	15/08/2010
T107497	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, site 19-SS596	-23.40451	119.6211	14/08/2010
T107419	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; S2P13	-22.7289	119.3125	5/05/2010
T103400	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.50509	119.9143	11/03/2010
T102657	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.58467	120.0265	11/03/2010
T102658	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.44107	119.9789	11/03/2010
T102660	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.50509	119.9143	11/03/2010
T102661	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.50304	119.891	11/03/2010
T102662	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.50509	119.9143	11/03/2010
T103920	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	West Angelas, 117 km SE. of Tom Price	-23.49611	118.5475	24/06/2010
T102755	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	West Angelas mine lease, 99.6 km NW. of Newman @	-23.07983	118.8109	9/09/2005
T102652	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.49673	120.0237	11/03/2010
T103416	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.51806	119.9128	11/03/2010

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T103417	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.51743	119.9314	11/03/2010
T103479	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T103495	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 83.1 km NW. of Newman	-22.975	119.0378	1/05/2010
T103918	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	West Angelas, 118 km SE. of Tom Price	-23.55139	118.4839	22/06/2010
T104842	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site10-P10	-23.3996	119.6519	12/03/2010
T102664	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.52711	120.0421	11/03/2010
T102626	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.59898	120.036	11/03/2010
T102601	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.50304	119.891	11/03/2010
T102602	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.50304	119.891	11/03/2010
T102604	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.54898	120.036	11/03/2010
T102605	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.58431	120.0172	11/03/2010
T102606	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.58431	120.0172	11/03/2010
T102607	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.58431	120.0172	11/03/2010
T102656	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.58467	120.0265	11/03/2010
T102609	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.58431	120.0172	11/03/2010
T102653	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.49673	120.0237	11/03/2010
T102627	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.59898	120.036	11/03/2010
T102629	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.59335	120.0333	11/03/2010
T102631	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.54898	120.036	11/03/2010
T102632	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.54898	120.036	11/03/2010
T102651	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.54898	120.036	11/03/2010
T103921	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	West Angelas, 94 km SE. of Tom Price	-23.24833	118.4806	25/06/2010
T102608	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.58431	120.0172	11/03/2010
T104833	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site15-P1	-23.37125	119.6127	12/03/2010
T104825	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site12-P1	-23.39946	119.5843	12/03/2010
T104827	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site12-P2	-23.39946	119.5844	12/03/2010
T104828	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site12-P3	-23.39948	119.5844	12/03/2010
T104829	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site14-P1	-23.3837	119.6478	12/03/2010
T104830	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site15-P5	-23.37151	119.6123	12/03/2010
T103919	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	West Angelas, 100 km SE. of Tom Price	-23.14167	118.6403	23/06/2010
T104832	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site15-P2	-23.37127	119.6126	12/03/2010
T104822	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site14-P9	-23.38308	119.6481	12/03/2010
T104834	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site10-P4	-23.40005	119.6522	12/03/2010

T104836	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site10-P1	-23.4003	119.6524	12/03/2010
T104838	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site10-P6	-23.3999	119.6521	12/03/2010
T104839	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site10-P3	-23.40016	119.6523	12/03/2010
T104840	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site10-P5	-23.39999	119.6521	12/03/2010
T104841	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site10-P9	-23.39965	119.6519	12/03/2010
T104831	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site15-P8	-23.37168	119.612	12/03/2010
T104816	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site14-P2	-23.38371	119.6478	12/03/2010
T103922	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	West Angelas, 94 km SE. of Tom Price	-23.24833	118.4806	25/06/2010
T103923	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	West Angelas, 90 km SE. of Tom Price	-23.22167	118.4689	25/06/2010
T103924	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	West Angelas, 116 km SE. of Tom Price	-23.37417	118.6575	26/06/2010
T103925	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	West Angelas, 116 km SE. of Tom Price	-23.35556	118.6825	26/06/2010
T103926	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	West Angelas, 115 km SE. of Tom Price	-23.42139	118.6172	27/06/2010
T104988	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site6-P7	-23.40177	119.5745	12/03/2010
T104824	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site14-P6	-23.38333	119.6479	12/03/2010
T97644	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.12156	118.513	20/04/2009
T104823	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site14-P10	-23.383	119.6482	12/03/2010
T104817	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site14-P2	-23.38371	119.6478	12/03/2010
T104818	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site14-P2	-23.38371	119.6478	12/03/2010
T104819	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site14-P3	-23.38359	119.6478	12/03/2010
T104820	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site14-P5	-23.38341	119.6479	12/03/2010
T104821	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site14-P7	-23.38324	119.6479	12/03/2010
T102597	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.4266	119.9424	11/03/2010
T104814	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site10-HC2	-23.4003	119.6524	14/03/2010
T98303	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri mine site, ca. 65 km NW. of Newman	-22.80556	119.3064	18/06/2009
T98168	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.57691	119.9952	25/05/2009
T98169	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.48987	119.8951	27/05/2009
T98171	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.43963	119.9453	23/05/2009
T98173	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.48111	119.8844	27/05/2009
T98174	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.43963	119.9453	23/05/2009
T102599	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.48279	119.8811	11/03/2010
T98299	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri mine site, ca. 65 km NW. of Newman	-22.80556	119.3064	18/06/2009
T98163	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.57717	120.0247	25/05/2009
T98304	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri mine site, ca. 65 km NW. of Newman	-22.87306	119.2464	19/06/2009

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T98305	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri mine site, ca. 65 km NW. of Newman	-22.94278	119.2328	19/06/2009
T98309	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri mine site, ca. 65 km NW. of Newman	-22.9175	119.1936	21/06/2009
T98310	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinayri mine site, ca. 65 km NW. of Newman	-22.87861	119.2408	23/06/2009
T98455	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.81444	119.8844	27/05/2009
T98458	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.55656	119.9703	25/05/2009
T98175	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.49669	120.0096	24/05/2009
T97653	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.11877	118.507	20/04/2009
T97645	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.117	118.5032	21/04/2009
T97646	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.12302	118.5128	20/04/2009
T97647	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.12919	118.5051	19/04/2009
T97648	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.12919	118.5051	19/04/2009
T97649	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.12782	118.5153	19/04/2009
T97650	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.12072	118.5082	21/04/2009
T98166	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.4943	119.9217	26/05/2009
T97652	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.117	118.5032	21/04/2009
T98165	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill Station, Ecologia Project 1106	-22.48111	119.8844	27/05/2009
T97654	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.117	118.5032	21/04/2009
T97655	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.12174	118.5188	19/04/2009
T97656	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.11234	118.5209	19/04/2009
T97657	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.11471	118.5221	20/04/2009
T97695	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Phils Creek, Ecologia Project 1038	-22.73845	119.1916	3/04/2009
T102334	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 61.8 km NW. of Newman	-22.99889	118.8692	25/02/2010
T97651	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.12469	118.5181	21/04/2009
T102589	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.50509	119.9143	11/03/2010
T112060	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	114 km NNW. of Newman	-22.32633	119.74935	24/03/2011
T102581	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.52711	120.0421	11/03/2010
T102582	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.4321	119.8909	11/03/2010
T102584	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.4321	119.8909	11/03/2010
T102585	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.4321	119.8909	11/03/2010
T102586	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.4321	119.8909	11/03/2010
T102576	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.58467	120.0265	11/03/2010
T102588	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.50509	119.9143	11/03/2010
T102575	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.58467	120.0265	11/03/2010

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T102592	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.44107	119.9789	11/03/2010
T102593	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.44107	119.9789	11/03/2010
T102594	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.4266	119.9424	11/03/2010
T102595	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.50304	119.891	11/03/2010
T102596	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.48279	119.8811	11/03/2010
T104815	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site14-P2	-23.38371	119.6478	12/03/2010
T102587	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.50509	119.9143	11/03/2010
T102566	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.51743	119.9314	11/03/2010
T102598	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.48279	119.8811	11/03/2010
T102541	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	W.A. Museum assessment	West Angelas, 104.8 km W. of Newman	-23.19861	118.72	8/04/2010
T102543	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	West Angelas, 114.4 km W. of Newman	-23.11917	118.6453	7/04/2010
T102561	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.59335	120.0333	11/03/2010
T102562	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.59335	120.0333	11/03/2010
T102563	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.59335	120.0333	11/03/2010
T102577	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.58467	120.0265	11/03/2010
T102565	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.51743	119.9314	11/03/2010
T102333	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Area C, 90.6 km NW. of Newman	-22.99778	119.0297	22/02/2010
T102568	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.51743	119.9314	11/03/2010
T102569	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.51806	119.9128	11/03/2010
T102570	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.51806	119.9128	11/03/2010
T102571	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.51806	119.9128	11/03/2010
T102573	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.51806	119.9128	11/03/2010
T102574	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.58467	120.0265	11/03/2010
T102564	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Roy Hill	-22.59335	120.0333	11/03/2010
T104940	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site3-P4	-23.4048	119.6053	14/03/2010
T104932	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site17-P10	-23.40458	119.6249	12/03/2010
T104933	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site13-P10	-23.39451	119.6392	12/03/2010
T104934	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site5-P1	-23.4108	119.5714	12/03/2010
T104935	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site7-P2	-23.40526	119.6223	14/03/2010
T104936	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site17-P9	-23.40445	119.6251	12/03/2010
T104914	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site5-P8	-23.41007	119.5715	12/03/2010
T104843	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site12-P5	-23.39936	119.5844	12/03/2010
T104929	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site16-P1	-23.40477	119.611	14/03/2010

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T103927	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	West Angelas, 115 km SE. of Tom Price	-23.37417	118.6444	27/06/2010
T104942	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site3-P1	-23.40472	119.6052	14/03/2010
T104943	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site16-P4	-23.40468	119.6111	14/03/2010
T104944	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site5-P3	-23.41051	119.5716	12/03/2010
T104945	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site5-P9	-23.40974	119.5714	12/03/2010
T104946	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site2-P2	-23.40361	119.611	13/03/2010
T104938	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site5-P4	-23.41033	119.5716	12/03/2010
T104923	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site9-P4	-23.39	119.6432	12/03/2010
T104915	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site9-P3	-23.40166	119.575	12/03/2010
T104916	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site9-P2	-23.39013	119.6431	12/03/2010
T104917	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site1-P5	-23.39446	119.6318	13/03/2010
T104918	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site3-P7	-23.40499	119.6052	14/03/2010
T104919	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site4-P9	-23.40256	119.5969	12/03/2010
T104920	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site9-P1	-23.39021	119.643	12/03/2010
T104931	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site17-P5	-23.40458	119.6249	12/03/2010
T104922	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site1-P6	-23.39449	119.6317	13/03/2010
T104930	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site16-P2	-23.40481	119.6111	14/03/2010
T104924	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site17-P3	-23.40458	119.6249	12/03/2010
T104925	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site4-P5	-23.40233	119.5971	12/03/2010
T104926	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site17-P8	-23.40458	119.6249	12/03/2010
T104927	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site4-P7	-23.40233	119.5969	12/03/2010
T104928	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site17-P2	-23.40458	119.6249	12/03/2010
T104950	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site3-P5	-23.4049	119.6053	14/03/2010
T104921	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site9-P9	-23.3896	119.6433	12/03/2010
T104979	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site16-P9	-23.40479	119.6117	14/03/2010
T104947	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site4-P4	-23.40226	119.5971	12/03/2010
T104971	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site3-P9	-23.40477	119.605	14/03/2010
T104972	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site16-P6	-23.40484	119.6116	14/03/2010
T104973	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site9-P7	-23.38976	119.6433	12/03/2010
T104974	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site1-P10	-23.39453	119.6318	13/03/2010
T104975	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site9-P5	-23.38991	119.6433	12/03/2010
T104969	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site5-P2	-23.41063	119.5715	12/03/2010
T104978	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site3-P6	-23.40496	119.6053	14/03/2010

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T104968	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site7-P7	-23.40502	119.6229	14/03/2010
T104980	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site11-P4	-23.42057	119.5675	12/03/2010
T104981	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site6-P2	-23.40161	119.5752	12/03/2010
T104982	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site6-P8	-23.40195	119.5744	12/03/2010
T104983	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site6-P3	-23.40166	119.575	12/03/2010
T104984	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site6-P6	-23.40167	119.5747	12/03/2010
T104985	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site6-P1	-23.40162	119.5753	12/03/2010
T104976	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site3-P3	-23.40488	119.6054	14/03/2010
T104961	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site19-P8	-23.4047	119.6211	14/03/2010
T104939	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site1-P3	-23.39443	119.6316	13/03/2010
T104951	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site16-P3	-23.40471	119.611	14/03/2010
T104952	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site4-P10	-23.40244	119.5967	12/03/2010
T104953	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site9-P6	-23.40244	119.5967	12/03/2010
T104954	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site1-P8	-23.39459	119.6318	13/03/2010
T104958	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site17-P7	-23.40458	119.6249	12/03/2010
T104970	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site16-P7	-23.40472	119.6116	14/03/2010
T104960	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site20-P10	-23.39498	119.5927	12/03/2010
T104949	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site4-P3	-23.40223	119.5971	12/03/2010
T104962	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site4-P6	-23.40224	119.5969	12/03/2010
T104963	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site4-P8	-23.40242	119.5968	12/03/2010
T104964	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site11-P1	-23.42056	119.5673	12/03/2010
T104965	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site20-P8	-23.3952	119.5921	12/03/2010
T104966	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site9-P10	-23.38953	119.6433	12/03/2010
T104967	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site1-P4	-23.39436	119.6317	13/03/2010
T104959	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site2-P1	-23.4036	119.611	13/03/2010
T104853	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site18-P6	-23.41806	119.5847	14/03/2010
T104861	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site2-P6	-23.40362	119.6106	13/03/2010
T104860	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site15-P10	-23.37179	119.6117	12/03/2010
T104859	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site15-P3	-23.37139	119.6125	12/03/2010
T104858	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site15-P7	-23.37165	119.6121	12/03/2010
T104857	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site8-P5	-23.41547	119.5916	14/03/2010
T104878	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site19-P10	-23.40483	119.621	14/03/2010
T104855	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site8-P4	-23.41555	119.5917	14/03/2010

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T104864	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site20-P2	-23.39474	119.5914	12/03/2010
T104851	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site18-P1	-23.41822	119.5847	14/03/2010
T104850	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site18-P10	-23.41765	119.585	14/03/2010
T104849	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site18-P4	-23.41813	119.5845	14/03/2010
T104847	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site18-P7	-23.41806	119.5847	14/03/2010
T104845	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site18-P2	-23.4182	119.5845	14/03/2010
T104844	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site12-P10	-23.39944	119.5843	12/03/2010
T104856	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site15-P6	-23.37157	119.6122	12/03/2010
T104869	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site20-P1	-23.39474	119.5913	12/03/2010
T104877	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site8-P9	-23.41515	119.5911	14/03/2010
T104876	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site19-P5	-23.40417	119.6212	14/03/2010
T104874	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site19-P1	-23.40451	119.6211	14/03/2010
T104873	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site19-P3	-23.40425	119.6212	14/03/2010
T104872	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site8-P3	-23.41562	119.5917	14/03/2010
T104871	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site2-P10	-23.40364	119.6103	13/03/2010
T104862	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site20-P6	-23.39519	119.5919	12/03/2010
T104941	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site3-P10	-23.40474	119.6055	14/03/2010
T104863	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site20-P4	-23.39509	119.5916	12/03/2010
T104913	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site16-P10	-23.40506	119.6114	14/03/2010
T104868	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site20-P7	-23.39511	119.592	12/03/2010
T104867	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site20-P9	-23.39514	119.5924	12/03/2010
T104866	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site20-P5	-23.39509	119.5917	12/03/2010
T104865	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site20-P3	-23.39499	119.5915	12/03/2010
T104846	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site18-P5	-23.41825	119.5844	14/03/2010
T104870	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site2-P8	-23.40368	119.6104	13/03/2010
T104905	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site11-P9	-23.42083	119.568	12/03/2010
T104897	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site13-P3	-23.39472	119.6388	12/03/2010
T104898	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site13-P2	-23.39461	119.6389	12/03/2010
T104879	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site8-P8	-23.41502	119.5912	14/03/2010
T104900	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site13-P4	-23.39473	119.6386	12/03/2010
T104848	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site18-P9	-23.41776	119.585	14/03/2010
T104902	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site17-P4	-23.40452	119.6247	12/03/2010
T104896	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site13-P7	-23.3949	119.6384	12/03/2010

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T104904	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site11-P6	-23.42057	119.5676	12/03/2010
T104899	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site13-P8	-23.39457	119.639	12/03/2010
T104906	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site11-P10	-23.4209	119.5679	12/03/2010
T104907	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site11-P8	-23.42059	119.5679	12/03/2010
T104908	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site11-P7	-23.42069	119.5677	12/03/2010
T104909	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site16-P8	-23.40469	119.6118	14/03/2010
T104910	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site17-P1	-23.4045	119.6247	12/03/2010
T104911	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site9-P8	-23.38966	119.6433	12/03/2010
T104912	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site17-P6	-23.40444	119.6247	12/03/2010
T104903	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site11-P5	-23.40452	119.6247	12/03/2010
T104883	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site19-P7	-23.40455	119.6211	14/03/2010
T104880	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site8-P7	-23.41525	119.5913	14/03/2010
T104881	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site19-P4	-23.40422	119.6212	14/03/2010
T104901	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site13-P1	-23.39455	119.639	12/03/2010
T104882	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site2-P9	-23.40368	119.6102	13/03/2010
T104895	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site13-P9	-23.39445	119.6389	12/03/2010
T104884	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site19-P2	-23.4042	119.621	14/03/2010
T104885	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site19-P9	-23.40483	119.6209	14/03/2010
T104894	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site13-P6	-23.39483	119.6384	12/03/2010
T104888	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site7-P1	-23.40534	119.6221	14/03/2010
T104889	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site7-P8	-23.40529	119.6222	14/03/2010
T104890	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site7-P3	-23.40534	119.6224	14/03/2010
T104891	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site7-P9	-23.40547	119.6223	14/03/2010
T104892	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site7-P6	-23.40537	119.6229	14/03/2010
T104893	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site7-P10	-23.40552	119.6224	14/03/2010
T104887	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 35, ca. 8 km W. of Newman, Site7-P4	-23.40545	119.6226	14/03/2010
T131006	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 25, ca. 5 km N. of Newman	-23.32342	119.7903	5/04/2013
T130989	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.29307	119.7571	5/04/2013
T112063	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	114 km NNW. of Newman	-22.32633	119.74935	24/03/2011
T118915	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.43807	119.2115	20/05/2011
T118916	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.37397	119.1948	22/05/2011
T132720	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Ophthalmia Range, ca. 20 km N. of Newman	-23.21381	119.7543	25/03/2014
T118917	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.37397	119.1948	22/05/2011

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T116673	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 8 km WSW. of Newman, OB35	-23.39083	119.6625	13/09/2011
T126502	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	69 km E. of Paraburdoo, site 1000-tur10	-23.25557	118.2624	22/06/2012
T118924	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.14491	119.1624	20/07/2011
T126508	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	69 km E. of Paraburdoo, site 1000-tur10	-23.25557	118.2624	22/06/2012
T118918	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.42717	119.2037	22/05/2011
T118919	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.37337	119.1948	22/05/2011
T126528	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	69 km E. of Paraburdoo, site 1000-tur10	-23.25557	118.2624	27/04/2012
T112064	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	114 km NNW. of Newman	-22.32633	119.74935	24/03/2011
T118922	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.09895	119.2183	19/07/2011
T115862	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 72 km heading 291° from Newman	-23.12558	119.0797	21/05/2011
T132721	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Ophthalmia Range, ca. 20 km N. of Newman	-23.21583	119.7549	25/03/2014
T126500	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	69 km E. of Paraburdoo, site 1000-tur10	-23.25557	118.2624	22/06/2012
T116667	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 8 km WSW. of Newman, OB35	-23.38861	119.6581	13/09/2011
T112067	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	118 km N. of Newman	-22.29548	119.81087	24/03/2011
T112062	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	110 km NNE. of Newman	-22.38275	119.97274	23/03/2011
T116669	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 8 km WSW. of Newman, OB35	-23.38833	119.6603	13/09/2011
T131082	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	"Homestead", ca. 6 km N. of Newman	-23.30886	119.7654	29/04/2013
T131072	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.2715	119.8416	29/04/2013
T126522	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	63 km E. of Paraburdoo, site 1000-tur08	-23.23551	118.2876	22/06/2012
T112066	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	112 km NNE. of Newman	-22.3622	119.96914	23/03/2011
T116672	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 8 km WSW. of Newman, OB35	-23.39083	119.6633	13/09/2011
T118970	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.37514	119.0069	8/08/2011
T112068	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	115 km NNW. of Newman	-22.31787	119.74757	24/03/2011
T112065	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	118 km N. of Newman	-22.29725	119.8633	24/03/2011
T116670	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 8 km WSW. of Newman, OB35	-23.39361	119.6533	13/09/2011
T116671	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 8 km WSW. of Newman, OB35	-23.39083	119.6642	13/09/2011
T118906	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.31863	119.1155	19/05/2011
T116668	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 8 km WSW. of Newman, OB35	-23.38806	119.6594	13/09/2011
T115905	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 75 km heading 290° from Newman	-23.12009	119.04844	20/05/2011
T132867	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Ophthalmia Range, ca. 20 km N. of Newman	-23.10469	119.5849	25/03/2014
T118972	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.5625	119.2311	8/08/2011
T114699	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Angelo River, 107 km W. of Newman	-23.29012	118.6822	20/06/2011
T122158	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Southern Flank to Jinidi, 68.8 km NW. of Newman	-22.96278	119.2036	4/02/2012

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T140234	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	South Flank, ca. 95 km NW. of Newman	-22.94711	118.978	16/03/2016
T131079	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.28773	119.7719	29/04/2013
T122155	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Southern Flank to Jinidi, 74.7 km NW. of Newman	-23.02944	119.0931	31/01/2012
T128280	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 18 km N. of Wittenoom	-22.06667	118.3319	20/05/2013
T113222	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Jinidi, 68.7 km NW. of Newman	-22.94278	119.2325	14/04/2011
T118945	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.3476	119.1518	20/05/2011
T114698	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Angelo River, 102 km W. of Newman	-23.43315	118.7329	20/06/2011
T116674	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 8 km WSW. of Newman, OB35	-23.39583	119.65	13/09/2011
T132865	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Ophthalmia Range, ca. 20 km N. of Newman	-23.17531	119.7338	25/03/2014
T118961	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.14491	119.1624	20/07/2011
T118958	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.12692	119.2123	20/07/2011
T113156	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. of Newman	-22.34728	119.6333	10/04/2011
T118949	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.35057	119.1847	22/05/2011
T122143	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Southern Flank to Jinidi, 74.7 km NW. of Newman	-23.02944	119.0931	31/01/2012
T113155	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. of Newman	-22.39853	119.793	9/04/2011
T122141	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Southern Flank to Jinidi, 74.7 km NW. of Newman	-23.02944	119.0931	31/01/2012
T126759	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	4.5 km SW. of Redmont Airport, site 994-08	-22.00204	118.9813	15/04/2012
T121169	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.3775	119.0104	8/08/2011
T118974	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.40808	119.0067	8/08/2011
T118973	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.3775	119.0104	8/08/2011
T115932	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 75 km heading 290° from Newman	-23.12662	119.047	20/05/2011
T118971	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.37514	119.0069	8/08/2011
T122140	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Southern Flank to Jinidi, 74.7 km NW. of Newman	-23.02944	119.0931	31/01/2012
T118969	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.60131	119.2913	8/08/2011
T118968	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.63761	119.3744	8/08/2011
T120972	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, northern slopes @	-22.09841	119.0274	22/08/2008
T122162	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Southern Flank to Jinidi, 74.7 km NW. of Newman	-23.02944	119.0931	31/01/2012
T118936	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.37526	119.1952	23/05/2011
T118980	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.40808	119.0067	8/08/2011
T118938	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.4285	119.2043	22/05/2011
T131013	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	"Homestead", ca. 6 km N. of Newman	-23.30846	119.7459	29/04/2013
T118941	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.32069	119.1157	19/05/2011
T118943	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.3022	119.2238	21/05/2011

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T118962	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.1734	119.0946	21/07/2011
T122175	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	South Parmelia, 52.1 km NW. of Newman	-23.03361	119.1761	3/02/2012
T114701	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Angelo River, 93 km W. of Newman	-23.35	118.8193	20/06/2011
T116681	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 8 km WSW. of Newman, OB35	-23.40111	119.6828	13/09/2011
T120973	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Chichester Range, northern slopes @	-22.22492	118.9887	22/08/2008
T115876	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 75 km heading 290° from Newman	-23.12012	119.0484	20/05/2011
T115879	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 78 km heading 288° from Newman	-23.14368	119.0064	18/05/2011
T146563	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Greater Hope Downs, Hope Downs 1 mine, ca. 81.8 km NW. of Newman	-23.04347	119.1166	22/05/2018
T136333	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Hammersley Range, ca. 30 km ESE. of Juna Downs	-22.68401	119.06	30/03/2014
T136332	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Hammersley Range, ca. 30 km ESE. of Juna Downs	-22.67997	119.0626	30/03/2014
T115874	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 75 km heading 289° from Newman	-23.13489	119.0338	19/05/2011
T128909	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Hamersley Range, ca. 30 km ESE. of Juna Downs	-22.69533	119.0584	30/03/2014
T118790	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Koodaideri, 121.2 km NW. of Newman	-22.48694	119.015	16/10/2011
T131362	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca.15 km NE. of Roy Hill	-22.48333	120.0185	18/04/2013
T131310	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.29004	119.7706	5/08/2013
T115877	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 74 km heading 289° from Newman	-23.1356	119.0463	19/05/2011
T118747	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	OB35, ca. 8 km WSW. of Newman	-23.38333	119.6667	13/09/2011
T115878	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 79 km heading 286° from Newman	-23.15466	118.9932	18/05/2011
T141054	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Karijini National Park, Juna Downs Road, pass at Wildflower Range, right side of road heading south	-22.79389	118.4225	14/05/2016
T115870	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 72 km heading 290° from Newman	-23.12832	119.0736	19/05/2011
T115875	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 81 km, heading 286° from Newman	-23.15965	118.9703	18/05/2011
T146560	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Greater Hope Downs, Hope Downs 1 mine, ca. 81.8 km NW. of Newman	-23.04347	119.1166	22/05/2018
T128194	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.29004	119.7706	5/08/2013
T118883	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.42618	119.2032	23/05/2011
T131467	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32512	120.0227	27/08/2013
T129089	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. Newman	-22.39853	119.793	23/03/2011
T146559	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Greater Hope Downs, Hope Downs 1 mine, ca. 76.2 km NW. of Newman	-23.0391	119.0718	22/05/2018
T112061	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	115 km NNW. of Newman	-22.31787	119.74757	24/03/2011
T128912	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Hamersley Range, ca. 30 km ESE. of Juna Downs	-22.69458	119.0521	28/03/2014
T115880	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.12877	119.0904	19/05/2011
T116675	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 8 km WSW. of Newman, OB35	-23.395	119.65	13/09/2011
T146562	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Greater Hope Downs, Hope Downs 1 mine, ca. 70.4 km NW. of Newman	-23.03724	119.1365	24/05/2018
T131373	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca.15 km NE. of Roy Hill	-22.48333	120.0185	18/04/2013

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T128911	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Hamersley Range, ca. 30 km ESE. of Juna Downs	-22.67994	119.0718	2/04/2014
T131368	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca.15 km NE. of Roy Hill	-22.48333	120.0185	18/04/2013
T131367	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca.15 km NE. of Roy Hill	-22.51667	120.0378	18/04/2013
T128913	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Hamersley Range, ca. 30 km ESE. of Juna Downs	-22.6895	119.0512	30/03/2014
T115888	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 73 km heading 291° from Newman	-23.11855	119.0649	20/05/2011
T118746	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	OB35, ca. 8 km WSW. of Newman	-23.39083	119.6625	13/09/2011
T115887	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 77 km heading 290° from Newman	-23.11423	119.0229	23/05/2011
T124662	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. of Newman	-22.35473	119.7704	10/04/2011
T127425	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. Newman	-22.38198	119.8184	23/03/2011
T127424	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Christmas Creek, 110 km N. Newman	-22.40149	119.7938	6/04/2011
T115886	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 71 km heading 290° from Newman	-23.13146	119.0774	19/05/2011
T139686	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.84552	119.1226	1/04/2015
T123617	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	BHP Main Rail 190 km SSE. of Port Hedland	-22.05214	118.9871	23/04/2012
T117780	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Mudlark, 121 km WNW. of Newman	-23.07806	118.585	6/07/2011
T117778	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Mudlark, 121 km WNW. of Newman	-23.07806	118.585	6/07/2011
T117777	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Mudlark, 121 km WNW. of Newman	-23.07806	118.585	6/07/2011
T139695	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.81826	119.091	31/08/2015
T139694	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.81004	119.0844	31/08/2015
T114936	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Yandi Mine, 86.6 km NW. of Newman (OXBF05)	-22.79889	119.1389	5/07/2008
T139685	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82555	119.1488	2/09/2015
T127761	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	West Angelas, ca. 21 km SSE. of Mt Meharry	-23.14808	118.6912	25/09/2012
T115881	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 77 km heading 289° from Newman	-23.13317	119.0154	23/05/2011
T115882	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 80 km heading 285° from Newman	-23.16326	118.977	17/05/2011
T122879	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	129.2 km NW. of Newman	-22.83167	118.6025	30/03/2012
T115883	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 77 km heading 290° from Newman	-23.11423	119.0229	23/05/2011
T122881	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	119.4 km NW. of Newman	-22.93389	118.6639	31/03/2012
T123619	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	BHP Main Rail 208 km SSE. of Port Hedland	-22.14153	119.0167	23/04/2012
T122883	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	119.4 km NW. of Newman	-22.93389	118.6639	31/03/2012
T146561	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Greater Hope Downs, Hope Downs 1 mine, ca. 80.3 km NW. of Newman	-23.04839	119.0213	25/05/2018
T115884	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 73 km heading 291° from Newman	-23.12101	119.0632	20/05/2011
T123604	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	BHP Main Rail, 190 km SSE. of Port Hedland	-22.05976	118.9739	23/04/2012
T123605	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	BHP Main Rail 198 km SSE. of Port Hedland	-22.09055	118.9938	23/04/2012
T123610	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	BHP Main Rail 208 km SSE. of Port Hedland	-22.15548	119.0216	23/04/2012

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T115885	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 75 km heading 289° from Newman	-23.13551	119.0384	19/05/2011
T123614	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	BHP Main Rail 208 km SSE. of Port Hedland	-22.18398	119.0331	23/04/2012
T139699	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82083	119.1141	1/09/2015
T116680	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 8 km WSW. of Newman, OB35	-23.4	119.6839	13/09/2011
T130102	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	SW Jimblebar, ca. 35 km E. of Newman	-23.40497	120.027	15/02/2013
T118885	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Marillana, ca. 100 km NW. of Newman	-22.36362	119.1738	20/05/2011
T140268	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Ministers North ca. 93 km NW. of Newman	-22.81661	119.1126	31/03/2015
T131037	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.29346	119.8036	29/04/2013
T131625	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca.15 km NE. of Roy Hill	-22.51667	120.0354	18/04/2013
T140267	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Ministers North ca. 93 km NW. of Newman	-22.81159	119.0909	31/03/2015
T131374	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca.15 km NE. of Roy Hill	-22.51667	120.0354	18/04/2013
T116682	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 8 km WSW. of Newman, OB35	-23.40055	119.6769	13/09/2011
T112070	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	113 km NNW. of Newman	-22.33513	119.65311	22/03/2011
T128244	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 18 km N. of Wittenoom	-22.08333	118.4139	20/05/2013
T112071	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	115 km NNW. of Newman	-22.31787	119.74757	24/03/2011
T112069	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	108 km N. of Newman	-22.31327	119.85995	24/03/2011
T128231	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 18 km N. of Wittenoom	-22.06667	118.3319	20/05/2013
T122324	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Koodaideri Corridor West, 116.6 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T116679	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 8 km WSW. of Newman, OB35	-23.39639	119.6561	13/09/2011
T122321	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Koodaideri Corridor West, 69.5 km NE. of Tom Price	-22.1552	118.1347	20/02/2012
T131844	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.27704	119.861	29/04/2013
T122316	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Koodaideri Corridor West, 116.6 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T131845	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.28533	119.7728	29/04/2013
T116677	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 8 km WSW. of Newman, OB35	-23.39333	119.6678	13/09/2011
T116676	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	ca. 8 km WSW. of Newman, OB35	-23.39333	119.6683	13/09/2011
T122311	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Koodaideri Corridor West, 69.5 km NE. of Tom Price	-22.1552	118.1347	20/02/2012
T122309	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Koodaideri Corridor West, 69.5 km NE. of Tom Price	-22.1552	118.1347	20/02/2012
T122308	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Koodaideri Corridor West, 116.6 km NE. of Tom Price	-22.41653	118.8796	20/02/2012
T115873	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Wonmunna, ca. 77 km heading 290° from Newman	-23.11423	119.0229	23/05/2011
T131039	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium sp.	epigean	Potential SRE: DD	Genus contains Potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.29128	119.7962	29/04/2013
T99238	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.63941	119.9642	29/10/2009
T99237	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.85545	119.8875	29/10/2009
T99236	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.64302	119.9599	29/10/2009

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T99234	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.63941	119.9642	29/10/2009
T99233	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.67366	119.8488	29/10/2009
T99232	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.79291	119.8725	29/10/2009
T99259	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.69879	119.7405	29/10/2009
T99230	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.84432	119.8636	29/10/2009
T99239	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.69879	119.7405	29/10/2009
T99231	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.80532	119.9494	29/10/2009
T100112	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.74864	119.922	20/11/2009
T100097	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.68326	119.9512	20/11/2009
T100098	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.68326	119.9512	20/11/2009
T100099	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.62271	119.9632	20/11/2009
T100102	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.63634	119.9641	20/11/2009
T100103	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.62271	119.9632	20/11/2009
T100107	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.75857	119.9147	20/11/2009
T100108	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.7196	119.9397	20/11/2009
T99257	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.6039	119.9836	29/10/2009
T100111	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.64308	119.9646	20/11/2009
T99262	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.60778	119.9826	29/10/2009
T100113	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.74864	119.922	20/11/2009
T100114	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.74864	119.922	20/11/2009
T100116	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.74864	119.922	20/11/2009
T100117	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.63634	119.9641	20/11/2009
T100119	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.74864	119.922	20/11/2009
T100120	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.66405	119.9456	20/11/2009
T100122	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.73957	119.9264	20/11/2009
T100123	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.73957	119.9264	20/11/2009
T100110	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.64308	119.9646	20/11/2009
T99252	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.70318	119.7184	29/10/2009
T99241	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.80532	119.9494	29/10/2009
T99242	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.64302	119.9599	29/10/2009
T99243	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.79992	119.9174	29/10/2009
T99245	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.70318	119.7184	29/10/2009
T99246	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.79291	119.8725	29/10/2009

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T99247	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.65815	119.9359	29/10/2009
T99248	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.81743	119.9473	29/10/2009
T99249	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.79274	119.8914	29/10/2009
T100095	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.64427	119.9653	20/11/2009
T99251	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.84148	119.8413	29/10/2009
T99263	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.65938	119.9198	29/10/2009
T99253	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.65938	119.9198	29/10/2009
T99254	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.60761	119.9826	29/10/2009
T99255	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.70318	119.7184	29/10/2009
T99256	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.67366	119.8488	29/10/2009
T99258	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.7608	119.9117	29/10/2009
T99260	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.70582	119.7082	29/10/2009
T99261	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.84356	119.8272	29/10/2009
T99240	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.84148	119.8413	29/10/2009
T99250	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.7608	119.9117	29/10/2009
T151331	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Mulga Downs Station, ca. 31 km NW. of Munjina	-22.12166	118.5944	16/03/2020
T100189	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 2'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.68326	119.9512	20/11/2009
T100096	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 2'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.66405	119.9456	20/11/2009
T151332	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Indolpium 'sp. 2'	epigean	Potential SRE: DD	W.A. Museum assessment	Mulga Downs Station, ca. 31 km NW. of Munjina	-22.16342	118.4126	16/03/2020
T109499	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Linnaeolpium sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Cloudbreak mine lease, c. 84 km SW. of Nullagine	-22.39496	119.5019	26/10/2010
T112040	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Linnaeolpium sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, ca. 110 km N. of Newman	-22.31787	119.7476	24/03/2011
T112038	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Linnaeolpium sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill, ca. 110 km N. of Newman	-22.31787	119.7476	29/04/2011
T118890	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Linnaeolpium sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, ca. 100 km NW. of Newman	-22.44003	119.2281	22/05/2011
T118937	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Linnaeolpium sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, ca. 100 km NW. of Newman	-22.42618	119.2032	23/05/2011
T118876	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Linnaeolpium sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, ca. 100 km NW. of Newman	-22.42909	119.21	20/05/2011
T116678	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Linnaeolpium sp.	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 8 km WSW. of Newman, OB35	-23.38333	119.6667	13/09/2011
T149483	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 'PSE118'	epigean	potential SRE: DD	W.A. Museum assessment	82.5 km NW. of Newman	-23.04504	118.9991	14/03/2019
T108751	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 'PSE176'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 117 km NW. of Newman	-22.51056	119.0453	23/08/2010
T108754	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 'PSE176'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 118.6 km NW. of Newman	-22.53722	118.9864	24/08/2010
T108750	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 'PSE176'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 105.6 km NW. of Newman	-22.58528	119.1264	22/08/2010
T136459	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 'PSE176'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 117 km NW. of Newman	-22.51056	119.0453	23/08/2010
T136457	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 'PSE176'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 117 km NW. of Newman	-22.51056	119.0453	23/08/2010
T136455	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 'PSE176'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 105.6 km NW. of Newman	-22.58528	119.1264	22/08/2010

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T136461	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 'PSE176'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 117 km NW. of Newman	-22.51056	119.0453	23/08/2010
T136456	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 'PSE176'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 105.6 km NW. of Newman	-22.58528	119.1264	22/08/2010
T136460	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 'PSE176'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 117 km NW. of Newman	-22.51056	119.0453	23/08/2010
T151333	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 'PSE176'	epigean	potential SRE: DD	W.A. Museum assessment	Mulga Downs Station, ca. 31 km NW. of Munjina	-22.12251	118.569	16/03/2020
T136458	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 'PSE176'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 117 km NW. of Newman	-22.51056	119.0453	23/08/2010
T136420	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 'PSE176'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 105.6 km NW. of Newman	-22.58528	119.1264	22/08/2010
T136462	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 'PSE176'	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 117 km NW. of Newman	-22.51056	119.0453	23/08/2010
T103492	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T105140	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 83.1 km NW. of Newman	-22.975	119.0378	1/05/2010
T105206	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 85.8 km NW. of Newman	-22.89639	119.0619	1/05/2010
T105199	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 83.1 km NW. of Newman	-22.975	119.0378	1/05/2010
T105184	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 83.1 km NW. of Newman	-22.975	119.0378	1/05/2010
T105173	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 91.3 km NW. of Newman	-22.90055	118.9933	1/05/2010
T111814	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	67.4 km NW. of Newman	-22.84667	119.3742	13/03/2011
T103490	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T105131	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 92.7 km NW. of Newman	-22.99861	118.9067	1/05/2010
T105130	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 89.6 km NW. of Newman	-23.00111	118.9478	1/05/2010
T105155	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T103496	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 90.6 km NW. of Newman	-22.99778	119.0297	1/05/2010
T108752	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 120.4 km NW. of Newman	-22.52555	118.9742	23/08/2010
T105104	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.89917	119.0994	1/05/2010
T105128	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 92.2 km NW. of Newman	-22.90583	118.9803	1/05/2010
T105111	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 89.3 km NW. of Newman	-22.90639	119.0125	1/05/2010
T105110	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 83.6 km NW. of Newman	-22.99167	118.9592	1/05/2010
T105106	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 83.6 km NW. of Newman	-22.99167	118.9592	1/05/2010
T105057	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 101 km NW. of Newman	-23.00556	118.8275	1/05/2010
T108755	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 105.4 km NW. of Newman	-22.57528	119.1414	24/08/2010
T105060	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 89.2 km NW. of Newman	-22.965	118.9756	1/05/2010
T105061	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 89.2 km NW. of Newman	-22.965	118.9756	1/05/2010
T105063	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 89.6 km NW. of Newman	-23.00111	118.9478	1/05/2010
T110439	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	67.4 km NW. of Newman	-22.84667	119.3742	13/03/2011
T105134	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 82.6 km NW. of Newman	-22.98195	119.0139	1/05/2010
T105095	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 89.6 km NW. of Newman	-23.00111	118.9478	1/05/2010

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T105070	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 90.6 km NW. of Newman	-22.89889	119.0019	1/05/2010
T116563	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Marillana, 85 km NW. of Newman	-22.71417	119.2839	20/06/2007
T116565	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Marillana, 96.5 km NW. of Newman	-22.63667	119.1994	19/06/2007
T140237	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	South Flank, ca. 95 km NW. of Newman	-22.95861	118.917	16/03/2016
T140272	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Ministers North ca. 93 km NW. of Newman	-22.81159	119.0909	31/03/2015
T124668	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Koodaideri, 117 km NW. of Newman	-22.51056	119.0453	23/08/2010
T139677	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.81661	119.1126	31/03/2015
T122375	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Mudlark, 92.2 km NW. of Newman	-23.04775	118.885	6/02/2012
T116561	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Marillana, 85 km NW. of Newman	-22.6825	119.3364	17/06/2007
T122378	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Mudlark, 97.4 km NW. of Newman	-23.07172	118.8227	6/02/2012
T139669	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.80702	119.0779	31/03/2015
T139704	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae 7/4 sp.	epigean	potential SRE: DD	W.A. Museum assessment	Ministers North, ca. 93 km NW. of Newman	-22.84279	119.1159	1/09/2015
T149484	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA HD4'	epigean	Potential SRE: DD	W.A. Museum assessment	83.2 km NW. of Newman	-23.08254	118.9746	10/03/2019
T118897	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.34929	119.1511	19/05/2011
T118895	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.36129	119.1735	20/05/2011
T118881	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.37526	119.1952	23/05/2011
T114693	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Angelo River, 104 km W. of Newman	-23.28087	118.7165	20/06/2011
T118894	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.3358	119.1279	19/05/2011
T118946	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.3476	119.1518	20/05/2011
T123609	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	BHP Main Rail 208 km SSE. of Port Hedland	-22.12992	119.0217	23/04/2012
T118882	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.42934	119.1921	23/05/2011
T118892	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.31811	119.114	19/05/2011
T118913	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.43986	119.2298	21/05/2011
T118896	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.42909	119.21	20/05/2011
T118911	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.43081	119.212	20/05/2011
T118909	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.3369	119.1271	19/05/2011
T125357	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Koodaideri Western Corridor, 130.6 km NW. of Newman	-22.45042	118.9299	31/03/2012
T125356	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Koodaideri Western Corridor, 149.9 km NW. of Newman	-22.34908	118.765	28/03/2012
T118908	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.31956	119.1138	19/05/2011
T118907	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.36308	119.1731	19/05/2011
T118942	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.3022	119.2238	21/05/2011
T118884	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.36252	119.173	20/05/2011
T118955	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.37397	119.1948	22/05/2011

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T136421	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.12692	119.2123	20/07/2011
T118935	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.42599	119.2031	22/05/2011
T118899	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.30368	119.224	21/05/2011
T118947	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.31863	119.1155	19/05/2011
T136470	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.12692	119.2123	20/07/2011
T118934	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.637	119.1271	19/05/2011
T118950	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.35057	119.1847	22/05/2011
T118951	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.30119	119.2241	20/05/2011
T118953	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.42882	119.1917	23/05/2011
T118964	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.17348	119.0937	21/07/2011
T118956	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.399	119.2144	22/05/2011
T118960	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.12692	119.2123	20/07/2011
T118928	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.21295	119.0649	22/07/2011
T118926	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.1734	119.0946	21/07/2011
T118891	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.32069	119.1157	19/05/2011
T118889	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.4285	119.2043	22/05/2011
T118888	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.37337	119.1948	23/05/2011
T118887	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.42704	119.1905	23/05/2011
T118940	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.44003	119.2281	22/05/2011
T118880	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.36182	119.173	20/05/2011
T118886	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.35037	119.1508	19/05/2011
T118925	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	'Olpiidae PSEAAA' sp.	epigean	Potential SRE: DD	Undescribed genus that is thought to contain SRE representatives	Marillana, ca. 100 km NW. of Newman	-22.17352	119.1195	21/07/2011
T107491	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, site 14-P9	-23.38308	119.6481	14/08/2010
T51522	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Weeli Wolli Creek, site HDRT3	-22.92444	119.205	26/04/2003
T101190	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 61.8 km NW. of Newman	-22.99889	118.8692	25/02/2010
T51524	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Chichester Range, site HDD1F	-22.09861	118.98861	1/05/2003
T51525	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Chichester Range, site HDD4F	-22.0525	118.98833	1/05/2003
T107415	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Iron Valley, 5 km NE. of Yandicoogina mine; S5P17	-22.75946	119.2975	5/05/2010
T91754	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Quarry 8	-22.09492	118.9919	4/04/2008
T54010	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River basin, ca. 23 km SE. of Mt Margaret, site HDD 1F	-22.0986	118.9886	1/05/2003
T51521	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Weeli Wolli Creek, site HDA5	-22.87861	119.24056	26/04/2003
T101176	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 88.4 km NW. of Newman	-22.89889	119.0303	17/02/2010
T100178	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	ca. 60 km ESE. Of Auski Roadhouse	-22.6116	119.2459	13/08/2008

T99235	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Roy Hill	-22.79291	119.8725	29/10/2009
T98167	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Roy Hill Station, Ecologia Project 1106	-22.45477	119.8709	27/05/2009
T97694	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Phils Creek, Ecologia Project 1038	-22.7361	119.1834	4/04/2009
T101044	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Chichester Range, Cloud Break mine area@	-22.2725	119.3125	4/07/2006
T97600	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.73206	119.1836	2/04/2009
T94823	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.05044	119.2731	9/02/2009
T101171	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 84.9 km NW. of Newman	-22.98167	119.0136	21/02/2010
T101172	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 81.8 km NW. of Newman	-23.00556	119.0328	21/02/2010
T101193	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 78.9 km NW. of Newman	-22.90278	119.1436	19/02/2010
T101175	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 89.2 km NW. of Newman	-22.96556	118.9756	23/02/2010
T101207	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 89.2 km NW. of Newman	-22.96556	118.9756	23/02/2010
T101185	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 90.6 km NW. of Newman	-22.89889	119.0019	16/02/2010
T101188	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 92.2 km NW. of Newman	-22.90556	118.98	16/02/2010
T101189	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 89.4 km NW. of Newman	-22.98	118.9619	23/02/2010
T101191	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 89.2 km NW. of Newman	-22.96556	118.9756	23/02/2010
T101194	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 78.9 km NW. of Newman	-22.90278	119.1436	19/02/2010
T101196	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 83.6 km NW. of Newman	-22.99167	118.9589	23/02/2010
T101197	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 89.6 km NW. of Newman	-23.00083	118.9469	24/02/2001
T101200	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 78.2 km NW. of Newman	-22.91778	119.1392	23/02/2010
T101206	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 82.7 km NW. of Newman	-22.89917	119.0994	17/02/2010
T101173	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 89.3 km NW. of Newman	-22.90639	119.0122	19/02/2010
T136337	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Hammersley Range, ca. 30 km ESE. of Juna Downs	-22.68401	119.06	30/03/2014
T144051	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T1M30-40	-22.155	118.1361	30/09/2011
T115871	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 72 km heading 291° from Newman	-23.12558	119.0797	21/05/2011
T134036	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T142237	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Mulga Downs Station, 6 km N. of Cowra Line camp, site RHNW6	-22.30178	119.0134	14/08/2003
T139980	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Upper Marillana, Yandi, 120 km NW. of Newman	-22.6254	118.819	8/09/2010
T144052	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T1M60-70	-22.15472	118.1361	30/09/2011
T144053	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T1M70-80	-22.15472	118.1361	30/09/2011
T117781	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Mudlark, 121 km WNW. of Newman	-23.07806	118.585	6/07/2011
T137973	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	1.5 km W. of Giles point, Pilbara Biological Survey site RHNC04	-23.25094	119.1447	30/08/2003
T136335	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Hammersley Range, ca. 30 km ESE. of Juna Downs	-22.67997	119.0626	30/03/2014
T115756	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 77 km heading 289° from Newman	-23.13317	119.0154	23/05/2011

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T144055	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T1M190-200	-22.15361	118.1361	30/09/2011
T139693	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.81004	119.0844	31/08/2015
T143544	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Mulga Downs Station, 9.3 km NE. of Cowra Line Camp, site RHNW11	-22.29133	119.0614	27/08/2003
T115755	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 76 km heading 290° from Newman	-23.1169	119.0396	20/05/2011
T134058	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T136336	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Hammersley Range, ca. 30 km ESE. of Juna Downs	-22.66806	119.0572	30/03/2014
T115872	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 79 km heading 286° from Newman	-23.15466	118.9932	18/05/2011
T144054	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T1M130-140	-22.15417	118.1361	30/09/2011
T134153	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T135589	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, c. 15 km SW. of Hancock Gorge	-22.46083	118.1947	15/03/2015
T138644	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Munja, Yandi, 120 km NW. of Newman	-22.62016	118.8485	21/05/2010
T138699	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Marillana, Yandi, 95 Km NW. of Newman	-22.60259	119.1993	6/05/2010
T144058	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T1M410-420	-22.15167	118.1361	30/09/2011
T134057	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T134055	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T144059	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T2M40-50	-22.09056	118.3253	30/09/2011
T116564	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Marillana, 89.7 km NW. of Newman	-22.66222	119.29	18/06/2007
T144060	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T2M50-60	-22.09056	118.3253	30/09/2011
T136016	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi mine lease, 85.4 km NW. of Newman	-22.76939	119.1908	10/11/2010
T139979	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Upper Marillana, Yandi, 120 km NW. of Newman	-22.66743	118.9007	8/09/2010
T144056	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T1M360-370	-22.15222	118.1361	30/09/2011
T134051	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T115951	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 75 km heading 289° from Newman	-23.13551	119.0384	19/05/2011
T115869	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 77 km heading 288° from Newman	-23.13937	119.0182	19/05/2011
T140273	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ministers North ca. 93 km NW. of Newman	-22.81159	119.0909	31/03/2015
T144057	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T1M390-400	-22.15167	118.1369	30/09/2011
T134130	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T135583	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, c. 15 km SW. of Hancock Gorge	-22.46083	118.1947	15/03/2015
T139682	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82825	119.144	2/09/2015
T135503	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, Kalamina Gorge	-22.41722	118.4025	13/03/2015
T139708	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.83704	119.1296	3/09/2015
T144062	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T2M60-70	-22.09056	118.3253	30/09/2011
T144953	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	potential SRE: DD	Infraorder contains SREs and potential SREs	110 km NNE. of Newman	-22.38274	119.9727	23/03/2011

T130546	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.33256	120.0126	19/03/2013
T130616	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.33119	119.9896	19/03/2013
T131833	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.30226	119.7252	5/04/2013
T144306	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T2R90-100	-22.08945	118.3256	30/09/2011
T144307	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T3M40-50	-22.07944	118.3406	29/09/2011
T131524	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32355	120.0112	19/03/2013
T144308	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T3M50-60	-22.07972	118.3406	29/09/2011
T130620	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32917	119.9956	19/03/2013
T132724	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ophthalmia Range, ca. 20 km N. of Newman	-23.22611	119.7471	25/03/2014
T144951	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Cloudbreak, Northern Tenements, ca. 15 km N. of Fortescue Marsh	-22.246	119.2931	22/11/2016
T131025	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.30134	119.757	29/04/2013
T144327	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4M310-320	-22.07944	118.3439	29/09/2011
T131009	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.30941	119.743	29/04/2013
T144333	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4R30-40	-22.07639	118.3439	29/09/2011
T131466	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.31909	120.0262	27/08/2013
T144326	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4M210-220	-22.07861	118.3439	29/09/2011
T131458	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.3315	119.9824	27/08/2013
T144324	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4M130-140	-22.07806	118.3439	29/09/2011
T144323	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4M70-80	-22.0775	118.3439	29/09/2011
T131457	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.33119	119.9896	27/08/2013
T131011	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.30846	119.7459	29/04/2013
T132708	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ophthalmia Range, ca. 20 km N. of Newman	-23.17975	119.7577	25/03/2014
T131159	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	15 km SE. of West Angelas Aerodrome	-23.1904	118.8279	18/03/2013
T131160	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	9 km SW. of West Angelas Aerodrome	-23.19171	118.6406	18/03/2013
T144336	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4R150-160	-22.07528	118.3436	29/09/2011
T144335	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4R140-150	-22.07556	118.3436	29/09/2011
T144334	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4R120-130	-22.07556	118.3436	29/09/2011
T126361	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 89.2 km NW. of Newman	-22.96556	118.9756	23/02/2010
T132722	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ophthalmia Range, ca. 20 km N. of Newman	-23.21742	119.752	25/03/2014
T130390	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.73217	119.05	14/05/2013
T130393	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.77458	119.1234	14/05/2013
T130544	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.33222	120.0162	19/03/2013
T132710	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ophthalmia Range, ca. 20 km N. of Newman	-23.145	119.6744	25/03/2014

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T131015	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.30846	119.7459	29/04/2013
T132706	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ophthalmia Range, ca. 20 km N. of Newman	-23.17945	119.7383	25/03/2014
T130396	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.70949	118.9937	14/05/2013
T124738	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	ca. 104 km NE. of Tom Price	-22.15672	118.6818	14/02/2012
T131027	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.28526	119.7435	29/04/2013
T144304	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T2R70-80	-22.08917	118.3256	30/09/2011
T144305	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T2R80-90	-22.08917	118.3256	30/09/2011
T131863	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.30134	119.757	5/08/2013
T131862	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.2872	119.7242	5/08/2013
T144309	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T3M100-110	-22.08	118.3406	29/09/2011
T131031	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.28276	119.7396	29/04/2013
T144330	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4M390-400	-22.08028	118.3439	29/09/2011
T131422	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32347	120.0054	27/08/2013
T131304	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.2715	119.8416	5/08/2013
T131260	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.30628	119.7236	5/08/2013
T131303	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 25, ca. 5 km N. of Newman	-23.27398	119.8542	5/08/2013
T131302	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.27398	119.8542	5/08/2013
T131301	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 25, ca. 5 km N. of Newman	-23.32736	119.7717	5/08/2013
T149362	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	West Angelas, ca. 105 km WNW. of Newman	-23.20648	118.7834	12/03/2019
T144332	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4M470-480	-22.08111	118.3439	29/09/2011
T131299	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 25, ca. 5 km N. of Newman	-23.32835	119.7723	5/08/2013
T146565	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Greater Hope Downs, Hope Downs 1 mine, ca. 81.8 km NW. of Newman	-23.04347	119.1166	22/05/2018
T144331	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4M430-440	-22.08055	118.3439	29/09/2011
T131315	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.3103	119.7256	5/08/2013
T130997	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.28442	119.7444	5/04/2013
T130994	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.28501	119.7418	5/04/2013
T124657	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	widespread	W.A. Museum assessment	Area C, 61.8 km NW. of Newman	-22.99889	118.8692	25/02/2010
T124665	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, 82.7 km NW. of Newman	-22.89917	119.0994	17/02/2010
T124737	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Murrays Hill, ca. 104 km NE. of Tom Price	-22.13781	118.6391	14/02/2012
T130988	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.29307	119.7571	5/04/2013
T131280	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.29102	119.7941	5/08/2013
T124740	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	ca. 104 km NE. of from Tom Price	-22.13938	118.6143	21/10/2011
T124739	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	ca. 98 km NE. of Tom Price	-22.11658	118.5084	21/10/2011

T131002	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 25, ca. 5 km N. of Newman	-23.32173	119.7858	5/04/2013
T144313	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T3M350-360	-22.0825	118.3406	29/09/2011
T130395	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.70949	118.9937	14/05/2013
T131369	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	ca.15 km NE. of Roy Hill	-22.53333	120.0287	18/04/2013
T131365	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	ca.15 km NE. of Roy Hill	-22.53333	120.0363	18/04/2013
T131364	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	ca.15 km NE. of Roy Hill	-22.53333	120.0363	18/04/2013
T144322	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4M120-130	-22.07778	118.3439	29/09/2011
T131363	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	ca.15 km NE. of Roy Hill	-22.53333	120.0363	18/04/2013
T131359	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	ca.15 km NE. of Roy Hill	-22.51667	120.0354	18/04/2013
T131355	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	ca.15 km NE. of Roy Hill	-22.51667	120.0354	18/04/2013
T144310	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T3M120-130	-22.08028	118.3406	29/09/2011
T131308	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.28689	119.7542	5/08/2013
T144312	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T3M260-270	-22.08167	118.3406	29/09/2011
T131408	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.33222	120.0162	27/08/2013
T144314	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T3M480-490	-22.08333	118.3406	29/09/2011
T144317	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T3R110-120	-22.07806	118.3406	29/09/2011
T144318	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4M30-40	-22.07694	118.3439	29/09/2011
T144319	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4M40-50	-22.07722	118.3439	29/09/2011
T144320	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4M50-60	-22.07722	118.3439	29/09/2011
T144321	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4M110-120	-22.07778	118.3439	29/09/2011
T146564	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Greater Hope Downs, Hope Downs 1 mine, ca. 70 km NW. of Newman	-23.03835	119.1407	24/05/2018
T131317	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.30052	119.8492	5/08/2013
T131316	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.29005	119.8158	5/08/2013
T144311	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T3M140-150	-22.08055	118.3406	29/09/2011
T131075	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.28181	119.7724	29/04/2013
T132725	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ophthalmia Range, ca. 20 km N. of Newman	-23.22633	119.7475	25/03/2014
T144063	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T2M100-110	-22.09111	118.3253	30/09/2011
T144064	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T2M110-120	-22.09139	118.3253	30/09/2011
T127412	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Mudlark, 121 km WNW. of Newman	-23.07806	118.585	6/07/2011
T131065	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 25, ca. 5 km N. of Newman	-23.32588	119.7683	29/04/2013
T144344	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T5R60-70	-22.07139	118.3503	28/09/2011
T131073	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.2715	119.8416	29/04/2013
T134005	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.71908	118.9795	2/04/2014

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T131076	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.28349	119.7695	29/04/2013
T131081	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.29004	119.7706	29/04/2013
T131083	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	"Homestead", ca. 6 km N. of Newman	-23.31157	119.766	29/04/2013
T144329	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4M340-350	-22.07972	118.3439	29/09/2011
T144065	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T2M160-170	-22.09167	118.325	30/09/2011
T144345	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T5R100-110	-22.07278	118.3503	28/09/2011
T131071	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.27242	119.8431	29/04/2013
T134026	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T128247	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	ca. 18 km N. of Wittenoom	-22.06667	118.3319	19/06/2013
T128243	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	ca. 18 km N. of Wittenoom	-22.05	118.388	19/06/2013
T128242	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	ca. 18 km N. of Wittenoom	-22.1	118.3878	19/06/2013
T131061	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 25, ca. 5 km N. of Newman	-23.32508	119.7685	29/04/2013
T127769	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	West Angelas, ca. 32 km ESE. of Mt Meharry	-23.12293	118.8618	25/09/2012
T134033	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134002	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.73335	118.9906	2/04/2014
T134028	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T144087	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Cloudbreak, Northern Tenements, 15 km N. of Fortescue Marsh	-22.2632	119.3294	22/11/2016
T134017	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134016	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134011	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134009	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.76636	119.1059	8/09/2014
T134008	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.76636	119.1059	2/04/2014
T134001	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.73447	118.9839	2/04/2014
T134029	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T144340	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T5M360-370	-22.07528	118.35	28/09/2011
T144067	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T2M280-290	-22.0925	118.3247	30/09/2011
T144068	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T2R20-30	-22.09	118.3256	30/09/2011
T144066	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T2M180-190	-22.09139	118.325	30/09/2011
T130099	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	SW Jimblebar, ca. 35 km E. of Newman	-23.40497	120.027	15/02/2013
T144338	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T5M180-190	-22.07361	118.35	28/09/2011
T144069	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T2R30-40	-22.08972	118.3256	30/09/2011
T144328	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T4M320-330	-22.07944	118.3439	29/09/2011
T144339	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T5M270-280	-22.07444	118.35	28/09/2011

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T144341	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T5M470-480	-22.07611	118.3497	28/09/2011
T144342	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T5R0-10	-22.07195	118.3503	28/09/2011
T132726	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ophthalmia Range, ca. 20 km N. of Newman	-23.22633	119.7475	25/03/2014
T132727	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ophthalmia Range, ca. 20 km N. of Newman	-23.226	119.7462	25/03/2014
T131035	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.28928	119.7947	29/04/2013
T144070	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T2R60-70	-22.08972	118.3256	30/09/2011
T144343	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Olpiidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Fortescue River valley, sites T5R30-40	-22.07167	118.3503	28/09/2011
T122341	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium 'PSE033'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 173.8 km NW. of Newman	-22.63125	118.2217	6/02/2012
T122342	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium 'PSE033'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 173.9 km NW. of Newman	-22.63328	118.222	6/02/2012
T122343	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium 'PSE033'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 174 km NW. of Newman	-22.63328	118.222	6/02/2012
T134054	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium 'PSE033'	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T122340	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium 'PSE033'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, 173.6 km NW. of Newman	-22.63125	118.2217	6/02/2012
T136419	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium 'PSE120'	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134019	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium 'PSE120'	epigean	Potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T93571	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.974	119.3002	31/08/2008
T94802	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.97836	119.2609	10/02/2009
T98306	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri mine site, ca. 65 km NW. of Newman	-22.93333	119.2236	19/06/2009
T94828	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.97633	119.3009	10/02/2009
T94827	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.97836	119.2609	10/02/2009
T94826	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.974	119.3002	10/02/2009
T94821	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.98428	119.2677	10/02/2009
T94820	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.96853	119.2855	10/02/2009
T94818	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.98428	119.2677	10/02/2009
T94813	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.04128	119.2772	9/02/2009
T94812	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.98428	119.2677	3/02/2009
T94810	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.98428	119.2677	10/02/2009
T94809	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.96325	119.2276	3/02/2009
T93569	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.974	119.3002	31/08/2008
T94804	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.98428	119.2677	10/02/2009
T93555	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.02508	119.2434	30/08/2008
T94800	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.974	119.3002	10/02/2009
T93573	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.974	119.3004	27/08/2008
T93572	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.974	119.3002	31/08/2008

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T93556	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.974	119.3002	31/08/2008
T93570	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.974	119.3002	31/08/2008
T93568	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.974	119.3002	31/08/2008
T93565	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.98428	119.2677	31/08/2008
T93564	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.05039	119.2732	25/08/2008
T93562	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.98428	119.2677	31/08/2008
T93561	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.974	119.3002	31/08/2008
T93559	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.96925	119.2428	31/08/2008
T93557	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.05019	119.2735	25/08/2008
T94807	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.04964	119.2739	2/02/2009
T134025	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134023	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134045	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134027	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T127765	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, ca. 31 km ESE. of Mt Meharry	-23.13419	118.8371	25/09/2012
T127767	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, ca. 22 km SE. of Mt Meharry	-23.15571	118.6914	25/09/2012
T134046	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134044	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T122180	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C West to Yandi, 111 km NW. of Newman	-22.77917	118.8347	8/02/2012
T134042	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134041	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T134040	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T127764	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, ca. 32 km ESE. of Mt Meharry	-23.12293	118.8618	25/09/2012
T134038	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T127766	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, ca. 32 km ESE. of Mt Meharry	-23.12293	118.8618	25/09/2012
T127768	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, ca. 33 km ESE. of Mt Meharry	-23.123	118.8739	25/09/2012
T127770	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, ca. 32 km ESE. of Mt Meharry	-23.12293	118.8618	25/09/2012
T134037	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T126243	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	114.4 km NW. of Newman	-22.58083	119.0017	20/11/2011
T134034	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T134007	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.76821	119.0944	2/04/2014
T134035	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134039	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014

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T127760	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, ca. 22 km SSE. of Mt Meharry	-23.15571	118.6914	25/09/2012
T134056	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T127758	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, ca. 35 km SE. of Mt Meharry	-23.20215	118.8304	25/09/2012
T134049	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T134062	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T134129	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T134061	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T131360	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	ca.15 km NE. of Roy Hill	-22.53333	120.0287	18/04/2013
T134060	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T127757	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, ca. 22 km SSE. of Mt Meharry	-23.15571	118.6914	25/09/2012
T134050	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	2/04/2014
T134127	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi (Marillana Creek), ca. 98 km NW. of Newman	-22.7443	119.0117	8/09/2014
T131354	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	ca.15 km NE. of Roy Hill	-22.51667	120.0354	18/04/2013
T131352	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	ca.15 km NE. of Roy Hill	-22.53333	120.0287	18/04/2013
T127763	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, ca. 22 km SSE. of Mt Meharry	-23.17234	118.6241	25/09/2012
T122171	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	South Parmelia, 60.9 km NW. of Newman	-23.04778	119.2392	2/02/2012
T62937	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana Station, 23 km SW. of Marillana Homestead, Yandi Extension site YEX81	-22.7877	119.2539	2/09/2004
T62936	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana Station, 23 km SW. of Marillana Homestead, Yandi Extension site YEX85	-22.7933	119.2583	3/09/2004
T62934	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana Station, 23 km SW. of Marillana Homestead, Yandi Extension site YEX85	-22.7933	119.2583	3/09/2004
T132687	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium 'sp. 1'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana Station, 23 km SW. of Marillana Homestead, Yandi Extension site YEX81	-22.7877	119.2539	2/09/2004
T62908	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Olpiidae	Xenolpium 'sp. 2'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana Station, 26.5 km SW. of Marillana Homestead, Yandi Extension site YEX75	-22.8344	119.2608	31/08/2004
T62914	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus '1'	epigean	potential SRE: DD	W.A. Museum assessment	Marillana Station, 23.1 km SW. of Marillana Homestead, Yandi Extension site YEX86	-22.7813	119.2436	3/09/2004
T62938	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus '1'	epigean	potential SRE: DD	W.A. Museum assessment	Marillana Creek, Marillana Station, Yandi Extension site YEX80	-22.7819	119.2561	1/09/2004
T62935	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus '1'	epigean	potential SRE: DD	W.A. Museum assessment	Marillana Station, 23.3 km SW. of Marillana Homestead, Yandi Extension site YEX84	-22.7872	119.2469	2/09/2004
T62932	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus '1'	epigean	potential SRE: DD	W.A. Museum assessment	Marillana Station, 25 km SW. of Marillana Homestead, Yandi Extension site YEX	-22.7811	119.2472	2/09/2004
T107269	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.01917	119.0336	12/05/2010
T112026	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Roy Hill, ca. 110 km N. of Newman	-22.44815	119.986	24/03/2011
T88486	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Kalamina Gorge, upstream, Karijini National Park	-22.42583	118.39583	9/07/2006
T51520	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Weeli Wolli Creek, site HDA3	-22.93694	119.20778	25/04/2003
T91716	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Hope Downs 4, ca. 100 km NW. of Newman, HD4-1	-23.12856	119.5601	14/05/2008
T107398	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Hope Downs, 79.3 km NW. of Newman	-22.97667	119.0756	24/06/2010
T102822	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	87.3 km NW. of Newman, Yandi Lease	-22.78806	119.1464	5/03/2010
T118903	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.31823	119.1175	20/05/2011

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T116562	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Marillana, 87.9 km NW. of Newman	-22.66639	119.3078	17/06/2007
T126347	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Juna Downs Station, 112 km NW. of Newman	-22.70889	118.8817	10/05/2011
T119939	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Juna Downs Station, 112 km NW. of Newman	-22.70889	118.8817	10/05/2011
T115761	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	ca. 74 km WNW. of Newman, Wonmunna Lease	-23.1356	119.0463	19/05/2011
T117769	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Marillana, 96.6 km NW. of Newman	-22.63083	119.2086	20/06/2007
T119940	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Juna Downs Station, 116 km NW. of Newman	-22.60944	118.9397	11/05/2011
T126986	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	114.4 km NW. of Newman	-22.58083	119.0017	20/11/2011
T126348	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Marillana, 96.6 km NW. of Newman	-22.63083	119.2086	20/06/2007
T134169	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Yandi Oxbow, 86.8 km NW. Newman	-22.78778	119.1467	14/09/2014
T118979	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.62858	119.3485	8/08/2011
T118910	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.35057	119.1847	22/05/2011
T140236	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	South Flank, ca. 95 km NW. of Newman	-22.96097	118.9173	16/03/2016
T118976	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Marillana, ca. 100 km NW. of Newman	-22.5625	119.2311	8/08/2011
T116566	Arachnida	Pseudoscorpiones (pseudoscorpions)	Pseudoscorpior	Sternophoridae	Afrosternophorus sp.	epigean	potential SRE: DD	Genus contains potential SREs	Marillana, 96.6 km NW. of Newman	-22.63083	119.2086	20/06/2007
T135454	Arachnida	Schizomids	Schizomida	Hubbardiidae	Draculoides 'SCH053 epigean'	epigean	SRE	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	12/03/2015
T135453	Arachnida	Schizomids	Schizomida	Hubbardiidae	Draculoides 'SCH053 epigean'	epigean	SRE	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	12/03/2015
T135452	Arachnida	Schizomids	Schizomida	Hubbardiidae	Draculoides 'SCH053 epigean'	epigean	SRE	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	12/03/2015
T135447	Arachnida	Schizomids	Schizomida	Hubbardiidae	Draculoides 'SCH053 epigean'	epigean	SRE	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	12/03/2015
T135626	Arachnida	Schizomids	Schizomida	Hubbardiidae	Draculoides 'SCH053 epigean'	epigean	SRE	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	18/03/2015
T102945	Arachnida	Scorpiones (scorpions)	Scorpiones		Scorpiones sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Hamersley Ranges, 85 km E. of Auski Roadhouse	-22.72511	119.3167	1/05/2010
T9803	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Buthidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Dales Gorge Creek	-22.5	118.6	12/07/1952
T54023	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Buthidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Chichester Range, ca. 40 km E. of Peak Hester, site HDD 2	-22.09	118.9925	1/05/2003
T54012	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Buthidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Chichester Range, ca. 20 km SE. of Pouyouwuncubbana, site HDD 7	-22.9441	118.9631	4/05/2003
T54049	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Buthidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Weeli Wolli Creek, ca. 47 km SW. of Marillana, site HDRT 1	-22.9588	119.1631	23/04/2003
T54038	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Buthidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Chichester Range, ca. 28 km SE. of Pouyouwuncubbana, site HDD 3	-22.0708	118.9786	3/05/2003
T54067	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Buthidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Weeli Wolli Creek, ca. 38 km SW. of Marillana, site HDRT 3	-22.9244	119.205	26/04/2003
T140625	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Buthidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	South Flank ca. 95 km NW. of Newman	-22.95283	118.9758	16/03/2016
T136731	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Buthidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi Oxbow, 87.3 km NW. of Newman	-22.78361	119.1467	5/05/2015
T140626	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Buthidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	South Flank ca. 95 km NW. of Newman	-22.96333	118.9378	16/03/2016
T135631	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Buthidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, Dales Gorge, Circular Pool	-22.47694	118.5633	18/03/2015
T140627	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Buthidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	South Flank ca. 95 km NW. of Newman	-22.96175	118.909	16/03/2016
T114181	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Buthidae sp.	epigean	potential SRE: DD	family contains SREs and potential SREs	c. 22 km NW. of Marillana Station homestead, FMG Nyidinghu Project	-22.56189	119.212	19/05/2011
T105576	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'goldfields 1'	epigean	widespread	This is probably Isometroides 'pilbara 1'	Marillana, site 11, 100 km NW. of Newman	-22.62228	119.3247	9/04/2011
T91894	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	10 km NE. of Newman, Ore-body 24, site 05-5A	-23.31161	119.7936	26/06/2008
T93455	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	Hope Downs 4, ca. 30 km NW. of Newman, HD4-11, 37	-23.10145	119.2918	22/09/2008
T103928	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	ca. 97 km SE. of Tom Price	-23.16444	118.5886	24/06/2010

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T135467	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	Karijini National Park, near Rangers Station	-22.58278	118.4589	12/03/2015
T125358	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	Koodaideri Western Corridor, 180.9 km NW. of Newman	-22.24992	118.4451	28/03/2012
T125360	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	Koodaideri Western Corridor, 136.8 km NW. of Newman	-22.40428	118.8823	29/03/2012
T131176	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	3 km SSW. of West Angelas Aerodrome	-23.15918	118.6935	18/03/2013
T125361	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	Koodaideri Western Corridor, 149.2 km NW. of Newman	-22.34989	118.7657	1/04/2012
T135558	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	Karijini National Park, near Rangers Station	-22.58278	118.4589	16/03/2015
T135579	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	Karijini National Park, c. 21 km SW. of Dales Gorge, site MAM 1	-22.57131	118.37703	16/03/2015
T125362	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	Koodaideri Western Corridor, 145.1 km NW. of Newman	-22.37994	118.82	1/04/2012
T128342	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	Orebody 19, ca. 28 km ENE. of Newman	-23.33939	120.0208	24/05/2013
T135528	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	Karijini National Park, Karijini Drive	-22.56	118.4492	14/03/2015
T135529	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	Karijini National Park, c. 15 km SW. of Dales Gorge	-22.56528	118.4525	14/03/2015
T149486	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	88.2 km NW. of Newman	-23.06007	118.9316	9/03/2019
T149451	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	80.3 km NW. of Newman	-23.06253	119.0149	10/03/2019
T149452	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	88.2 km NW. of Newman	-23.06007	118.9316	9/03/2019
T149453	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	85.2 km NW. of Newman	-23.06971	118.9594	11/03/2019
T149454	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T149485	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T149487	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T122061	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'SCO025, pilbara 1'	epigean	widespread	Alacran unpublished data	82.2 km NW. of Tom Price, Koodaideri Corridor West	-22.23244	118.4149	20/02/2012
T60526	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Weeli Wolli Creek, ca. 40 km SW. of Marillana, site HDA2	-22.958	119.1792	27/04/2003
T19686	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mt Bruce	-22.6	118.1333	15/05/1980
T19688	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill	-22.6166	119.95	18/05/1982
T19689	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill	-22.6166	119.95	18/05/1982
T105570	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 9 km WNW. of Marillana Station homestead, site 11	-22.62303	119.3217	9/04/2011
T105572	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 9 km WNW. of Marillana Station homestead, site 11	-22.62178	119.3237	9/04/2011
T57399	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs @	-23.03	119.0211	20/10/1998
T105392	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill [Station], Marble Bar Road	-22.51814	119.9128	11/03/2010
T81655	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 18)	-22.3097	119.3447	1/06/2006
T19694	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill	-22.6166	119.95	18/05/1982
T105605	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	ca. 8 km WNW. of Marillana Station homestead, ca. 100 km NW. of Newman	-22.62433	119.3167	10/05/2012
T100388	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mulga Downs Station, Murrays Hill area, 4 km NE. of homestead	-22.117	118.5032	21/04/2009
T19692	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill	-22.6166	119.95	18/05/1982
T105623	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 8 W. of Marillana Station homestead, ca. 100 km NW. of Newman	-22.62772	119.3299	23/05/2011
T19693	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill	-22.6166	119.95	18/05/1982
T19691	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill	-22.6166	119.95	18/05/1982
T44750	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Newman	-23.3666	119.7333	15/05/2000
T105638	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 11 km NW. of Marillana Station homestead, site 12	-22.58492	119.3	10/05/2012
T105635	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 8 km W. of Marillana Station homestead, site 11	-22.62433	119.3299	22/05/2011

T77988	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Port Hedland-Newman Railway, Chichester Rge, Fortescue Metals Group, site FMG17	-22.2994	119.0231	12/03/2004
T19690	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill	-22.6166	119.95	18/05/1982
T114207	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 100 Km N. of Newman (site 6)	-22.6013	119.2913	8/08/2011
T133364	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas lease, 46.2 km ESE. of Juna Downs Homestead	-23.06889	118.89	9/09/2005
T118155	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Wonmunna, ca. 79 km heading 286° from Newman	-23.159208	118.992805	17/05/2011
T114190	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 8 km WNW. of Marillana Station homestead, FMG Nyidinghu Project	-22.625444	119.325305	10/05/2011
T127218	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 34 km NE. of West Mt Hilditch	-23.01972	119.0903	4/11/2011
T114236	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 3.5 km WSW. of Marillana Station homestead, site 8	-22.6376	119.3744	13/06/2011
T114205	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 100 Km N. of Newman (site 1)	-22.265	119.0252	8/08/2011
T114164	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 15 km NNW. of Marillana Station homestead, FMG Nyidinghu Project	-22.50525	119.373388	10/05/2011
T114233	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, 100 Km N. of Newman (site 5)	-22.5625	119.2311	8/08/2011
T114165	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 15 km NNW. of Marillana Station homestead, FMG Nyidinghu Project	-22.5055	119.373388	10/05/2011
T131216	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Mine 1, ca. 90 km N. of Newman	-22.52247	119.9186	17/04/2013
T79702	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Isometroides 'sp. 1'	epigean	widespread	Pilbara 1??	6 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW06	-22.30178	119.0078	21/11/2003
T60529	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Hope Downs proposed rail corridor, site HAC8	-22.3666	118.9833	12/11/2001
T60528	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Hope Downs proposed rail corridor, site HAC3	-22.6	119.2333	12/11/2001
T105471	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Iron Valley, 5 km NE. of Yandicoogina Mine	-22.75117	119.3074	5/05/2010
T105423	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Iron Valley, 5 km NE. of Yandicoogina Mine	-22.75014	119.308	5/05/2010
T51595	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Weeli Wolli Creek, ca. 44 km SW. of Marillana, site HDA1	-22.9688	119.1622	24/04/2003
T105472	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Iron Valley, 5 km NE. of Yandicoogina Mine	-22.722	119.3249	5/05/2010
T80186	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	4 km SSW. of Mile Camp, Pilbara Biological Survey site RHNE01	-22.82	119.6127	10/08/2003
T53993	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Weeli Wolli Creek, ca. 25 km SW. of Marillana, site HDA8	-22.8213	119.2878	23/04/2003
T106012	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Area C, 81.4 km NW. of Newman	-22.95806	119.0692	1/05/2010
T105428	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Iron Valley, 5 km NE. of Yandicoogina Mine	-22.73128	119.3183	5/05/2010
T79776	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Hamersley Range, 20.5 km WNW. of Mt Marsh, Pilbara Biological Survey site RHNW03	-22.46653	119.0226	13/08/2003
T57397	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Hope Downs @	-23.03	119.0211	20/10/1998
T100121	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Roy Hill, Ecologia project 1209	-22.64308	119.9646	20/11/2009
T51617	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Weeli Wolli Creek, ca. 28 km SW. of Marillana, site HDA7	-22.8344	119.2736	25/04/2003
T105602	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Marillana Station, ca. 100 km NW. of Newman	-22.71111	119.3136	22/05/2011
T128768	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.2792	119.7998	29/04/2013
T128761	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'adonis'	epigean	widespread	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.2792	119.7998	29/04/2013
T105571	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	c. 8 km NW. of Marillana Station homestead, site 11	-22.62228	119.3244	9/04/2011
T32981	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Marandoo Minesite	-22.6166	118.1333	24/04/1976
T105584	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	c. 16 km NW. of Marillana Station homestead, site 1	-22.53425	119.2967	9/04/2011
T105437	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Iron Valley, 5 km NE. of Yandicoogina Mine	-22.71783	119.3265	5/05/2010
T79890	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	4 km SSW. of Mile Camp, Pilbara Biological Survey site RHNE01	-22.82	119.6127	10/08/2003
T79898	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hamersley Range, 20.5 km WNW. of Mt Marsh, Pilbara Biological Survey site RHNW03	-22.46653	119.0226	13/08/2003

T97023	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinayri, ca. 65 km NW. of Newman	-22.805	119.3069	30/03/2009
T105475	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Iron Valley, c. 11 km NE. of Yandicoogina Mine	-22.71844	119.3265	5/05/2010
T60497	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hope Downs proposed rail corridor, site HAC3	-22.6	119.2333	12/11/2001
T80205	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	1 km SSE. of Cowra Line Camp, Pilbara Biological Survey site RHNW13	-22.3614	119.0068	20/11/2003
T97028	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinayri, ca. 65 km NW. of Newman	-22.91139	119.2056	28/03/2009
T81660	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 18)	-22.3097	119.3447	1/06/2006
T60416	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hope Downs @	-23.03	119.0208	20/10/1998
T60440	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hope Downs Station @	-22.6166	119.3333	1/12/1999
T60451	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hope Downs Station @	-22.6166	119.3333	1/12/1999
T79907	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	4 km SSW. of Mile Camp, Pilbara Biological Survey site RHNE01	-22.8201	119.6127	10/08/2003
T105583	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	c. 22 km WNW. of Marillana Station homestead, site 3	-22.56211	119.2119	9/04/2011
T98298	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'annulatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinayri mine site, ca. 65 km NW. of Newman	-22.91139	119.2006	23/06/2009
T57396	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'austroccidentalis?'	epigean	widespread	eronious idnetification?? L. 'austroccidentalis' is a SW species	Hope Downs @	-23.03	119.0211	20/10/1998
T93582	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinary, ca. 60 km NW. of Newman	-22.98986	119.2365	27/08/2008
T101150	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 85.8 km NW. of Newman	-23.01694	118.8889	25/02/2010
T105456	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Iron Valley, c. 5 km NE. of Yandicoogina Mine	-22.75683	119.3038	5/05/2010
T93579	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinary, ca. 60 km NW. of Newman	-23.02525	119.2432	24/08/2008
T93583	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinary, ca. 60 km NW. of Newman	-22.9873	119.2694	31/08/2008
T105480	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Iron Valley, c. 7 km NE. of Yandicoogina Mine	-22.75858	119.3031	5/05/2010
T79580	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	18 km E. of Mt Bruce, Pilbara Biological Survey site TCMBE04	-22.6213	118.3147	2/08/2005
T79689	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	1.5 km W. of Giles Point, Pilbara Biological Survey site RHNC04	-23.2509	119.1447	20/11/2003
T79602	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	13 km SSW. of Giles point, Pilbara Biological Survey site RHNC01	-23.3611	119.1125	20/11/2003

T97026	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinayri, ca. 65 km NW. of Newman	-22.92194	119.2036	28/03/2009
T79552	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	1.8 km SSE. of Mulga Downs Outcamp, Pilbara Biological Survey site RHNW04	-22.3346	118.9887	21/11/2003
T79562	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	3 km SW. of Weeli Wollie Spring, Pilbara Biological Survey site RHNC10	-22.9311	119.1847	31/08/2003
T79578	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	16 km E. of Mt Bruce, Pilbara Biological Survey site TCMBE05	-22.6094	118.2992	2/08/2005
T79693	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	27.5 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW08	-22.1068	119.0007	21/11/2003
T79540	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	13 km SSW. of Giles Point, Pilbara Biological Survey site RHNC01	-23.3611	119.1125	20/11/2003
T79688	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	18.5 km SE. of Mt Bruce, Pilbara Biological Survey site TCMBE08	-22.7225	118.2683	1/09/2005
T79685	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Mulga Downs Station, 16 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW07	-22.2217	119.0249	14/08/2003
T79637	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	11.5 km SW. of Rhodes Ridge, Pilbara Biological Survey site RHNC07	-23.146	119.2658	2/09/2003
T79635	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	0.5 km NW. of Weelie Wollie Spring, Pilbara Biological Survey site RHNC11	-22.9146	119.209	19/11/2003
T94829	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinayri, ca. 60 km NW. of Newman	-23.04078	119.2798	9/02/2009
T79616	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	0.5 km NW. of Weeli Wollie Spring, Pilbara Biological Survey site RHNC11	-22.9146	119.209	1/09/2003
T97030	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinayri, ca. 65 km NW. of Newman	-22.92194	119.2036	28/03/2009
T79612	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	27.5 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW08	-22.1068	119.0007	26/08/2003
T97022	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinayri, ca. 65 km NW. of Newman	-22.87333	119.2467	28/03/2009
T79618	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	26 km WNW. of Bonney Downs Homestead, Pilbara Biological Survey site RHNE12	-22.0853	119.7035	18/11/2003
T79604	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	26 km WNW. of Bonney Downs Homestead, Pilbara Biological Survey site RHNE12	-22.0853	119.7035	8/08/2003
T114158	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.7111	119.3391	10/05/2011
T136339	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hammersley Range, ca. 30 km ESE. of Juna Downs	-22.68401	119.06	30/03/2014
T146566	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Greater Hope Downs, Hope Downs 1 mine, ca. 79.5 km NW. of Newman	-23.08289	119.0135	19/05/2018
T134384	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	ca. 40 km E. of Mount McRae, Solomon Mine	-22.0996	118.185	22/04/2014
T140558	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hillside Station, ca. 150 km SE. of Wodgina Mine	-21.88844	119.2458	23/05/2014

T134386	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	ca. 40 km E. of Mount McRae, Solomon Mine	-22.09984	118.1851	22/04/2014
T134387	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	ca. 40 km E. of Mount McRae, Solomon Mine	-22.05946	118.1449	22/04/2014
T134389	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	ca. 40 km E. of Mount McRae, Solomon Mine	-22.09949	118.1847	22/04/2014
T114153	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	c. 11 km SW. of Marillana Station homestead, FMG Nyidinghu Project	-22.711361	119.339305	10/05/2011
T131162	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	9 km WSW. of West Angelas Aerodrome	-23.17234	118.6239	18/03/2013
T134383	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	ca. 40 km E. of Mount McRae, Solomon Mine	-22.14715	118.173	22/04/2014
T140565	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hillside Station, ca. 150 km SE. of Wodgina Mine	-21.90319	119.2807	23/05/2014
T140542	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hillside Station, ca. 150 km SE. of Wodgina Mine	-21.88445	119.4253	23/05/2014
T140560	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hillside Station, ca. 150 km SE. of Wodgina Mine	-21.90061	119.236	23/05/2014
T140552	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hillside Station, ca. 150 km SE. of Wodgina Mine	-21.88758	119.2383	23/05/2014
T128372	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.28928	119.7947	29/04/2013
T149488	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	88.2 km NW. of Newman	-23.06007	118.9316	9/03/2019
T149490	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	80.3 km NW. of Newman	-23.06253	119.0149	10/03/2019
T149491	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	88.2 km NW. of Newman	-23.06126	118.9308	3/09/2019
T149492	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	80.3 km NW. of Newman	-23.06253	119.0149	10/03/2019
T114188	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.7311	119.383	10/05/2011
T126754	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	6 km SW. of Redmont Airport, site 994-10	-22.01957	118.9816	15/04/2012
T126760	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Mulga Downs Station, Cowra, site 994-12	-22.28256	119.0226	16/04/2012
T126815	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	63.5 km ESE. of Paraburdoo, site 1000-tur01	-23.28848	118.2849	2/05/2012
T126818	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	65 km E. of Paraburdoo, site 1000-tur02	-23.21099	118.3054	3/03/2012
T140562	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hillside Station, ca. 150 km SE. of Wodgina Mine	-21.88758	119.2383	23/05/2014
T118103	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Wonmunna, ca. 70 km heading 291° from Newman	-23.128996	119.090416	19/05/2011

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T149489	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	85.2 km NW. of Newman	-23.06971	118.9594	11/03/2019
T118070	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Wonmunna, ca. 73 km heading 291° from Newman	-23.120939	119.063248	20/05/2011
T151334	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex, SCO024'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Mulga Downs Station, ca. 31 km NW. of Munjina	-22.12727	118.6273	16/03/2020
T97369	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex, SCO042'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.09256	119.2059	22/04/2009
T97372	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex, SCO042'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.09256	119.2059	22/04/2009
T93458	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex, SCO042'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hope Downs 4, ca. 30 km NW. of Newman, HD4-12, 34	-23.1063	119.2919	22/09/2008
T91706	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex, SCO042'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hope Downs 4, ca. 100 km NW. of Newman, HD4-10	-23.03792	119.2124	13/05/2008
T91705	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex, SCO042'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hope Downs 4, ca. 100 km NW. of Newman, HD4-10	-23.03792	119.2124	13/05/2008
T93457	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex, SCO042'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hope Downs 4, ca. 30 km NW. of Newman, HD4-13, 31	-23.10378	119.2799	22/09/2008
T91703	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex, SCO042'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hope Downs 4, ca. 100 km NW. of Newman, HD4-10	-23.03792	119.2124	13/05/2008
T93456	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex, SCO042'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hope Downs 4, ca. 30 km NW. of Newman, HD4-2, 7	-23.14593	119.5263	12/09/2008
T135483	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex, SCO042'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Karijini National Park, near Rangers Station	-22.58278	118.4589	13/03/2015
T135531	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex, SCO042'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Karijini National Park, c. 15 km SW. of Dales Gorge	-22.56528	118.4525	14/03/2015
T128299	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex, SCO042'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.28391	119.7468	5/08/2013
T128296	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'bituberculatus complex, SCO042'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.29149	119.8158	5/08/2013
T79714	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'gracilimanus'	epigean	Potential SRE: DD	rare species with very disjunct distribution pattern, may contain crypric species	18.5 km NE. of Mile Camp, Pilbara Biological Survey site RHNE04	-22.6906	119.7747	10/08/2003
T79715	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'gracilimanus'	epigean	Potential SRE: DD	rare species with very disjunct distribution pattern, may contain crypric species	26 km WNW. of Bonney Downs Homestead, Pilbara Biological Survey site RHNE12	-22.0853	119.7035	8/08/2003
T140573	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'gracilimanus'	epigean	Potential SRE: DD	rare species with very disjunct distribution pattern, may contain crypric species	Hillside Station, ca. 150 km SE. of Wodgina Mine	-21.88445	119.4253	23/05/2014
T136784	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'gracilimanus'	epigean	Potential SRE: DD	rare species with very disjunct distribution pattern, may contain crypric species	Hillside Station, ca. 150 km SE. Wodgina Mine	-21.88445	119.4253	23/05/2014
T89264	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Chichester Range, Ecologia site 7A	-22.14797	119.0202	17/09/2007
T79816	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	1 km N. of Mulga Downs Outcamp, Pilbara Biological Survey site RHNW05	-22.3175	118.9743	24/05/2004
T105017	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 35, ca. 8 km W. of Newman, Site5-P8	-23.41007	119.5715	12/03/2010
T97027	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinayri, ca. 65 km NW. of Newman	-22.87556	119.2444	28/03/2009

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T89266	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Chichester Range, Ecologia site 1B	-22.22664	118.9778	17/09/2007
T105620	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station, ca. 100 km NW. of Newman	-22.7181	119.3423	10/05/2012
T106055	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 92.7 km NW. of Newman	-22.99861	118.9067	1/05/2010
T79810	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	11.5 km SW. of Rhodes Ridge, Pilbara Biological Survey site RHNC07	-23.146	119.2658	25/05/2004
T105586	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, ca. 100 km NW. of Newman	-22.6054	119.2917	10/05/2012
T79807	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	34 km NNW. of Cowra Line Camp, Pilbara Biological Survey site ???	-22.0688	118.9787	12/11/2003
T106020	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 81.6 km NW. of Newman	-22.90694	119.1242	1/05/2010
T79813	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	20 km WNW. of Rhodes Ridge, Pilbara Biological Survey site RHNC09	-23.0538	119.1769	19/11/2003
T106024	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 84.7 km NW. of Newman	-22.90583	119.0289	1/05/2010
T106023	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 89.3 km NW. of Newman	-22.90639	119.0125	1/05/2010
T105587	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, ca. 100 km NW. of Newman	-22.7203	119.3538	10/05/2012
T93584	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinary, ca. 60 km NW. of Newman	-22.97836	119.2609	31/08/2008
T81653	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 15)	-22.3213	119.3533	1/06/2006
T106015	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 83.6 km NW. of Newman	-22.99167	118.9592	1/05/2010
T105018	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 35, ca. 8 km W. of Newman, Site9-P2	-23.39013	119.6431	12/03/2010
T105627	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station, ca. 100 km NW. of Newman	-22.7222	119.3447	10/05/2012
T101151	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	19/02/2010
T79786	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Mulga Downs Station, 16 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW07	-22.2217	119.0249	21/11/2003
T105518	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	c. 86 km SW. of Nullagine, Cloudbreak [mine lease], Chichester Range	-22.29803	119.3936	26/10/2010
T105011	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 35, ca. 8 km W. of Newman, Site7-P3	-23.40534	119.6224	14/03/2010
T106053	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 93.7 km NW. of Newman	-22.99861	118.9075	1/05/2010
T93577	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinary, ca. 60 km NW. of Newman	-23.02767	119.255	30/08/2008

T105039	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 35, ca. 8 km W. of Newman, Site1-P10	-23.39453	119.6318	13/03/2010
T106037	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 93.1 km NW. of Newman	-23	118.9131	1/05/2010
T105014	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 35, ca. 8 km W. of Newman, Site11-P6	-23.42057	119.5676	12/03/2010
T94833	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinayri, ca. 60 km NW. of Newman	-23.01292	119.2371	8/02/2009
T93578	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinary, ca. 60 km NW. of Newman	-22.97836	119.2609	31/08/2008
T106050	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 83.9 km NW. of Newman	-22.99306	119.0158	1/05/2010
T106048	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010
T33270	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hancock Gorge area, Hamersley Range	-22.3666	118.75	3/06/1987
T105519	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	c. 95 km SW. of Nullagine, Cloudbreak [mine lease], Chichester Range	-22.25987	119.2786	26/10/2010
T106044	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010
T33271	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hancock Gorge area, Hamersley Range	-22.3666	118.75	3/06/1987
T33258	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Weano Gorge, Hamersley Range	-22.35	118.2833	4/09/1981
T97020	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinayri, ca. 65 km NW. of Newman	-22.87306	119.2464	31/03/2009
T80198	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	24.5 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW10	-22.1346	119.0242	21/11/2003
T106056	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 61.8 km NW. of Newman	-22.99861	118.8686	1/05/2010
T105034	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 35, ca. 8 km W. of Newman, Site4-P10	-23.40244	119.5967	12/03/2010
T106016	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	1/05/2010
T105030	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 35, ca. 8 km W. of Newman, Site5-P4	-23.41033	119.5716	12/03/2010
T106028	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 91.3 km NW. of Newman	-22.90055	118.9933	1/05/2010
T94830	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinayri, ca. 60 km NW. of Newman	-23.01292	119.2371	8/02/2009
T93581	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinary, ca. 60 km NW. of Newman	-23.02767	119.255	30/08/2008
T105010	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 35, ca. 8 km W. of Newman, Site19-P10	-23.40483	119.621	14/03/2010

T106033	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Area C, 83.9 km NW. of Newman	-22.99306	119.0158	1/05/2010
T104999	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 35, ca. 8 km W. of Newman, Site12-P4	-23.39938	119.5844	12/03/2010
T105391	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Roy Hill	-22.5181	119.9128	11/03/2010
T93580	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinary, ca. 60 km NW. of Newman	-23.04078	119.2798	29/08/2008
T105000	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 35, ca. 8 km W. of Newman, Site12-P3	-23.39948	119.5844	12/03/2010
T105639	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station, ca. 100 km NW. of Newman	-22.6773	119.2526	10/05/2012
T112172	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	118 km N. of Newman	-22.29725	119.8633	24/03/2011
T114212	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.535555	119.194916	10/05/2011
T112180	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	115 km NNW. of Newman	-22.31787	119.7476	24/03/2011
T126757	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	6 km SW. of Redmont Airport, site 994-10	-22.01957	118.9816	15/04/2012
T126812	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	63 km E. of Paraburdoo, site 1000-tuX1	-23.20412	118.2882	1/04/2012
T114179	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.714166	119.340527	10/05/2011
T112181	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	113 km NNW. of Newman	-22.33519	119.6531	22/03/2011
T114169	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.711055	119.338666	10/05/2011
T117873	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	96.5 km W. of Newman	-23.04111	118.8508	4/08/2011
T118153	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Wonmunna	-23.124027	119.058006	23/05/2011
T114151	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.733194	119.38025	10/05/2011
T112174	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	115 km N. of Newman	-22.31347	119.7886	25/03/2011
T114203	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.717222	119.340111	10/05/2011
T112173	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	114 km NNW. of Newman	-22.32572	119.7392	22/03/2011
T139739	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Ministers North, ca. 93 km NW. of Newman	-22.81216	119.0723	31/08/2015
T114194	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.711666	119.339583	10/05/2011

T131164	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	18 km E. of of West Angelas Aerodrome	-23.12279	118.8753	18/03/2013
T151335	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Mulga Downs Station, ca. 31 km NW. of Munjina	-22.13128	118.4664	16/03/2020
T114192	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.718916	119.3525	10/05/2011
T114189	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.582138	119.251888	10/05/2011
T118154	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Wonmunna, ca. 70 km heading 291° from Newman	-23.128996	119.090416	19/05/2011
T114210	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	c. 11 km SW. of Marillana Station homestead, FMG Nyidinghu Project	-22.712222	119.339583	10/05/2011
T139738	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Ministers North, ca. 93 km NW. of Newman	-22.82825	119.144	2/09/2015
T114183	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.710583	119.316361	10/05/2011
T114166	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.504516	119.373138	10/05/2011
T114148	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Angelo River	-23.290119	118.682227	28/06/2011
T114168	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	c. 11 km SW. of Marillana Station homestead, FMG Nyidinghu Project	-22.715027	119.340388	10/05/2011
T114134	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	FMG Nyidinghu Project, near Marillana Station homestead, 100 km NW. of Newman	-22.625861	119.325527	10/05/2011
T114155	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.711361	119.339305	10/05/2011
T114156	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.584361	119.251122	10/05/2011
T114159	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.715027	119.340388	10/05/2011
T114160	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.715027	119.340388	10/05/2011
T149493	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	85.2 km NW. of Newman	-23.06971	118.9594	11/03/2019
T112182	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	112 km NNE. of Newman	-22.38718	119.9664	26/03/2011
T114196	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.712472	119.372972	10/05/2011
T114213	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.710055	119.338527	10/05/2011
T91891	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	10 km NE. of Newman, Ore-body 24, site 07-7B	-23.30795	119.8147	29/06/2008
T94831	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Jinayri, ca. 60 km NW. of Newman	-23.01292	119.2371	8/02/2009

T91893	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	10 km NE. of Newman, Ore-body 24, site 04-4A	-23.29917	119.786	24/06/2008
T91920	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hamersley Range, Weeli Wolli Creek region, Area C, site 05-5G	-22.93847	119.008	14/06/2008
T91919	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hamersley Range, Weeli Wolli Creek region, Area C, site 10-10C	-22.91047	118.9664	16/06/2008
T116877	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Mudlark, 96 km WNW. of Newman, ca. 28 km ESE. of Mt Meharry	-23.04028	118.8517	6/07/2011
T128763	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 25, ca. 5 km N. of Newman	-23.32615	119.7816	5/08/2013
T116876	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Mudlark, 96 km WNW. of Newman, ca. 28 km ESE. of Mt Meharry	-23.04028	118.8517	6/07/2011
T128764	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 25, ca. 5 km N. of Newman	-23.32392	119.79	29/04/2013
T128765	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Homestead, ca. 6 km N. of Newman	-23.30941	119.743	29/04/2013
T128762	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	widespread	W.A. Museum assessment	Homestead, ca. 6 km N. of Newman	-23.30941	119.743	29/04/2013
T128295	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Homestead, ca. 6 km N. of Newman	-23.30226	119.7252	5/08/2013
T128773	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.29189	119.7775	5/08/2013
T128283	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 19, ca. 28 km ENE. of Newman	-23.33119	119.9896	19/03/2013
T128284	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 19, ca. 28 km ENE. of Newman	-23.32906	119.9997	19/03/2013
T128285	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32131	120.0082	19/03/2013
T128290	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 19, ca. 28 km ENE. of Newman	-23.32106	120.0426	27/08/2013
T128772	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 25, ca. 5 km N. of Newman	-23.32914	119.7692	5/08/2013
T128297	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.28725	119.7634	5/08/2013
T128292	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 19, ca. 28 km ENE. of Newman	-23.32106	120.0438	27/08/2013
T128766	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.28342	119.7504	5/08/2013
T128771	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.29473	119.7554	5/08/2013
T128760	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.27704	119.861	29/04/2013
T128770	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Homestead, ca. 6 km N. of Newman	-23.30941	119.743	29/04/2013
T128298	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 25, ca. 5 km N. of Newman	-23.32152	119.7733	5/08/2013

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T128769	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.28276	119.7396	29/04/2013
T128767	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.28349	119.7695	29/04/2013
T116878	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mudlark, 98 km WNW. of Newman, ca. 26 km SE. of Mt Meharry	-23.07306	118.82	6/07/2011
T128291	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 19, ca. 28 km ENE. of Newman	-23.32106	120.0438	27/08/2013
T128312	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.28253	119.7497	5/08/2013
T128310	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.28725	119.7634	5/08/2013
T128348	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 19, ca. 28 km ENE. of Newman	-23.32283	120.0099	19/03/2013
T128345	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 19, ca. 28 km ENE. of Newman	-23.3341	120.0251	19/03/2013
T128301	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.29004	119.7706	5/08/2013
T128344	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 19, ca. 28 km ENE. of Newman	-23.33222	120.0162	19/03/2013
T128343	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 19, ca. 28 km ENE. of Newman	-23.32269	119.9822	19/03/2013
T128315	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.33078	119.7602	5/08/2013
T135560	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Hancock Gorge	-22.35917	118.2844	15/03/2015
T128349	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 19, ca. 28 km ENE. of Newman	-23.32917	119.9956	19/03/2013
T128302	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.2715	119.8416	5/08/2013
T128316	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Homestead, ca. 6 km N. of Newman	-23.30385	119.754	5/08/2013
T128215	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 19, ca. 28 km ENE. of Newman	-23.33039	120.0086	27/08/2013
T128303	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.27416	119.7399	5/08/2013
T128304	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.2872	119.7242	5/08/2013
T128305	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.2872	119.7242	5/08/2013
T135506	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, near Rangers Station	-22.58278	118.4589	14/03/2015
T128306	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 25, ca. 5 km N. of Newman	-23.32152	119.7733	5/08/2013
T128307	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.27416	119.7399	5/08/2013

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T128309	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.28787	119.7468	5/08/2013
T128313	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.29473	119.7554	5/08/2013
T128350	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 19, ca. 28 km ENE. of Newman	-23.33136	120.0187	19/03/2013
T128314	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'hairy tail complex, SCO052'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Orebody 24, ca. 7 km N. of Newman	-23.28787	119.7468	5/08/2013
T34405	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982
T105640	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	near Marillana Station, ca. 100 km NW. of Newman	-22.6302	119.3308	10/05/2012
T105626	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	c. 8 km W. of Marillana Station homestead, FMG Nyidinghu Project, site 11	-22.62433	119.3167	10/05/2012
T34406	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982
T34407	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982
T34408	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982
T105621	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	c. 11 km SW. of Marillana Station homestead	-22.71892	119.35	10/05/2012
T106034	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010
T80080	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	9 km N. of Mt Bruce, Pilbara Biological Survey site TCMBE06	-22.6361	118.2256	1/09/2005
T80084	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	18.5 km NE. of Mile Camp, Pilbara Biological Survey site RHNE04	-22.6906	119.7747	19/11/2003
T80093	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	34 km NNW. of Cowra Line Camp, Pilbara Biological Survey site RHNW09	-22.0688	118.9787	21/11/2003
T80094	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	10.5 km NW. of Bonney Downs Homestead, Pilbara Biological Survey site RHNE10	-22.1178	119.8772	7/08/2003
T80113	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	3.2 km SW. of Giles Point, Pilbara Biological Survey site RHNC03	-23.2662	119.1339	20/11/2003
T80119	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	25 km NE. of Moorimoordinia Native Well, Pilbara Biological Survey site ???	-22.4154	119.984	8/08/2003
T106027	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Area C, 98.2 km NW. of Newman	-23.00778	118.8536	1/05/2010
T34409	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982
T80049	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	18.5 km NE. of Mile Camp, Pilbara Biological Survey site RHNE04	-22.6906	119.7747	10/08/2003
T106047	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010
T106042	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	Area C, 101 km NW. of Newman	-23.00556	118.8275	1/05/2010
T105565	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Marillana [lease], 100 km NW. of Newman, site 11	-22.62255	119.3224	9/04/2011
T80146	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	34 km NNW. of Cowra Line Camp, Pilbara Biological Survey site RHW09	-22.0688	118.9787	26/08/2003
T80185	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	9 km SW. of Giles Point, Pilbara Biological Survey site RHNC02	-23.3195	119.1016	29/08/2003
T80189	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	9 km SW. of Giles Point, Pilbara Biological Survey site RHNC02	-23.3195	119.1016	
T80122	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	3 km SW. of Weeli Wolli Spring, Pilbara Biological Survey site RHNC10	-22.9477	119.1847	31/08/2003
T79949	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	26 km WNW. of Bonney Downs Homestead, Pilbara Biological Survey site RHNE12	-22.0853	119.7035	8/08/2003
T105022	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Orebody 35, ca. 8 km W. of Newman, Site9-P4	-23.39	119.6432	12/03/2010
T106026	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Area C, 87.2 km NW. of Newman	-22.98917	118.9822	1/05/2010

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T106030	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Area C, 92.2 km NW. of Newman	-22.90583	118.9803	1/05/2010
T97031	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Jinayri, ca. 65 km NW. of Newman	-22.64833	119.3919	31/03/2009
T106058	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	Area C, 98.2 km NW. of Newman	-23.00778	118.8536	1/05/2010
T79941	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	10.5 km NW. of Bonney Downs Homestead, Pilbara Biological Survey site RHNE10	-22.1178	119.8772	7/08/2003
T80069	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	34 km NNW. of Cowra Line Camp, Pilbara Biological Survey site RHNW09	-22.0688	118.9787	26/08/2003
T79944	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	6 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW06	-22.30178	119.0134	21/11/2003
T80052	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	16 km SW. of Rhodes Ridge, Pilbara Biological Survey site RHNC06	-23.1852	119.2379	30/08/2003
T79950	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	3.2 km SW. of Giles Point, Pilbara Biological Survey site RHNC03	-23.2662	119.1339	29/08/2003
T79951	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	17.5 km SE. of Mt Bruce, Pilbara Biological Survey site WYE05	-22.7161	118.2633	1/09/2005
T79976	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	9 km NE. of Cowra Line Camp, Pilbara Biological Survey site RHNW11	-22.2941	119.0614	21/11/2003
T97021	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Jinayri, ca. 65 km NW. of Newman	-22.64889	119.3922	29/03/2009
T79982	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	26 km WNW. of Bonney Downs Homestead, Pilbara Biological Survey site RHNE12	-22.0853	119.7033	18/11/2003
T80048	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	14 km WSW. of Roy Hill Station, Pilbara Biological Survey site RHNE05	-22.6756	119.8406	19/11/2003
T80308	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Marandoo Mine Extension (MAR02), 35 km ENE. of Tom Price	-22.10556	118.3061	15/04/2007
T106057	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	Area C, 92.7 km NW. of Newman	-22.99861	118.9067	1/05/2010
T34418	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982
T34410	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982
T93460	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Hope Downs 4, ca. 30 km NW. of Newman, HD4-5, 15	-23.12838	119.5089	15/09/2008
T93454	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Hope Downs 4, ca. 30 km NW. of Newman, HD4-11, 35	-23.10145	119.2918	20/09/2008
T105384	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.4321	119.8909	11/03/2010
T81656	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 08)	-22.3269	119.3758	1/06/2006
T105386	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.4828	119.8811	11/03/2010
T104995	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Orebody 35, ca. 8 km W. of Newman, Site14-P6	-23.38333	119.6479	12/03/2010
T79892	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	4 km SSW. of Mile Camp, Pilbara Biological Survey site RHNE01	-22.82	119.6127	10/08/2003
T105388	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.549	120.036	11/03/2010
T83596	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Marandoo mine extension (MAR02-02)	-22.9841	118.1822	9/11/2007
T34419	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982
T105046	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Orebody 35, ca. 8 km W. of Newman, Site6-P8	-23.40195	119.5744	12/03/2010
T105383	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.4321	119.8909	11/03/2010
T34417	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982
T34416	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982
T34415	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982
T34414	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982

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T34413	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982
T34412	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982
T34411	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982
T34420	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Roy Hill	-22.6	119.95	18/05/1982
T114177	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	near Marillana Station homestead, FMG Nyidinghu Project	-22.5029	119.3733	10/05/2011
T114161	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	near Marillana Station homestead, FMG Nyidinghu Project	-22.5307	119.1912	10/05/2011
T114209	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	Marillana, 100 Km N. of Newman (site 7)	-22.6286	119.3485	8/08/2011
T114235	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	Marillana, 100 Km N. of Newman (site 6)	-22.6013	119.2913	8/08/2011
T126961	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	ca. 14.58 km SE. of West Angelas Aerodome	-23.20215	118.8304	25/09/2012
T114231	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	Marillana, 100 Km N. of Newman (site 4)	-22.5123	119.1289	8/08/2011
T114182	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	near Marillana Station homestead, FMG Nyidinghu Project	-22.5055	119.3734	10/05/2011
T114199	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	near Marillana Station homestead, FMG Nyidinghu Project	-22.6223	119.3246	10/05/2011
T114198	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	near Marillana Station homestead, FMG Nyidinghu Project	-22.5016	119.3737	10/05/2011
T114186	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	near Marillana Station homestead, FMG Nyidinghu Project	-22.5024	119.3733	10/05/2011
T114187	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	c. 8 km WNW. of Marillana Station homestead, FMG Nyidinghu Project	-22.625444	119.325305	10/05/2011
T126966	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	ca. 14.58 km SE. of West Angelas Aerodome	-23.20215	118.8304	25/09/2012
T114317	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	c. 36 km NE. of Mt Meharry	-22.806725	118.880503	3/04/2012
T114237	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	Marillana, 100 Km N. of Newman (site 4)	-22.5123	119.1289	8/08/2011
T114316	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	c. 33 km NE. of Mt Meharry	-22.803618	118.853085	31/03/2012
T114191	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	near Marillana Station homestead, FMG Nyidinghu Project	-22.5041	119.3729	10/05/2011
T128109	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	ca. 16.68 km SE. of West Angelas Aerodome	-23.19067	118.859	25/09/2012
T114315	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	c. 33 km NE. of Mt Meharry	-22.803618	118.853085	31/03/2012
T149495	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T114314	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	c. 33 km NE. of Mt Meharry	-22.803618	118.853085	31/03/2012
T114247	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	Marillana, 100 Km N. of Newman (site 3)	-22.4081	119.0067	8/08/2011
T149494	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	88.2 km NW. of Newman	-23.06007	118.9316	9/03/2019
T114132	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	Angelo River	-23.3346	118.8016	20/06/2011
T114152	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	c. 15 km NNW. of Marillana Station homestead, FMG Nyidinghu Project	-22.503305	119.372972	10/05/2011
T114130	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	Angelo River	-23.3262	118.7666	20/06/2011
T114175	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	Marillana, 100 Km N. of Newman (site 5)	-22.5625	119.2311	8/08/2011
T112175	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	115 km N. of Newman	-22.31347	119.7886	25/03/2011
T126975	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	ca. 2.53 km SE. of West Angelas Aerodome	-23.15571	118.6914	25/09/2012
T112176	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	115 km N. of Newman	-22.31347	119.7886	25/03/2011

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T114232	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	Potential SRE: DD	species complex containing potential SREs	Marillana, 100 Km N. of Newman (site 8)	-22.6376	119.3744	8/08/2011
T114310	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	c. 34 km NE. of Mt Meharry	-22.81184	118.86658	1/04/2012
T114311	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	c. 34 km NE. of Mt Meharry	-22.803032	118.862233	31/03/2012
T126973	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	ca. 16.89 km SE. of West Angelas Aerodome	-23.19067	118.859	25/09/2012
T114163	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	near Marillana Station homestead, FMG Nyidinghu Project	-22.5037	119.373	10/05/2011
T112177	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	108 km N. of Newman	-22.31327	119.8599	24/03/2011
T114195	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	near Marillana Station homestead, FMG Nyidinghu Project	-22.5302	119.1899	10/05/2011
T128275	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	ca. 18 km N. of Wittenoom	-22.08333	118.3104	20/05/2013
T112178	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	115 km N. of Newman	-22.31347	119.7886	25/03/2011
T128271	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	ca. 18 km N. of Wittenoom	-22.06667	118.3353	20/05/2013
T114211	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	near Marillana Station homestead, FMG Nyidinghu Project	-22.5011	119.3736	10/05/2011
T126971	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	ca. 5.59 km SE. of West Angelas Aerodome	-23.18751	118.7099	25/09/2012
T114214	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	c. 11 km SW. of Marillana Station homestead, FMG Nyidinghu Project	-22.732283	119.383027	10/05/2011
T126968	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	ca. 15.89 km SE. of West Angelas Aerodome	-23.1464	118.6384	25/09/2012
T126967	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	ca. 06.70 km SE. of West Angelas Aerodome	-23.18288	118.6756	25/09/2012
T112179	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	108 km N. of Newman	-22.31327	119.8599	24/03/2011
T128267	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	ca. 18 km N. of Wittenoom	-22.06667	118.3353	20/05/2013
T114170	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi complex'	epigean	potential SRE: DD	species complex containing potential SREs	near Marillana Station homestead, FMG Nyidinghu Project	-22.5062	119.3736	10/05/2011
T83599	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO036'	epigean	potential SRE: DD	W.A. Museum assessment	c. 41 km E. of Tom Price, Marandoo mine extension, site MAR10-01	-22.6697	118.1958	9/11/2007
T83600	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO036'	epigean	potential SRE: DD	W.A. Museum assessment	Marandoo mine extension (MAR10-02)	-22.6697	118.1958	10/11/2007
T80303	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO036'	epigean	potential SRE: DD	W.A. Museum assessment	Marandoo Mine Expansion, 35 km ENE. of Tom Price (MAR05)	-22.08805	118.2769	15/04/2007
T135533	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO036'	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 15 km SW. of Dales Gorge	-22.56528	118.4525	14/03/2015
T135580	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO036'	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 21 km SW. of Dales Gorge, site MAM 1	-22.57131	118.37703	16/03/2015
T135537	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO036'	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 15 km SW. of Dales Gorge	-22.56528	118.4525	14/03/2015
T135443	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO036'	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, near Rangers Station	-22.58278	118.4589	11/03/2015
T135536	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO036'	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 15 km SW. of Dales Gorge	-22.56528	118.4525	14/03/2015
T135534	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO036'	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 15 km SW. of Dales Gorge	-22.56528	118.4525	14/03/2015
T135538	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO036'	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 15 km SW. of Dales Gorge	-22.56528	118.4525	14/03/2015
T135532	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO036'	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 15 km SW. of Dales Gorge	-22.56528	118.4525	14/03/2015
T135527	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO036'	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, near Rangers Station	-22.58278	118.4589	14/03/2015
T135530	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO036'	epigean	potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 15 km SW. of Dales Gorge	-22.56528	118.4525	14/03/2015
T93453	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO038'	epigean	potential SRE: DD	W.A. Museum assessment	Hope Downs 4, ca. 30 km NW. of Newman, HD4-11, 36	-23.10145	119.2918	22/09/2008
T91921	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO038'	epigean	potential SRE: DD	W.A. Museum assessment	Hamersley Range, Weeli Wolli Creek region, Area C, site 15-15C	-22.93133	119.0471	17/06/2008

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T93451	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO038'	epigean	potential SRE: DD	W.A. Museum assessment	Hope Downs 4, ca. 30 km NW. of Newman, HD4-11, 43	-23.10145	119.2918	24/09/2008
T93461	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'harveyi, SCO038'	epigean	potential SRE: DD	W.A. Museum assessment	Hope Downs 4, ca. 30 km NW. of Newman, HD4-5, 16	-23.12838	119.5089	16/09/2008
T146567	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'Hope Downs'	epigean	Potential SRE: DD	W.A. Museum assessment	Greater Hope Downs, Hope Downs 1 mine, ca. 80.8 km NW. of Newman	-23.08369	118.9159	19/05/2018
T105644	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'iron valley'	epigean	Potential SRE: DD	W.A. Museum assessment	c. 22 km WNW. of Marillana Station homestead, site 3	-22.56139	119.2117	21/05/2011
T105642	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'iron valley'	epigean	Potential SRE: DD	W.A. Museum assessment	c. 17 km ESE. of Marillana Station homestead, site 11	-22.62433	119.3299	22/05/2011
T105636	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'iron valley'	epigean	Potential SRE: DD	W.A. Museum assessment	c. 2 km N. of Marillana Station homestead, site 2	-22.53106	119.1923	19/05/2011
T105633	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'iron valley'	epigean	Potential SRE: DD	W.A. Museum assessment	c. 2 km N. of Marillana Station homestead, ca. 100 km NW. of Newman	-22.53106	119.1923	9/04/2011
T105646	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'iron valley'	epigean	Potential SRE: DD	W.A. Museum assessment	c. 8 km WNW. of Marillana Station homestead, site 11	-22.61667	119.3167	10/05/2012
T136789	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'Iron Valley'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana Station, 8 km WNW. of Marillana homestead, ca. 100 km NW. of Newman	-22.62433	119.3299	10/05/2012
T36965	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas jonesae	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Angelas Study [West Angelas sites]	-23.1833	118.7833	1/12/1979
T60478	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas jonesae	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hope Downs proposed rail corridor, site HAD4	-22.15	119.0167	24/06/2001
T60479	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas jonesae	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hope Downs proposed rail corridor, site HAD5	-22.15	119.0167	24/06/2001
T134395	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas jonesae	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	ca. 40 km E. of Mount McRae, Solomon Mine	-22.05946	118.1449	22/04/2014
T83598	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'marandoo 1, SCO037'	epigean	Potential SRE: DD	W.A. Museum assessment	Marandoo mine extension (MAR02-01)	-22.6579	118.1823	9/11/2007
T80307	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'marandoo 1, SCO037'	epigean	Potential SRE: DD	W.A. Museum assessment	Marandoo Mine expansion, 35 km ENE. of Tom Price	-22.6522	118.17	7/03/2007
T80306	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'marandoo 1, SCO037'	epigean	Potential SRE: DD	W.A. Museum assessment	Marandoo Mine expansion, 35 km ENE. of Tom Price	-22.10556	118.3061	15/04/2007
T94832	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'mjobergi?'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinayri, ca. 60 km NW. of Newman	-22.9895	119.2363	8/02/2009
T79753	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	14 km WSW. of Roy Hill Station, Pilbara Biological Survey site RHNE05	-22.6756	119.8406	9/08/2003
T79735	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	14 km WSW. of Roy Hill Station, Pilbara Biological Survey site RHNE05	-22.6756	119.8406	19/11/2003
T79754	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hamersley Range, 20.5 km WNW. of Mt Marsh, Pilbara Biological Survey site RHNW03	-22.46653	119.0226	10/11/2003
T79755	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	15.5 km ENE. of Mt Bruce, Pilbara Biological Survey site TCMBE02	-22.5833	118.2903	2/08/2005
T79756	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	34 km NNW. of Cowra Line Camp, Pilbara Biological Survey site RHNW09	-22.0688	118.9787	26/08/2003
T79759	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	17 km SE. of Mt Bruce, Pilbara Biological Survey site TCMBE07	-22.7161	118.2633	1/09/2005
T79764	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	11 km NE. of Weeli Wollie Spring, Pilbara Biological Survey site RHNC13	-22.9205	119.2712	30/08/2003
T79770	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	13 km SSW. of Giles Point, Pilbara Biological Survey site RHNC01	-23.3611	119.1125	28/08/2003
T80204	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	1 km SSE. of Cowra Line Camp, Pilbara Biological Survey site RHNW13	-22.3614	119.0068	1/05/2004
T33251	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Coppin Pool area, 30 km S. of Mt Bruce	-22.8833	118.1333	10/05/1980

T105655	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	c. 27 km NW. of Marillana Station homestead, site 1	-22.53333	119.1944	10/05/2012
T79727	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	1 km SSE. of Cowra line Camp, Pilbara Biological Survey site RHNW13	-22.3614	119.0068	28/08/2003
T79771	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	0.5 km NW. of Weeli Wollie Spring, Pilbara Biological Survey site RHNC11	-22.9146	119.209	19/11/2003
T79728	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	3 km SW. of Weeli Wollie Spring, Pilbara Biological Survey site RHNC10	-22.9311	119.1847	31/08/2003
T79729	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	3 km SW. of Weeli Wollie Spring, Pilbara Biological Survey site RHNC10	-22.9311	119.1847	31/08/2003
T79766	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	6 km SW. of Roy Hill Station, Pilbara Biological Survey site RHNE06	-22.661	119.9187	9/08/2003
T79752	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	9 km SW. of Giles Point, Pilbara Biological Survey site RHNC02	-23.3195	119.1016	29/08/2003
T79733	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	13 km SSE. of Wodgina, Pilbara Biological Survey site MBW10	-23.2797	118.6989	23/09/2005
T79742	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	1.8 km SSE. of Mulga Downs Outcamp, Pilbara Biological Survey site RHW04	-22.3353	118.9887	13/08/2003
T79751	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	1.8 km SSW. of Mulga Downs Outcamp, Pilbara Biological Survey site RHNW04	-22.3346	118.9887	21/11/2003
T79730	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	1 km SSE. of Cowra Line camp, Pilbara Biological Survey site RHNW13	-22.3614	119.0067	20/11/2003
T79741	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	6 km SW. of Roy Hill Station, Pilbara Biological Survey site RHNE06	-22.6608	119.9187	9/08/2003
T79740	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	11 km NE. of Weeli Wollie Spring, Pilbara Biological Survey site RHNC13	-22.8372	119.2712	30/08/2003
T9805	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Dales Gorge	-22.5	118.6	24/08/1965
T114180	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	near Marillana Station homestead, FMG Nyidinghu Project	-22.3476	119.1518	10/05/2011
T149496	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	88.2 km NW. of Newman	-23.06007	118.9316	9/03/2019
T114204	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Marillana, 100 Km N. of Newman (site 2 trap 2)	-22.3667	119.0048	8/08/2011
T136791	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hillside Station, ca. 150 km SE. Wodgina Mine	-21.88445	119.4253	23/05/2014
T149497	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	88.2 km NW. of Newman	-23.06007	118.9316	9/03/2019
T149456	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	88.2 km NW. of Newman	-23.06126	118.9308	3/09/2019
T149457	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	88.2 km NW. of Newman	-23.06007	118.9316	9/03/2019
T146568	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Greater Hope Downs, Hope Downs 1 mine, ca. 78.6 km NW. of Newman	-23.08699	119.0207	23/05/2018

T128274	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	ca. 18 km N. of Wittenoom	-22.08333	118.4099	20/05/2013
T118069	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Wonmunna	-23.1637	119.003128	23/05/2011
T149455	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	85.2 km NW. of Newman	-23.06971	118.9594	11/03/2019
T140606	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hillside Station, ca. 150 km SE. of Wodgina Mine	-21.88889	119.2387	23/05/2014
T136792	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hillside Station, ca. 150 km SE. Wodgina Mine	-21.89758	119.4849	23/05/2014
T114240	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Marillana, 100 Km N. of Newman (site 3)	-22.4081	119.0067	8/08/2011
T83602	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus, SCO046'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Marandoo mine extension (MAR08-01)	-22.5157	118.1709	9/11/2007
T91704	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus, SCO046'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hope Downs 4, ca. 100 km NW. of Newman, HD4-Camp	-23.13089	119.2752	11/05/2008
T83601	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus, SCO046'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Marandoo mine extension (MAR10-03)	-22.6697	118.1968	10/11/2007
T97366	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus, SCO046'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.09197	119.1877	24/04/2009
T97367	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus, SCO046'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.09197	119.1877	24/04/2009
T97370	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus, SCO046'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.10556	119.2919	23/04/2009
T135469	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus, SCO046'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Karijini National Park, near Rangers Station	-22.58278	118.4589	12/03/2015
T135471	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus, SCO046'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Karijini National Park, near Rangers Station	-22.58278	118.4589	13/03/2015
T151336	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'multipunctatus, SCO046'	epigean	Potential SRE: DD	molecular evidence indicates several cryptic species involved, some of which appear to be SRE	Mulga Downs Station, ca. 31 km NW. of Munjina	-22.12166	118.5944	16/03/2020
T126685	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'paraburdoo'	epigean	Potential SRE: DD	restricted distribution	69 km E. of Paraburdoo, site 1000-tur10	-23.25557	118.2624	22/06/2012
T126689	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'paraburdoo'	epigean	Potential SRE: DD	restricted distribution	63.5 km ESE. of Paraburdoo, site 1000-tur01	-23.28848	118.2849	22/06/2012
T126690	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'paraburdoo'	epigean	Potential SRE: DD	restricted distribution	63 km E. of Paraburdoo, site 1000-tuX1	-23.20412	118.2882	1/04/2012
T97019	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Jinayri, ca. 65 km NW. of Newman	-22.93278	119.2247	1/04/2009
T80197	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	24.5 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW10	-22.1346	119.0242	21/11/2003
T106010	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Area C, 83.6 km NW. of Newman	-22.99167	118.9592	1/05/2010
T80199	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	24.5 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW10	-22.1346	119.0242	27/08/2003
T106014	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T106022	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Area C, 90.6 km NW. of Newman	-22.89889	119.0019	1/05/2010
T97371	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.09197	119.1877	24/04/2009
T106032	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Area C, 85.8 km NW. of Newman	-22.89639	119.0619	1/05/2010

T97029	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Jinayri, ca. 65 km NW. of Newman	-22.94833	119.1869	31/03/2009
T97024	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Jinayri, ca. 65 km NW. of Newman	-22.94306	119.2322	27/03/2009
T97025	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Jinayri, ca. 65 km NW. of Newman	-22.93778	119.2042	28/03/2009
T106029	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Area C, 85.8 km NW. of Newman	-22.89639	119.0619	1/05/2010
T97032	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Jinayri, ca. 65 km NW. of Newman	-22.93194	119.1864	2/04/2009
T97368	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.09197	119.1877	23/04/2009
T79849	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	17.5 km ENE. of Mt Bruce, Pilbara Biological Survey site TCMBE01	-22.5705	118.3069	1/08/2005
T79851	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	3 km SW. of Heeli Wolli Spring, Pilbara Biological Survey site RHNC10	-22.9477	119.1847	30/09/2003
T106043	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Area C, 89.5 km NW. of Newman	-22.97806	118.9636	1/05/2010
T79869	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	33 km W. of Rhodes Ridge, Pilbara Biological Survey site RHNC08	-23.1032	119.0389	20/11/2003
T91892	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	10 km NE. of Newman, Ore-body 24, site 03-3B	-23.29464	119.7559	26/06/2008
T79856	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Mulga Downs Station, 16 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW07	-22.2217	119.0249	14/08/2003
T79845	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	24 km ENE. of Moorimoordinina Native Well, Pilbara Biological Survey site RHNE08	-22.4518	119.976	18/11/2003
T79844	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	20 km WNW. of Rhodes Ridge, Pilbara Biological Survey site RHNC09	-23.0538	119.1769	1/09/2003
T79880	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	21 km WNW. of Bonney Downs Homestead, Pilbara Biological Survey site RHNE11	-22.0947	119.7535	18/11/2003
T93452	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Hope Downs 4, ca. 30 km NW. of Newman, HD4-15, 25	-23.09185	119.188	24/09/2008
T79848	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Hamersley Range, 20.5 km WNW. of Mt Marsh, Pilbara Biological Survey site RHNW03	-22.46653	119.0226	13/08/2003
T93459	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Hope Downs 4, ca. 30 km NW. of Newman, HD4-2, 8	-23.14593	119.5263	19/09/2008
T79877	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Mulga Downs Station, 16 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW07	-22.2217	119.0249	14/11/2003
T125058	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Wonmunna	-23.14478	118.9964	10/12/2011
T126978	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	ca. 16.13 km SE. of West Angelas Aerodome	-23.12293	118.8618	25/09/2012
T126959	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	ca. 15.86 km SE. of West Angelas Aerodome	-23.12293	118.8618	25/09/2012
T126960	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	ca. 13.39 km SE. of West Angelas Aerodome	-23.13419	118.8371	25/09/2012
T126969	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	ca. 13.39 km SE. of West Angelas Aerodome	-23.13419	118.8371	25/09/2012
T126977	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	ca. 16 km SE. of West Angelas Aerodome	-23.12293	118.8618	25/09/2012
T126976	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	ca. 15.86 km SE. of West Angelas Aerodome	-23.123	118.8739	25/09/2012
T126974	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	ca. 17.24 km SE. of West Angelas Aerodome	-23.123	118.8739	25/09/2012
T126962	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	ca. 13.39 km SE. of West Angelas Aerodome	-23.13419	118.8371	25/09/2012
T126972	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	ca. 5.59 km SE. of West Angelas Aerodome	-23.18751	118.7099	25/09/2012
T126970	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	ca. 16.68 km SE. of West Angelas Aerodome	-23.19067	118.859	25/09/2012
T146569	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Greater Hope Downs, Hope Downs 1 mine, ca. 79.5 km NW. of Newman	-23.08289	119.0135	19/05/2018
T131165	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	14 km E. of West Angelas Aerodrome	-23.13389	118.836	18/03/2013

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T135468	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Karijini National Park, near Rangers Station	-22.58278	118.4589	12/03/2015
T114312	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	ca. 120 km NW. of Newman	-22.80613	118.885301	31/03/2012
T135484	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Karijini National Park, near Rangers Station	-22.58278	118.4589	13/03/2015
T114306	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	c. 25 km NE. of Mt Meharry	-22.870611	118.805404	2/04/2012
T114313	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	ca. 120 km NW. of Newman	-22.803032	118.862233	31/03/2012
T125059	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	Wonmunna	-23.14478	118.9964	10/12/2011
T131177	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	14 km E. of West Angelas Aerodrome	-23.13389	118.836	18/03/2013
T131166	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	18 km SE. of West Angelas Aerodrome	-23.19136	118.8582	18/03/2013
T131168	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	18 km E. of of West Angelas Aerodrome	-23.12302	118.8742	18/03/2013
T131171	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	14 km E. of West Angelas Aerodrome	-23.13416	118.8369	18/03/2013
T114157	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'pilbara 1, SCO041'	epigean	widespread	Alacran unpublished data	near Marillana Station homestead, FMG Nyidinghu Project	-22.733305	119.381861	10/05/2011
T57398	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'racing stripe'	epigean	Potential SRE: DD	restricted distribution	Hope Downs @	-23.03	119.0211	20/10/1998
T51609	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'racing stripe'	epigean	Potential SRE: DD	restricted distribution	Weeli Wolli Creek, ca. 40 km SW. of Marillana, site HDA2	-22.958	119.1792	27/04/2003
T33269	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'racing stripe'	epigean	Potential SRE: DD	restricted distribution	Hancock Gorge area, Hamersley Range	-22.3666	118.75	3/06/1987
T80311	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'racing stripe, SCO043'	epigean	Potential SRE: DD	restricted distribution	c. 5.5 km S. of Mt Bruce, Marandoo Mine Extension (MAR04)	-22.6525	118.1614	7/03/2007
T80304	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'racing stripe, SCO043'	epigean	Potential SRE: DD	restricted distribution	Marandoo Mine Expansion, 35 km ENE. of Tom Price (MAR08)	-22.6488	118.1708	12/04/2007
T80314	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'racingstripe?'	epigean	Potential SRE: DD	restricted distribution	Dales Gorge, upstream from Fern Pool, Karijini National Park	-22.4775	118.5458	8/07/2006
T80319	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'racingstripe?'	epigean	Potential SRE: DD	restricted distribution	Kalamina Gorge, Karijini National Park	-22.4172	118.4017	7/07/2006
T80310	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'racingstripe?'	epigean	Potential SRE: DD	restricted distribution	c. 5.5 km S. of Mt Bruce, Marandoo Mine Extension (MAR04)	-22.6525	118.1614	7/03/2007
T91890	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'SCO023'	epigean	widespread	W.A. Museum assessment	Bonney Downs Station, Outcamp West	-22.16667	119.9167	28/06/2008
T135647	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'SCO025'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	18/03/2015
T77935	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Port Hedland-Newman Railway, Chichester Rge, Fortescue Metals Group, site FMG22	-21.9883	119.0219	12/03/2004
T106017	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 89.6 km NW. of Newman	-23.00111	118.9478	1/05/2010
T77938	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Port Hedland-Newman Railway, Chichester Rge, Fortescue Metals Group, site FMG15	-22.3466	119.01	12/03/2004
T106019	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 98.2 km NW. of Newman	-23.00778	118.8536	1/05/2010
T77936	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Port Hedland-Newman Railway, Chichester Rge, Fortescue Metals Group, site FMG16	-22.3488	119.0108	12/03/2004
T80305	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marandoo Mine expansion, 35 km ENE. of Tom Price	-22.64	118.2881	7/03/2007
T105585	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana [lease], 100 km NW. of Newman, site 11	-22.62228	119.3244	9/04/2011
T100800	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mulga Downs Station, Murrays Hill area, 4 km NE. of homestead	-22.117	118.5032	21/04/2009
T77939	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Port Hedland-Newman Railway, Chichester Rge, Fortescue Metals Group, site FMG21	-22.0677	118.9956	12/03/2004
T77987	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Port Hedland-Newman Railway, Chichester Rge, Fortescue Metals Group, site FMG22	-21.9883	119.0219	12/03/2004
T77941	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Port Hedland-Newman Railway, Chichester Rge, Fortescue Metals Group, site FMG20f	-22.1044	119.0072	12/03/2004
T105609	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 8 km WNW. of Marillana Station homestead, site 11	-22.62772	119.3299	23/05/2011
T105634	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 14 km NNW. of Marillana Station homestead, site 10	-22.508	119.3777	21/05/2011
T105003	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site18-P9	-23.41776	119.585	14/03/2010

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T105431	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Iron Valley, 5 km NE. of Yandicoogina Mine	-22.7597	119.3026	5/05/2010
T105625	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 8 km W. of Marillana Station homestead, site 11	-22.63019	119.3308	20/05/2011
T105624	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 25 km WNW. of Marillana Station homestead, site 2	-22.53255	119.1929	19/05/2011
T105622	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 11 km SW. of Marillana Station homestead	-22.71892	119.3556	10/05/2012
T80316	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Dales Gorge, Karijini National Park	-22.4783	118.5617	8/07/2006
T105592	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 11 km S. of Marillana Station homestead, site 9, FMG Nyidinghu Project, s9wt26	-22.71667	119.3667	10/05/2012
T105610	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 11 km SW. of Marillana Station homestead, site 7	-22.71088	119.3423	23/05/2011
T77989	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Port Hedland-Newman Railway, Chichester Rge, Fortescue Metals Group, site FMG17	-22.2994	119.0231	12/03/2004
T105608	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 25 km NW. of Marillana Station homestead, FMG Nyidinghu Project, s1wt13	-22.51667	119.1833	10/05/2012
T105047	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site16-P5	-23.40462	119.6114	14/03/2010
T100799	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Mulga Downs Station, Murrays Hill area, 4 km NE. of homestead	-22.11855	118.5095	20/04/2009
T107369	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs, 76.0 km NW. of Newman	-22.98972	119.0883	25/06/2010
T80318	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Kalamina Gorge, Karijini National Park	-22.4783	118.5617	8/07/2006
T111032	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.555	119.2214	6/09/2008
T78002	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi, 24 km SW. of Marillana, site YEX82	-22.78	119.25	30/08/2004
T78001	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Yandi, 24 km SW. of Marillana, site YEX77	-22.82	119.27	30/08/2004
T80317	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Dales Gorge, Karijini National Park	-22.4783	118.5617	8/07/2006
T111033	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station@	-22.8725	118.6747	29/07/2008
T111021	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.54972	119.2139	30/06/2008
T101049	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range, Cloud Break mine area@	-22.32	119.4481	6/07/2006
T105522	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 95 km SW. of Nullagine, Cloudbreak [mine lease], Chichester Range	-22.25987	119.2786	26/10/2010
T107501	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, site 15-HC557	-23.37125	119.6127	14/08/2010
T111024	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	20.5 km NW. of Roy Hill Station Homestead	-22.45477	119.8709	27/05/2009
T111061	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station, area A	-22.89242	118.686	21/03/2009
T111042	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station @	-22.87833	118.6481	1/09/2008
T105525	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 84 km SW. of Nullagine, Cloudbreak [mine lease], Chichester Range	-22.28271	119.4037	26/10/2010
T111036	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.62583	119.2831	6/09/2008
T111064	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station @	-22.89833	118.6728	17/06/2008
T111034	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.62611	119.2803	6/09/2008
T111022	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.54833	119.2128	6/09/2008
T105545	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 17 km WNW. of Marillana Station homestead, site 4	-22.58105	119.2523	9/04/2011
T111025	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.62583	119.2831	6/09/2008
T111031	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.555	119.2214	30/06/2008
T111030	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	7 km NNE. of Roy Hill Station Homestead	-22.55656	119.9703	25/05/2009
T111029	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	8 km NE. of Roy Hill Station Homestead	-22.57717	120.0247	25/05/2009
T111026	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.60833	119.2403	6/09/2008
T80168	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	24 km ENE. of Moorimoordinina Native Well, Pilbara Biological Survey site RHNE08	-22.4518	119.976	9/08/2003
T80166	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	16 km SW. of Rhodes Ridge, Pilbara Biological Survey site RHNC06	-23.1852	119.2379	20/08/2003
T80165	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	33 km W. of Rhodes Ridge, Pilbara Biological Survey site RHNC08	-23.1032	119.0389	2/09/2003
T80163	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	24 km WSW. of Mt Marsh, Pilbara Biological Survey site RHNW02	-22.53583	118.9975	20/11/2003
T111035	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.62667	119.2789	6/09/2008
T108715	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range, northern slopes @	-22.16866	118.8904	22/08/2008
T111027	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.60695	119.2386	6/09/2008
T81657	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 37)	-22.3025	119.4275	1/06/2006
T107728	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range, northern slopes	-22.09841	119.0274	22/08/2008
T101324	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area @	-22.54833	119.2128	30/06/2008
T108703	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range, northern slopes @	-22.13872	119.0137	22/08/2008
T108711	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range, northern slopes @	-22.2241	118.9614	22/08/2008
T108713	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range, northern slopes @	-22.22492	118.9887	22/08/2008
T111023	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	15 km NW. of Roy Hill Station Homestead	-22.4943	119.9217	26/05/2009

T81661	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 40)	-22.2911	119.3811	1/06/2006
T111067	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station, area A	-22.89519	118.7144	21/03/2009
T108719	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range, northern slopes @	-22.02017	119.0237	22/08/2008
T111018	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.55389	119.22	30/06/2008
T111020	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.54972	119.2139	6/09/2008
T106049	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 92.2 km NW. of Newman	-22.90583	118.9803	1/05/2010
T111019	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.55305	119.2228	30/06/2008
T108720	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range, northern slopes @	-22.17915	118.9488	22/08/2008
T111017	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area	-22.55389	119.22	6/09/2008
T109654	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, Marillana Creek area (974)	-22.60695	119.2386	30/06/2008
T106052	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 92.2 km NW. of Newman	-22.90583	118.9803	1/05/2010
T105389	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill	-22.51743	119.9167	11/03/2010
T106054	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 83.1 km NW. of Newman	-22.975	119.0378	1/05/2010
T108721	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range, northern slopes @	-22.02017	119.0237	22/08/2008
T152060	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Marillana, site 9, 100 km NW. of Newman	-22.73269	119.3674	20/05/2011
T137749	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, c. 16 km N. of homestead, Roy Hill SRE	-22.475	119.9711	15/12/2006
T114167	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 12 km SW. of Marillana Station homestead, FMG Nyidinghu Project	-22.71819	119.3401	10/05/2011
T135535	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, c. 15 km SW. of Dales Gorge	-22.56528	118.4525	14/03/2015
T114176	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 3.5 km SW. of Marillana Station homestead, site 8	-22.63761	119.3744	8/08/2011
T114200	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 22 km WNW. of Marillana Station homestead, FMG Nyidinghu Project	-22.55897	119.2138	10/05/2011
T114162	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 11 km SW. of Marillana Station homestead, FMG Nyidinghu Project	-22.71136	119.3393	10/05/2011
T115179	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas mine lease, site WES 4, 15 km SSE. of The Governor	-23.19	118.87	5/05/2004
T114185	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 24 km WNW. of Marillana Station homestead, FMG Nyidinghu Project	-22.5358	119.1953	10/05/2011
T114193	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 11 km SW. of Marillana Station homestead, FMG Nyidinghu Project	-22.71222	119.3396	10/05/2011
T114307	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 25 km NE. of Mt Meharry	-22.87056	118.8053	1/04/2012
T114150	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 11 km SW. of Marillana Station homestead, FMG Nyidinghu Project	-22.7115	119.3395	10/05/2011
T115173	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Fortescue (FMG), 24 km NW. of Roy Hill (FMR14)	-22.47	119.87	5/07/2004
T115174	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 90 km NW. of Newman (WES003)	-23.2	118.83	5/05/2004
T132668	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hope Downs, 78.2 km NW. of Newman	-23.01306	119.0639	13/09/2013
T144061	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Fortescue River valley, sites T2M50-60	-22.09056	118.3253	30/09/2011
T114197	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	near Marillana Station homestead, FMG Nyidinghu Project	-22.53447	119.1927	10/05/2011
T144337	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Fortescue River valley, sites T5M70-80	-22.07361	118.35	28/09/2011
T115177	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas mine lease, site WES 6, 15 km SSE. of The Governor	-23.2	118.85	5/05/2004
T114184	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 12 km SW. of Marillana Station homestead, FMG Nyidinghu Project	-22.71861	119.34	10/05/2011
T115178	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas mine lease, site WES 6, 15 km SSE. of The Governor	-23.2	118.85	5/05/2004
T115175	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 90 km NW. of Newman (WES001)	-23.2	118.8	5/05/2004
T115180	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas mine lease, site WES 4, 15 km SSE. of The Governor	-23.19	118.87	5/05/2004
T114154	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 11 km SW. of Marillana Station homestead, FMG Nyidinghu Project	-22.70986	119.3385	10/05/2011
T126898	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	28 km NW. of West Mt Hilditch, West Angelas mining lease	-23.08333	118.55	25/09/2012
T144325	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Fortescue River valley, sites T4M180-190	-22.07833	118.3439	29/09/2011
T114178	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 11 km SSW. of Marillana Station homestead, FMG Nyidinghu Project	-22.73108	119.383	10/05/2011
T155690	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, c. 46 km E. of Mt Meharry	-22.90583	119.0289	1/05/2010
T126899	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	6 km WNW. of West Mt Hilditch, West Angelas mining lease	-23.19408	118.6882	25/09/2012
T114308	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 25 km NE. of Mt Meharry	-22.88139	118.8044	1/04/2012

Western Australian Museum Database Search Interpreted Results

T116664	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	ca. 8 km WSW. of Newman, OB35	-23.38806	119.6539	13/09/2011
T126932	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	10 km WNW. of West Mt Hilditch, West Angelas mining lease	-23.19228	118.6422	25/09/2012
T81654	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'sp. indet. (scottae or mjobergi)'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 36)	-22.3177	119.4186	1/06/2006
T134367	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'splendens ms'	epigean	widespread	eronious idnetification?? L. 'splendens' is a wheatbelt-mid west species. I don't think ive seen specimens from the Pilbara before…	ca. 40 km E. of Mount McRae, Solomon Mine	-22.0996	118.185	22/04/2014
T134376	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'splendens ms'	epigean	widespread	eronious idnetification?? L. 'splendens' is a wheatbelt-mid west species. I don't think ive seen specimens from the Pilbara before…	ca. 40 km E. of Mount McRae, Solomon Mine	-22.0996	118.185	22/04/2014
T134362	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'splendens ms'	epigean	widespread	eronious idnetification?? L. 'splendens' is a wheatbelt-mid west species. I don't think ive seen specimens from the Pilbara before…	ca. 40 km E. of Mount McRae, Solomon Mine	-22.0996	118.185	22/04/2014
T134369	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'splendens ms'	epigean	widespread	eronious idnetification?? L. 'splendens' is a wheatbelt-mid west species. I don't think ive seen specimens from the Pilbara before…	ca. 40 km E. of Mount McRae, Solomon Mine	-22.14715	118.173	22/04/2014
T105016	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'waldockae'	epigean	Potential SRE: DD	rare scorpions, unresolved species complex likely to contain SREs	ca. 8 km W. of Newman, Orebody 35 [mine lease], site11-P8	-23.42059	119.5679	12/03/2010
T105042	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'waldockae'	epigean	Potential SRE: DD	rare scorpions, unresolved species complex likely to contain SREs	Orebody 35, ca. 8 km W. of Newman, Site11-P4	-23.42057	119.5675	12/03/2010
T105012	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'waldockae'	epigean	Potential SRE: DD	rare scorpions, unresolved species complex likely to contain SREs	ca. 8 km W. of Newman, Orebody 35 [mine lease], site13-P1	-23.39455	119.639	12/03/2010
T93576	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'waldockae'	epigean	Potential SRE: DD	rare scorpions, unresolved species complex likely to contain SREs	Jinary, ca. 60 km NW. of Newman	-23.04078	119.2798	28/08/2008
T105015	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'waldockae'	epigean	Potential SRE: DD	rare scorpions, unresolved species complex likely to contain SREs	ca. 8 km W. of Newman, Orebody 35 [mine lease], site11-P10	-23.4209	119.5679	12/03/2010
T105031	Arachnida	Scorpiones (scorpions)	Scorpiones	Buthidae	Lychas 'waldockae'	epigean	Potential SRE: DD	rare scorpions, unresolved species complex likely to contain SREs	Orebody 35, ca. 8 km W. of Newman, Site3-P10	-23.40474	119.6055	14/03/2010
T9910	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'armatus spp. gp'	epigean	Potential SRE: DD	Alacran unpublished data	8 miles W. of Nullagine	-21.8833	120	23/05/1971
T118658	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'armatus spp. gp'	epigean	Potential SRE: DD	Alacran unpublished data	15 miles N. of Roy Hill	-22.6025	119.9547	10/04/1977
T134140	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'B09'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mt McRae, Solomon mine lease	-22.1456	118.1724	22/04/2014
T134399	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'B09'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.14674	118.1729	22/04/2014
T134400	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'B09'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.14635	118.1728	22/04/2014
T78175	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus butleri	epigean	widespread	W.A. Museum assessment	Port Hedland-Newman railway, Chichester Range, site FMG22	-21.98833	119.0219	12/03/2004
T78174	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus butleri	epigean	widespread	W.A. Museum assessment	Port Hedland-Newman railway, Chichester Range, site FMG24	-21.91361	118.9719	12/03/2004
T78173	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus butleri	epigean	widespread	W.A. Museum assessment	Port Hedland-Newman railway, Chichester Range, site FMG21	-22.06778	118.9956	24/03/2004
T105541	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus butleri	epigean	widespread	W.A. Museum assessment	59 km SW. of Nullagine, Christmas Creek mine lease	-22.37565	119.8845	23/03/2011
T105547	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus butleri	epigean	widespread	W.A. Museum assessment	49 km SW. of Nullagine, Christmas Creek mine lease	-22.36917	119.7387	23/03/2011
T105574	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus butleri	epigean	widespread	W.A. Museum assessment	66 km SW. of Nullagine, Christmas Creek mine lease	-22.37063	119.7463	23/03/2011
T114296	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus butleri	epigean	widespread	W.A. Museum assessment	108 km N. of Newman	-22.31327	119.8599	24/03/2011
T114300	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus butleri	epigean	widespread	W.A. Museum assessment	118 km N. of Newman	-22.29548	119.8109	24/03/2011
T114229	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus butleri	epigean	widespread	W.A. Museum assessment	57 km SW. of Nullagine, Christmas Creek mine lease	-22.31347	119.7886	25/03/2011
T114299	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus butleri	epigean	widespread	W.A. Museum assessment	Chichester Range, 105 km NNE. of Newman on Marble Bar Road, site 1	-22.43556	119.9868	15/04/2011
T114294	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus butleri	epigean	widespread	W.A. Museum assessment	Chichester Range, 114 km N. of Newman, site 11	-22.32692	119.7424	16/04/2011
T114293	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus butleri	epigean	widespread	W.A. Museum assessment	Chichester Range, 105 km NNE. of Newman on Marble Bar Road, site 1	-22.43556	119.9868	15/04/2011
T114301	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus butleri	epigean	widespread	W.A. Museum assessment	108 km N. of Newman	-22.31327	119.8599	24/03/2011
T91922	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'butleri group, SCO026'	epigean	Potential SRE: DD	W.A. Museum assessment	Hamersley Range, Weeli Wolli Creek region, Area C, site 12-12I	-22.91681	118.9105	11/06/2008

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T93574	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'butleri group, SCO026'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinary, ca. 60 km NW. of Newman	-23.02508	119.2434	30/08/2008
T93575	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'butleri group, SCO026'	epigean	Potential SRE: DD	W.A. Museum assessment	Jinary, ca. 60 km NW. of Newman	-23.04078	119.2798	29/08/2008
T81640	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 30)	-22.3275	119.4231	1/06/2006
T81645	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 03)	-22.2891	119.3758	1/06/2006
T81643	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 05)	-22.3086	119.3783	1/06/2006
T81647	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 19)	-22.3119	119.3589	1/06/2006
T81642	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 06)	-22.315	119.3767	1/06/2006
T81644	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 11)	-22.3275	119.3825	1/06/2006
T81641	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 19)	-22.3119	119.3589	1/06/2006
T81646	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 11)	-22.3275	119.3825	1/06/2006
T81639	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 30)	-22.3275	119.4231	1/06/2006
T81648	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 14)	-22.3252	119.3533	1/06/2006
T81649	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 09)	-22.3275	119.3731	1/06/2006
T81650	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 37)	-22.3025	119.4275	1/06/2006
T81651	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 03)	-22.2891	119.3758	1/06/2006
T81652	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 25)	-22.335	119.4039	1/06/2006
T81658	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 10)	-22.3275	119.3703	1/06/2006
T81638	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'cloudbreak'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 37)	-22.3025	119.4275	1/06/2006
T135561	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'fat hands, SCO031'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 7 km SSW. of Hancock Gorge	-22.41444	118.2475	15/03/2015
T135540	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'fat hands, SCO031'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 8.6 km W. of Dales Gorge	-22.47583	118.4781	15/03/2015
T106046	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 89.6 km NW. of Newman	-23.00111	118.9478	1/05/2010
T106045	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 87.2 km NW. of Newman	-22.98917	118.9822	1/05/2010
T106041	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 89 km NW. of Newman	-22.95639	118.9833	1/05/2010
T106007	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T106040	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	1/05/2010
T106039	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 85.2 km NW. of Newman	-23.00361	118.9942	1/05/2010
T106051	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.89917	119.0994	1/05/2010
T106011	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T106008	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 93.7 km NW. of Newman	-22.99861	118.9075	1/05/2010
T106009	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T106038	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 74.1 km NW. of Newman	-22.91778	119.1892	1/05/2010
T106013	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010
T106018	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 83.6 km NW. of Newman	-22.99167	118.9592	1/05/2010
T106021	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 75.8 km NW. of Newman	-22.90583	119.18	1/05/2010
T106025	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 93.1 km NW. of Newman	-23	118.9131	1/05/2010
T106035	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 83.9 km NW. of Newman	-22.99306	119.0158	1/05/2010
T106036	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 84.7 km NW. of Newman	-22.90583	119.0289	1/05/2010
T118156	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, ca. 72 km heading 290° from Newman	-23.130909	119.068878	19/05/2011
T126831	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna, 27 km ENE. of West Mt Hilditch, 982-Vert5-T1-BE	-23.16366	119.0031	23/05/2011
T118157	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'firetail'	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna	-23.1637	119.003128	23/05/2011
T149458	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'HD1'	epigean	Potential SRE: DD	W.A. Museum assessment	80.3 km NW. of Newman	-23.04843	119.0211	9/03/2019
T9899	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus hoplurus	epigean	widespread	W.A. Museum assessment	Head of Hancock Gorge, Wittenoom (Under Rock at Approx 12.00)	-22.35	118.2667	12/08/1971
T5011	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus hoplurus	epigean	widespread	W.A. Museum assessment	Mt Newman	-23.2666	119.5667	8/11/1964

T93765	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus megamastigus	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 60 km E. of Auski Road-house	-22.55	119.2125	11/08/2008
T41314	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus megamastigus	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.6166	119.95	18/05/1982
T100798	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus megamastigus	epigean	Potential SRE: DD	W.A. Museum assessment	Mulga Downs Station, Murrays Hill area, 6 km NE. of homestead	-22.11471	118.5221	20/04/2009
T36373	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus megamastigus	epigean	Potential SRE: DD	W.A. Museum assessment	Newman area	-23.35	119.7333	15/04/1984
T93758	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus megamastigus	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 60 km E. of Auski Road House, Pilbara	-22.55	119.2125	11/08/2008
T93759	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus megamastigus	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 60 km E. of Auski Road House, Pilbara	-22.55	119.2125	11/08/2008
T100386	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus megamastigus	epigean	Potential SRE: DD	W.A. Museum assessment	Mulga Downs Station, Murrays Hill area, 4 km NE. of homestead	-22.117	118.5032	21/04/2009
T100390	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus megamastigus	epigean	Potential SRE: DD	W.A. Museum assessment	Mulga Downs Station, Murrays Hill area, 4 km NE. of homestead	-22.12782	118.5153	19/04/2009
T100387	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus megamastigus	epigean	Potential SRE: DD	W.A. Museum assessment	Mulga Downs Station, Murrays Hill area, 6 km NE. of homestead	-22.11896	118.5268	20/04/2009
T100389	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus megamastigus	epigean	Potential SRE: DD	W.A. Museum assessment	Mulga Downs Station, Murrays Hill area, 6 km NE. of homestead	-22.12469	118.5181	21/04/2009
T100391	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus megamastigus	epigean	Potential SRE: DD	W.A. Museum assessment	Mulga Downs Station, Murrays Hill area, 4 km NE. of homestead	-22.117	118.5032	21/04/2009
T125363	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus megamastigus	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri Western Corridor, 180.9 km NW. of Newman	-22.24992	118.4451	28/03/2012
T125364	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus megamastigus	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri Western Corridor, 211.8 km NW. of Newman	-22.15344	118.1198	28/03/2012
T105556	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	near Marillana Station, ca. 100 km NW. of Newman, site 1	-22.53386	119.197	9/04/2011
T105597	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana Station, ca. 100 km NW. of Newman	-22.75058	119.3156	15/05/2011
T105546	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	c. 24 km WNW. of Marillana Station homestead, site 11	-22.53594	119.1961	9/04/2011
T105595	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	near Marillana Station, ca. 100 km NW. of Newman, site 1	-22.6243	119.3299	22/05/2011
T105594	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	near Marillana Station, ca. 100 km NW. of Newman, site 6	-22.7174	119.327	22/05/2011
T105552	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	c. 16 km NW. of Marillana Station homestead, site 1	-22.53425	119.2967	9/04/2011
T105557	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	near Marillana Station, ca. 100 km NW. of Newman, FMG camp	-22.73003	119.3755	9/04/2011
T105492	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	c. 9 km WNW. of Marillana Station homestead, site 11	-22.62228	119.3247	9/04/2011
T105560	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	c. 9 km WNW. of Marillana Station homestead, site 11	-22.62255	119.3224	9/04/2011
T105641	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	near Marillana Station, site 11	-22.5057	119.3734	21/05/2011
T105531	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	near Marillana Station, ca. 100 km NW. of Newman, site 1	-22.53425	119.2967	9/04/2011
T105654	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	near Marillana Station, ca. 100 km NW. of Newman	-22.6077	119.2917	20/05/2011
T105549	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	near Marillana Station, ca. 100 km NW. of Newman, site 11	-22.62322	119.3212	9/04/2011

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T105548	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	c. 9 km WNW. of Marillana Station homestead, site 11	-22.62303	119.3217	9/04/2011
T105507	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	c. 9 km WNW. Marillana Station homestead, site 11	-22.62228	119.3244	9/04/2011
T128272	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 18 km N. of Wittenoom	-22.08333	118.3998	20/05/2013
T128277	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 18 km N. of Wittenoom	-22.06667	118.3499	20/05/2013
T152055	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	Iron Valley, 5 km NE. of Yandicoogina Mine	-22.73297	119.3172	5/05/2010
T128270	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 18 km N. of Wittenoom	-22.06667	118.3499	20/05/2013
T128269	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 18 km N. of Wittenoom	-22.06667	118.3499	20/05/2013
T128268	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 18 km N. of Wittenoom	-22.06667	118.3499	20/05/2013
T152065	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus complex'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana, site 11, 100 km NW. of Newman	-22.5048	119.3733	9/04/2011
T105489	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus 'short`	epigean	Potential SRE: DD	W.A. Museum assessment	near Marillana Station, ca. 100 km NW. of Newman, site 11	-22.62178	119.3237	9/04/2011
T105486	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus 'short`	epigean	Potential SRE: DD	W.A. Museum assessment	near Marillana Station, ca. 100 km NW. of Newman, site 11	-22.6215	119.3244	9/04/2011
T105514	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus 'short`	epigean	Potential SRE: DD	W.A. Museum assessment	near Marillana Station, ca. 100 km NW. of Newman, site 11	-22.62303	119.3217	9/04/2011
T105555	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus 'short`	epigean	Potential SRE: DD	W.A. Museum assessment	near Marillana Station, ca. 100 km NW. of Newman, site 1	-22.53494	119.1939	9/04/2011
T105544	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus 'short`	epigean	Potential SRE: DD	W.A. Museum assessment	near Marillana Station, ca. 100 km NW. of Newman, site 11	-22.62303	119.3217	9/04/2011
T105643	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus 'short`	epigean	Potential SRE: DD	W.A. Museum assessment	near Marillana Station, ca. 100 km NW. of Newman, site 11	-22.6218	119.3237	9/04/2011
T102946	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'megamastigus?'	epigean	Potential SRE: DD	W.A. Museum assessment	Hamersley Ranges, 85 km E. of Auski Roadhouse	-22.71128	119.3131	1/05/2010
T134403	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus megastigmatus	epigean	Potential SRE: DD	W.A. Museum assessment	ca. 40 km E. of Mount McRae, Solomon Mine	-22.14657	118.1728	22/04/2014
T122383	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'micros'	epigean	SRE	only known from two disparate localities	Mudlark, 92.3 km NW. of Newman, ca. 31 km ESE. of Mt Meharry	-23.04756	118.885	9/02/2012
T122384	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'micros'	epigean	SRE	only known from two disparate localities	Mudlark, 91 km NW. of Newman, ca. 31 km ESE. of Mt Meharry	-23.04772	118.885	13/02/2012
T59019	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'novaehollandiae?'	epigean	widespread	eronious identification??, U. 'novaehollandiae is widespread in SW of W.A.	10.5 km N. of West Angela Hill, 14.5 km WNW. of The Governor	-23.0277	118.6869	1/06/1998
T118787	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei'	epigean	widespread	W.A. Museum assessment	Koodaideri, 124.2 km NW. of Newman	-22.47639	118.9814	20/10/2011
T105573	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.43144	119.9	23/03/2011
T105524	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.40149	119.7833	23/03/2011
T105538	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.43144	119.9	23/03/2011
T105535	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.39276	119.85	23/03/2011
T105534	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.39853	119.7833	23/03/2011

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T79483	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	25 km NE. of Moorimoordinia Native Well, Pilbara Biological Survey site RHNE09	-22.41545	119.984	8/08/2003
T136774	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	Hillside Station, ca. 150 km SE. Wodgina Mine	-21.86633	119.4416	23/05/2014
T112163	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	110.6 km, heading 12.7° from Newman	-22.38322	119.9727	12/04/2011
T112187	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	108 km N. of Newman	-22.31327	119.8599	24/03/2011
T112171	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	110.6 km, heading 12.7° from Newman	-22.38322	119.9727	12/04/2011
T112170	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	105 km, heading 14° from Newman	-22.43557	119.9868	11/04/2011
T112169	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	105 km, heading 14° from Newman	-22.43557	119.9868	11/04/2011
T112168	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	109.5 km, heading 13° from Newman	-22.39378	119.9761	11/04/2011
T112167	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	110.6 km, heading 12.7° from Newman	-22.38322	119.9727	12/04/2011
T112166	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	110.6 km, heading 12.7° from Newman	-22.38322	119.9727	12/04/2011
T112165	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	109.5 km, heading 13° from Newman	-22.39378	119.9761	11/04/2011
T112157	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	110 km NNE. of Newman	-22.38274	119.9727	23/03/2011
T112164	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	110.6 km, heading 12.7° from Newman	-22.38322	119.9727	12/04/2011
T112162	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	110 km, heading 13° from Newman	-22.39098	119.9749	12/04/2011
T112161	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	110.6 km, heading 12.7° from Newman	-22.38322	119.9727	12/04/2011
T112160	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	115 km N. of Newman	-22.31347	119.7886	25/03/2011
T112159	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	115 km N. of Newman	-22.31347	119.7886	25/03/2011
T128087	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	ca. 15 km NE. of Roy Hill	-22.53048	120.033	18/04/2013
T112158	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pearcei, SCO010'	epigean	widespread	W.A. Museum assessment	108 km N. of Newman	-22.31327	119.8599	24/03/2011
T105041	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site3-P6	-23.40496	119.6053	14/03/2010
T105036	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site4-P2	-23.40215	119.5971	12/03/2010
T105045	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	ca. 8 km W. of Newman, Orebody 35 [mine lease], site14-P4	-23.38348	119.6479	12/03/2010
T105044	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site11-P4	-23.42057	119.5675	12/03/2010
T105040	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site5-P5	-23.41028	119.5716	12/03/2010
T105043	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	ca. 8 km W. of Newman, Orebody 35 [mine lease], site11-P4	-23.42057	119.5675	12/03/2010
T105037	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site4-P2	-23.40215	119.5971	12/03/2010
T105038	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site1-P10	-23.39453	119.6318	13/03/2010
T105002	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site12-P5	-23.39936	119.5844	12/03/2010
T105005	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site18-P6	-23.41806	119.5847	14/03/2010
T105023	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site4-P7	-23.40233	119.5969	12/03/2010
T105021	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site3-P7	-23.40499	119.6052	14/03/2010
T105020	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site3-P7	-23.40499	119.6052	14/03/2010
T105019	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site1-P5	-23.39446	119.6318	13/03/2010

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T105013	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site13-P1	-23.39455	119.639	12/03/2010
T105009	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site20-P1	-23.39474	119.5913	12/03/2010
T105008	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site20-P4	-23.39509	119.5916	12/03/2010
T105007	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site18-P6	-23.41806	119.5847	14/03/2010
T105006	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site18-P6	-23.41806	119.5847	14/03/2010
T105035	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site5-P7	-23.4096	119.5716	12/03/2010
T105004	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site18-P10	-23.41765	119.585	14/03/2010
T104998	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site12-P6	-23.39935	119.5844	12/03/2010
T104997	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site12-P8	-23.39946	119.5846	12/03/2010
T105028	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site5-P6	-23.41014	119.5716	12/03/2010
T105024	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site17-P8	-23.40458	119.6249	12/03/2010
T105033	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	ca. 8 km W. of Newman, Orebody 35 [mine lease], site4-P3	-23.40223	119.5971	12/03/2010
T105032	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site5-P9	-23.40974	119.5714	12/03/2010
T105029	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site5-P4	-23.41033	119.5716	12/03/2010
T104996	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site12-P8	-23.39946	119.5846	12/03/2010
T105027	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site5-P6	-23.41014	119.5716	12/03/2010
T105025	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site17-P2	-23.40458	119.6249	12/03/2010
T105026	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site13-P10	-23.39451	119.6392	12/03/2010
T149459	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 12'	epigean	widespread	W.A. Museum assessment	84.1 km NW. of Newman	-23.07811	118.9678	14/03/2019
T105397	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 4'	epigean	widespread	W.A. Museum assessment	Roy Hill	-22.58542	120.0333	11/03/2010
T122385	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'Pilbara 5'	epigean	widespread	W.A. Museum assessment	Mudlark, 99.7 km NW. of Newman, ca. 23 km ESE. of Mt Meharry	-23.07772	118.7884	10/02/2012
T105385	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'pilbara 8'	epigean	widespread	W.A. Museum assessment	Roy Hill	-22.44107	119.9667	11/03/2010
T79497	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'Pilbara 8'	epigean	widespread	W.A. Museum assessment	10.5 km NW. of Bonney Downs Homestead, Pilbara Biological Survey site RHNE10	-22.1178	119.8769	18/11/2003
T128774	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'Pilbara 8'	epigean	widespread	W.A. Museum assessment	Orebody 24, ca. 7 km N. of Newman	-23.28873	119.727	29/04/2013
T128088	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'Pilbara 8'	epigean	widespread	W.A. Museum assessment	ca. 15 km NE. of Roy Hill	-22.53944	120.0287	18/04/2013
T105394	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'Roy Hill keeled'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.54898	120.0333	11/03/2010
T105395	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'Roy Hill smooth'	epigean	Potential SRE: DD	W.A. Museum assessment	Roy Hill	-22.54898	120.0333	11/03/2010
T122058	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'SCO004'	epigean	widespread	W.A. Museum assessment	63.9 km NW. of Newman, South Parmelia	-23.03695	119.2125	1/02/2012
T135627	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'SCO022'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.47694	118.5633	18/03/2015
T135644	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'SCO022'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, Dales Gorge	-22.47794	118.562	18/03/2015
T101152	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'SCO031'	epigean	potential SRE: DD	W.A. Museum assessment	Area C, 85.8 km NW. of Newman	-22.89639	119.0619	25/02/2010
T91707	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'SCO031'	epigean	Potential SRE: DD	W.A. Museum assessment	Hope Downs 4, ca. 100 km NW. of Newman, HD4-8	-23.08656	119.3184	12/05/2008
T135544	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'SCO031'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, c. 7 km SSW. of Hancock Gorge	-22.41444	118.2475	15/03/2015
T113671	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'SCO031'	epigean	Potential SRE: DD	W.A. Museum assessment	113.3 km NW. of Newman	-22.79925	118.8015	28/05/2011
T113670	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'SCO031'	epigean	Potential SRE: DD	W.A. Museum assessment	113.5 km NW. of Newman	-22.78208	118.8171	28/05/2011
T128289	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'SCO031'	epigean	Potential SRE: DD	W.A. Museum assessment	Orebody 19, ca. 28 km ENE. of Newman	-23.33036	120.0027	27/08/2013
T113669	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'SCO031'	epigean	Potential SRE: DD	W.A. Museum assessment	110.7 km NW. of Newman	-22.62246	118.9966	25/05/2011

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T113672	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'SCO031'	epigean	Potential SRE: DD	W.A. Museum assessment	119.1 km NW. of Newman	-22.63382	118.871	30/05/2011
T113673	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'SCO031'	epigean	Potential SRE: DD	W.A. Museum assessment	115.9 km NW. of Newman	-22.61053	118.9394	30/05/2011
T113674	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'SCO031'	epigean	Potential SRE: DD	W.A. Museum assessment	117.6 km NW. of Newman	-22.6275	118.8965	31/05/2011
T113675	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'SCO031'	epigean	Potential SRE: DD	W.A. Museum assessment	117.6 km NW. of Newman	-22.6275	118.8962	1/06/2011
T122886	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'SCO031'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C West; 115.4 km NW. of Newman, ca. 16 km NE. of Mt Meharry	-22.90861	118.7175	31/03/2012
T79530	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	18.5 km SE. of Mt Bruce, Pilbara Biological Survey site TCMBE08	-22.7225	118.2683	1/09/2005
T80238	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	25 km NE. of Moorimoordinia Native Well, Pilbara Biological Survey site RHNE09	-22.41545	119.984	8/08/2003
T80237	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	47.5 km ESE. of Paraburdoo, Pilbara Biological Survey site TCMBC11	-23.2863	118.1236	28/08/2005
T79522	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	17.5 km SE. of Mt Bruce, Pilbara Biological Survey site TCMBE07	-22.7161	118.2633	1/09/2005
T80234	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	9 km SW. of Giles Point, Pilbara Biological Survey site RHNC02	-23.3195	119.1016	29/08/2003
T105647	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 13 km SW. of Marillana Station homestead, site 1	-22.71111	119.3136	15/05/2011
T105001	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site12-P5	-23.39936	119.5844	12/03/2010
T77986	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Port Hedland-Newman Railway, Chichester Rge, Fortescue Metals Group, site FMG22	-21.9883	119.0219	12/03/2004
T80236	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	10.5 km NW. of Bonney Downs Homestead, Pilbara Biological Survey site RHNE10	-22.1178	119.8769	18/11/2003
T106031	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Area C, 82.7 km NW. of Newman	-23.005	119.0239	1/05/2010
T111062	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Juna Downs Station, area A	-22.89322	118.693	23/03/2009
T105521	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 83 km SW. of Nullagine, Cloudbreak [mine lease], Chichester Range	-22.32517	119.4458	26/10/2010
T105526	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 95 km SW. of Nullagine, Cloudbreak [mine lease], Chichester Range	-22.31462	119.302	26/10/2010
T105528	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 96 km SW. of Nullagine, Cloudbreak [mine lease], Chichester Range	-22.31462	119.3	26/10/2010
T105637	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 13 km SW. of Marillana Station homestead, site 1	-22.71111	119.3136	15/05/2011
T105460	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Iron Valley, c. 7 km NE. of Yandicoogina Mine	-22.75517	119.3049	5/05/2010
T41547	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Munjini Gorge	-22.4536	118.7028	16/12/1998
T105396	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill	-22.59335	120.0167	11/03/2010
T105387	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill [Station], Marble Bar Road	-22.50509	119.9143	11/03/2010
T108722	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Chichester Range, northern slopes @	-22.1769	119.0319	22/08/2008
T92464	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jimblebar, 40 km ESE. of Newman, site 08-8E	-23.3765	120.0295	23/08/2008
T111028	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	8 km NE. of Roy Hill Station Homestead	-22.57717	120.0247	25/05/2009
T91923	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Hamersley Range, Weeli Wolli Creek region, Area C, site 12-12C	-22.91681	118.9105	11/06/2008
T114249	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 32 km NW. of Marillana Station homestead, site 4	-22.512277	119.128861	8/08/2011
T115176	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas, 90 km NW. of Newman, site WES004	-23.19	118.87	5/05/2004
T115170	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Fortescue (FMG), 24 km NW. of Roy Hill (FMC05)	-22.42	119.91	5/07/2004
T114372	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 11 km NE. of Roy Hill Station homestead, Roy Hill Mine 1 lease	-22.545916	120.030055	20/02/2012
T114359	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 31 km NW. of Roy Hill Station homestead, BFS1-2, site 1	-22.44192	119.7235	12/07/2010
T114357	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 89 km WNW. of Roy Hill Station homestead, BFS2	-22.28758	119.1701	14/07/2010
T114345	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 10 km NW. of Roy Hill Station homestead, Roy Hill Mine 1 lease	-22.54306	119.9162	8/02/2011
T114341	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 27 km NW. of Roy Hill Station homestead, BFS1-2	-22.443055	119.778527	13/07/2010
T114338	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	c. 9 km NW. of Roy Hill Station homestead, Roy Hill Mine 1 lease	-22.543027	119.916361	17/02/2012
T131161	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	3 km SW. of West Angelas Aerodrome	-23.1465	118.683	18/03/2013
T136656	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Roy Hill Station, c. 13 km NNE. of homestead, site 4	-22.50664	119.9781	18/05/2006
T125359	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri Western Corridor, 136.5 km NW. of Newman	-22.40428	118.8823	29/03/2012

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T133363	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	West Angelas lease, 31.6 km SE. of Juna Downs Homestead	-23.085	118.7047	7/09/2005
T118825	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Koodaideri, 118 km NW. of Newman	-22.5	119.0472	19/10/2011
T131170	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	17 km SE. of West Angelas Aerodrome	-23.203	118.8303	18/03/2013
T131178	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	3 km SW. of West Angelas Aerodrome	-23.14546	118.6665	18/03/2013
T131175	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	17 km SE. of West Angelas Aerodrome	-23.19879	118.8469	18/03/2013
T118152	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Wonmunna, ca. 73 km heading 291° from Newman	-23.122091	119.06105	20/05/2011
T131173	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	17 km SE. of West Angelas Aerodrome	-23.20294	118.8309	18/03/2013
T131163	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	17 km SE. of West Angelas Aerodrome	-23.20296	118.8304	18/03/2013
T136818	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Karijini National Park, c. 1.5 km NE. of Visitor Centre	-22.4725	118.4753	18/03/2015
T131172	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	17 km SE. of West Angelas Aerodrome	-23.20229	118.8303	18/03/2013
T131167	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	9 km WSW. of West Angelas Aerodrome	-23.17319	118.6245	18/03/2013
T131169	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	17 km SE. of West Angelas Aerodrome	-23.20296	118.8304	18/03/2013
T131174	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	17 km SE. of West Angelas Aerodrome	-23.203	118.8303	18/03/2013
T54004	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'sp. 1'	epigean	widespread	W.A. Museum assessment	Weeli Wolli Creek, ca. 40 km SW. of Marillana, site HDA3	-22.9369	119.2078	22/04/2003
T79537	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'sp. 4'	epigean	widespread	W.A. Museum assessment	Mulga Downs Station, 16 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW07	-22.2217	119.0249	21/11/2003
T79473	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'sp. 5'	epigean	widespread	W.A. Museum assessment	17.5 km SE. of Mt Bruce, Pilbara Biological Survey site TCMBE07	-22.7161	118.2633	1/09/2005
T79462	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'sp. 5'	epigean	widespread	W.A. Museum assessment	1 km SSE. of Cowra Line Camp, Pilbara Biological Survey site RHNW13	-22.3614	119.0068	20/11/2003
T79515	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'sp. 9'	epigean	widespread	W.A. Museum assessment	0.5 km NW. of Weeli Wollie Spring, Pilbara Biological Survey site RHNC11	-22.9146	119.209	1/09/2003
T79526	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'sp. 9'	epigean	widespread	W.A. Museum assessment	3 km SW. of Weeli Wollie Spring, Pilbara Biological Survey site RHNC10	-22.9311	119.1847	31/08/2003
T79500	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'sp. 9'	epigean	widespread	W.A. Museum assessment	14 km WSW. of Roy Hill Station, Pilbara Biological Survey site RHNE05	-22.6756	119.8406	19/11/2003
T79517	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'sp. 9'	epigean	widespread	W.A. Museum assessment	9 km SW. of Giles Point, Pilbara Biological Survey site RHNC02	-23.3195	119.1016	29/08/2003
T79516	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'sp. 9'	epigean	widespread	W.A. Museum assessment	3 km SW. of Weeli Wolli Spring, Pilbara Biological Survey site RHNC10	-22.9477	119.1847	31/08/2003
T79511	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'sp. 9'	epigean	widespread	W.A. Museum assessment	20 km WNW. of Rhodes Ridge, Pilbara Biological Survey site RHNC09	-23.0538	119.1769	1/09/2003
T105568	Arachnida	Scorpiones (scorpions)	Scorpiones	Urodacidae	Urodacus 'yaschenkoi complex'	epigean	Potential SRE: DD	W.A. Museum assessment	Marillana [lease], 100 km NW. of Newman, site 11	-22.62228	119.3244	9/04/2011
S67741	Bivalvia	Mollusca		Corbiculidae	Corbicula sp.	epigean	widespread	W.A. Museum assessment	Karijini NP; Dales Gorge; Fern Pool	-22.4797	118.628	20/08/2010
T93676	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.02767	119.255	30/08/2008
T97636	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.11234	118.5209	19/04/2009
T93671	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.04078	119.2798	29/08/2008
T97628	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Phils Creek, Pilbara, Ecologia project 1038	-22.7316	119.1931	4/04/2009
T93675	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.98428	119.2677	31/08/2008
T93674	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.04078	119.2797	24/08/2008
T97635	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Murray Hill, Mulga Downs Station, Ecologia project 1142	-22.12174	118.5188	19/04/2009
T93672	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.02767	119.255	30/08/2008
T93696	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.04078	119.2798	29/08/2008
T93648	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.04078	119.2798	29/08/2008
T109630	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Roy Hill Station, Marillana Creek area (974)	-22.56639	119.2321	30/06/2008
T107276	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Fortescue Marsh, ca. 50 km NE. of Newman	-22.08832	119.0169	12/05/2010
T93625	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.04039	119.2791	24/08/2008

T93635	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.02767	119.255	30/08/2008
T93636	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.04078	119.2798	29/08/2008
T93665	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.98925	119.2363	28/08/2008
T93646	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.98428	119.2677	31/08/2008
T93670	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.04169	119.2776	30/08/2008
T93660	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.98428	119.2677	31/08/2008
T93661	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.04033	119.279	25/08/2008
T93662	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.02483	119.2436	30/08/2008
T93664	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.01042	119.2364	30/08/2008
T93666	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.02483	119.2436	30/08/2008
T93667	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.04078	119.2798	29/08/2008
T93669	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-23.04078	119.2798	29/08/2008
T93637	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Jinary, ca. 60 km NW. of Newman	-22.98925	119.2363	28/08/2008
T153982	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Karijini National Park, Mt Meharry, 150 m E. of summit	-22.97944	118.5889	31/05/2021
T137971	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	1 km SSE. Of Cowra Line Camp site RHNW13	-22.36144	119.0068	28/08/2003
T149506	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	83.2 km NW. of Newman	-23.08254	118.9746	10/03/2019
T153981	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph		Geophilomorpha sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Karijini National Park, Mt Meharry, 150 m E. of summit	-22.97944	118.5889	31/05/2021
T135633	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Ballophilidae	Ballophilidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	18/03/2015
T143550	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Ballophilidae	Ballophilidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, Dales Gorge, upstream from Fern Pool	-22.4775	118.5458	8/07/2006
T109307	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Chilenophilidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Roy Hill Station, Marillana Creek area (974)	-22.56639	119.2321	30/06/2008
T109659	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Chilenophilidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Juna Downs Station	-22.89833	118.6728	17/06/2008
T122178	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Chilenophilidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Area C, west to Yandi, 105 km NW. of Newman	-22.63833	119.0678	7/02/2012
T131332	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Chilenophilidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	ca.15 km NE. of Roy Hill	-22.53333	120.0287	18/04/2013
T131156	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Chilenophilidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	18 km E. of of West Angelas Aerodrome	-23.12279	118.8753	18/03/2013
T131240	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Chilenophilidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Orebody 24, ca. 7 km N. of Newman	-23.28276	119.7396	5/08/2013
T137931	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Chilenophilidae sp.	?epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	18/03/2015
T137930	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Chilenophilidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	18/03/2015
T139740	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Chilenophilidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.83268	119.1297	3/09/2015
T149502	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus 'HD1'	epigean	Potential SRE: DD	Alacran unpublished data	84 km NW. of Newman	-23.08253	118.968	15/03/2019
T149498	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus 'HD1'	epigean	Potential SRE: DD	Alacran unpublished data	84.2 km NW. of Newman	-23.06062	118.9743	12/03/2019
T149499	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus 'HD1'	epigean	Potential SRE: DD	Alacran unpublished data	84.2 km NW. of Newman	-23.06062	118.9743	12/03/2019
T149501	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus 'HD1'	epigean	Potential SRE: DD	Alacran unpublished data	70.8 km NW. of Newman	-23.04168	119.1292	11/03/2019
T149503	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus 'HD1'	epigean	Potential SRE: DD	Alacran unpublished data	70.8 km NW. of Newman	-23.04168	119.1292	11/03/2019

T149500	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus 'HD1'	epigean	Potential SRE: DD	Alacran unpublished data	84.2 km NW. of Newman	-23.06062	118.9743	12/03/2019
T149504	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus 'HD2'	epigean	Potential SRE: DD	Alacran unpublished data	79.9 km NW. of Newman	-23.07775	119.0114	16/03/2019
T112354	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.13186	119.0964	21/05/2011
T112352	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 73 km heading 291° from Newman	-23.12101	119.0632	20/05/2011
T112347	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.12877	119.0904	19/05/2011
T112350	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 78 km heading 288° from Newman	-23.14368	119.0064	18/05/2011
T112349	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 80 km heading 285° from Newman	-23.16326	118.977	17/05/2011
T149505	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	84.2 km NW. of Newman	-23.06062	118.9743	12/03/2019
T112346	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 74 km heading 289° from Newman	-23.1356	119.0463	19/05/2011
T112351	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.12877	119.0904	19/05/2011
T112345	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.13186	119.0964	21/05/2011
T112344	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 78 km heading 286° from Newman	-23.1615	119.002	18/05/2011
T112343	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 73 km heading 291° from Newman	-23.12101	119.0632	20/05/2011
T112342	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 73 km heading 291° from Newman	-23.12101	119.0632	20/05/2011
T112341	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 73 km heading 291° from Newman	-23.12101	119.0632	20/05/2011
T112340	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 73 km heading 291° from Newman	-23.12202	119.0611	20/05/2011
T146570	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Greater Hope Downs, Hope Downs 1 mine, ca. 81.8 km NW. of Newman	-23.04347	119.1166	22/05/2018
T112348	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 81 km, heading 286° from Newman	-23.15965	118.9703	18/05/2011
T112353	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Chilenophilidae	Sepedonophilus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 74 km heading 289° from Newman	-23.1356	119.0463	19/05/2011
T101040	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Geophilidae	Geophilidae sp.	epigean	Potential SRE: DD	Family may contain SREs and potential SREs	Chichester Range, Cloud Break mine area@	-22.29889	119.3853	7/07/2006
T101052	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Geophilidae	Geophilidae sp.	epigean	Potential SRE: DD	Family may contain SREs and potential SREs	Chichester Range, Cloud Break mine area@	-22.30889	119.4386	6/07/2006
T101041	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Geophilidae	Geophilidae sp.	epigean	Potential SRE: DD	Family may contain SREs and potential SREs	Chichester Range, Cloud Break mine area@	-22.31806	119.3786	4/07/2006
T126246	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Geophilidae	Geophilidae sp.	epigean	Potential SRE: DD	Family may contain SREs and potential SREs	112.5 km NW. of Newman	-22.60417	118.9869	20/11/2011
T131155	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Geophilidae	Geophilidae sp.	epigean	Potential SRE: DD	Family may contain SREs and potential SREs	18 km E. of of West Angelas Aerodrome	-23.12279	118.8753	18/03/2013
T111865	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalid	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.41707	119.8941	9/04/2011
T111871	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalid	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.41906	119.8968	8/04/2011
T111864	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalid	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.41336	119.8699	9/04/2011
T111863	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalid	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.41044	119.8593	9/04/2011
T111859	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalid	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.39307	119.7154	12/04/2011
T111869	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalid	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.40898	119.8845	8/04/2011
T108712	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalid	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Chichester Range, northern slopes @	-22.22805	118.9986	22/08/2008
T111867	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalid	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.39307	119.7154	12/04/2011
T111870	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalid	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.40399	119.8653	8/04/2011

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T111862	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.39853	119.793	9/04/2011
T115821	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 81 km, heading 286° from Newman	-23.15965	118.9703	18/05/2011
T115789	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 71 km heading 290° from Newman	-23.13146	119.0774	19/05/2011
T115790	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 75 km heading 289° from Newman	-23.13551	119.0384	19/05/2011
T115791	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 76 km heading 290° from Newman	-23.1169	119.0396	20/05/2011
T126856	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi, 24 km SW. of Marillana, YEX82	-22.83	119.25	30/08/2004
T126852	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Yandi, 24 km SW. of Marillana, YEX75	-22.83	119.26	30/08/2004
T115792	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 79 km heading 286° from Newman	-23.15929	118.9928	17/05/2011
T115810	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 71 km heading 290° from Newman	-23.13146	119.0774	19/05/2011
T115811	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 77 km heading 288° from Newman	-23.13937	119.0182	19/05/2011
T113480	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.39307	119.7154	12/04/2011
T115794	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 72 km heading 290° from Newman	-23.12683	119.0673	19/05/2011
T115788	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 81 km, heading 286° from Newman	-23.15965	118.9703	18/05/2011
T115812	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 73 km heading 291° from Newman	-23.11855	119.0649	20/05/2011
T115795	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 72 km heading 291° from Newman	-23.12558	119.0797	21/05/2011
T115819	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.13186	119.0964	21/05/2011
T139743	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.84918	119.1111	3/04/2015
T139742	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82818	119.0855	2/04/2015
T115818	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 79 km heading 286° from Newman	-23.15466	118.9932	18/05/2011
T115813	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 73 km heading 291° from Newman	-23.12202	119.0611	20/05/2011
T115814	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 80 km heading 285° from Newman	-23.16326	118.977	17/05/2011
T115815	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 79 km heading 286° from Newman	-23.15466	118.9932	18/05/2011
T115816	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 71 km heading 290° from Newman	-23.13146	119.0774	19/05/2011
T115793	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 75 km heading 289° from Newman	-23.13551	119.0384	19/05/2011
T115806	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 75 km heading 290° from Newman	-23.12662	119.047	20/05/2011
T115798	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 77 km heading 288° from Newman	-23.13937	119.0182	19/05/2011
T115799	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 79 km heading 286° from Newman	-23.15929	118.9928	17/05/2011
T115800	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 75 km heading 289° from Newman	-23.13551	119.0384	19/05/2011
T115801	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 71 km heading 290° from Newman	-23.13146	119.0774	19/05/2011
T115802	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 79 km heading 286° from Newman	-23.15466	118.9932	18/05/2011
T115803	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 71 km heading 290° from Newman	-23.13146	119.0774	19/05/2011
T113252	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.41906	119.8968	8/04/2011
T115805	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 77 km heading 288° from Newman	-23.13937	119.0182	19/05/2011

T115807	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 72 km heading 290° from Newman	-23.12683	119.0673	19/05/2011
T115809	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 72 km heading 291° from Newman	-23.12558	119.0797	21/05/2011
T115820	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 79 km heading 286° from Newman	-23.15929	118.9928	17/05/2011
T115796	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 78 km heading 288° from Newman	-23.14284	119.0099	18/05/2011
T115804	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.12877	119.0904	19/05/2011
T115787	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 78 km heading 288° from Newman	-23.14284	119.0099	18/05/2011
T115808	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 75 km heading 289° from Newman	-23.13489	119.0338	19/05/2011
T115786	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 72 km heading 291° from Newman	-23.12558	119.0797	21/05/2011
T115797	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 71 km heading 290° from Newman	-23.13146	119.0774	19/05/2011
T115817	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 79 km heading 286° from Newman	-23.15466	118.9932	18/05/2011
T149508	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalus 'HD1'	epigean	Potential SRE: DD	Alacran unpublished data	82.5 km NW. of Newman	-23.04504	118.9991	14/03/2019
T149510	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalus 'HD1'	epigean	Potential SRE: DD	Alacran unpublished data	79.9 km NW. of Newman	-23.07775	119.0114	16/03/2019
T149509	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalus 'HD1'	epigean	Potential SRE: DD	Alacran unpublished data	79.9 km NW. of Newman	-23.07775	119.0114	16/03/2019
T149507	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalus 'HD1'	epigean	Potential SRE: DD	Alacran unpublished data	80.3 km NW. of Newman	-23.04843	119.0211	9/03/2019
T149511	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalus 'HD2'	epigean	Potential SRE: DD	Alacran unpublished data	79.9 km NW. of Newman	-23.07775	119.0114	16/03/2019
T149513	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalus 'HD3'	epigean	Potential SRE: DD	Alacran unpublished data	81.6 km NW. of Newman	-23.07701	118.9937	17/03/2019
T149512	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalus 'HD3'	epigean	Potential SRE: DD	Alacran unpublished data	81.6 km NW. of Newman	-23.07701	118.9937	17/03/2019
T126693	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	63 km E. of Paraburdoo, site 1000-tuX1	-23.20412	118.2882	1/04/2012
T126694	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Mecistocephalic	Mecistocephalus sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	67.5 km ESE. of Paraburdoo, site 1000-tur03	-23.32424	118.3173	23/07/2012
T126761	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Oryidae	Orphnaeus brevilabiatus	epigean	Potential SRE: DD	numerous species are currently included within this species	4.5 km SW. of Redmont Airport, site 994-08	-22.00204	118.9813	15/04/2012
T126762	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Oryidae	Orphnaeus brevilabiatus	epigean	Potential SRE: DD	numerous species are currently included within this species	4.5 km SW. of Redmont Airport, site 994-08	-22.00204	118.9813	15/04/2012
T128638	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Oryidae	Orphnaeus brevilabiatus	epigean	Potential SRE: DD	numerous species are currently included within this species	ca. 18 km N. of Wittenoom	-22.1	118.3878	20/05/2013
T115947	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Oryidae	Orphnaeus brevilabiatus	epigean	Potential SRE: DD	numerous species are currently included within this species	Wonmunna, ca. 75 km heading 290° from Newman	-23.12662	119.047	20/05/2011
T115936	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Oryidae	Orphnaeus brevilabiatus	epigean	Potential SRE: DD	numerous species are currently included within this species	Wonmunna, ca. 70 km heading 291° from Newman	-23.13186	119.0964	21/05/2011
T128639	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Oryidae	Orphnaeus brevilabiatus	epigean	Potential SRE: DD	numerous species are currently included within this species	ca. 18 km N. of Wittenoom	-22.1	118.3878	20/05/2013
T149514	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Oryidae	Orphnaeus 'HD1'	epigean	Potential SRE: DD	Alacran unpublished data	79.9 km NW. of Newman	-23.07775	119.0114	16/03/2019
T25705	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Oryidae	Oryidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Mt Newman	-23.2666	119.5667	10/05/1983
T111860	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Oryidae	Oryidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.39276	119.8546	9/04/2011
T131241	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Oryidae	Oryidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Orebody 25, ca. 5 km N. of Newman	-23.32689	119.7685	5/08/2013
T139744	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Oryidae	Oryidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.83915	119.1399	3/09/2015
T126682	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Schendylidae	Australoschendyla 'cf. capensis'	epigean	Potential SRE: DD	ALA, W.A. Museum assessment	69 km E. of Paraburdoo, site 1000-tur10	-23.25557	118.2624	22/06/2012
T126676	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Schendylidae	Australoschendyla 'cf. capensis'	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	45 km ESE. of Paraburdoo, site 1000-tur06	-23.2738	118.202	21/06/2012
T114702	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorph	Schendylidae	Schendylidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Angelo River, 100 km W. of Newman	-23.28798	118.754	20/06/2011

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T114704	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorpl	Schendylidae	Schendylidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Angelo River, 98 km W. of Newman	-23.4	118.7697	20/06/2011
T114703	Chilopoda	Geophilomorpha (soil centipedes)	Geophilomorpl	Schendylidae	Schendylidae sp.	epigean	Potential SRE: DD	Family likely to contain SREs and potential SREs	Angelo River, 97 km W. of Newman	-23.26311	118.7825	20/06/2011
T104003	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Chichester Range, Cloud Break mine area, station FMG #29	-22.32078	119.4442	6/07/2006
T111861	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.39853	119.793	9/04/2011
T111866	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.35158	119.7715	10/04/2011
T93678	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.02767	119.255	30/08/2008
T100118	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Roy Hill, Ecologia project 1209	-22.74864	119.922	20/11/2009
T111868	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.41906	119.8968	8/04/2011
T112380	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 74 km heading 289° from Newman	-23.1356	119.0463	19/05/2011
T112150	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	113 km NNW. of Newman	-22.33519	119.6531	22/03/2011
T112469	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 72 km heading 290° from Newman	-23.12832	119.0736	19/05/2011
T112151	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	118 km N. of Newman	-22.29725	119.8633	24/03/2011
T112463	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 75 km heading 289° from Newman	-23.13551	119.0384	19/05/2011
T112461	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.12877	119.0904	19/05/2011
T112152	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	108 km N. of Newman	-22.31327	119.8599	24/03/2011
T112153	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	110 km NNE. of Newman	-22.38274	119.9727	23/03/2011
T112154	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	104 km NNE. of Newman	-22.44815	119.986	26/03/2011
T142224	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	7 km NNE. of Roy Hill Station homestead	-22.55692	119.9866	26/05/2009
T112362	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.12877	119.0904	19/05/2011
T126245	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	?epigean	Potential SRE: DD	Family contains SREs and potential SREs	112.5 km NW. of Newman	-22.60417	118.9869	20/11/2011
T112155	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	104 km NNE. of Newman	-22.44815	119.986	26/03/2011
T112156	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	115 km NNW. of Newman	-22.31787	119.7476	24/03/2011
T112361	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 75 km heading 290° from Newman	-23.12012	119.0484	20/05/2011
T112384	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 73 km heading 291° from Newman	-23.12101	119.0632	20/05/2011
T112149	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	108 km N. of Newman	-22.31327	119.8599	24/03/2011
T112148	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	118 km N. of Newman	-22.29725	119.8633	24/03/2011
T112435	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 73 km heading 291° from Newman	-23.12202	119.0611	20/05/2011
T112147	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	112 km NNE. of Newman	-22.36219	119.9691	23/03/2011
T113482	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.35158	119.7715	10/04/2011
T112455	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptopidae sp.	epigean	Potential SRE: DD	Family contains SREs and potential SREs	Wonmunna, ca. 81 km, heading 286° from Newman	-23.15965	118.9703	18/05/2011
T93659	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptops sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.01042	119.2364	30/08/2008
T111872	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptops sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Christmas Creek, 110 km N. of Newman	-22.36568	119.6031	11/04/2011
T93673	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptops sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.02508	119.2434	30/08/2008

T93663	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptops sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.01042	119.2364	30/08/2008
T93668	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptops sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.02767	119.255	30/08/2008
T93642	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptops sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.01042	119.2364	30/08/2008
T149516	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptops sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	81.6 km NW. of Newman	-23.07701	118.9937	17/03/2019
T149517	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptops sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	81.6 km NW. of Newman	-23.07701	118.9937	17/03/2019
T124749	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptops sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	ca. 104 km heading 53.8° NE. from Tom Price	-22.16136	118.7236	20/02/2012
T149515	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptops sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	81.6 km NW. of Newman	-23.07701	118.9937	17/03/2019
T126647	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptops sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	69 km E. of Paraburdoo, site 1000-tur10	-23.25557	118.2624	22/06/2012
T139741	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Cryptopidae	Cryptops sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	Ministers North, ca. 93 km NW. of Newman	-22.82825	119.144	2/09/2015
T85910	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Scolopendridae	Cormocephalus 'long anal legs'	epigean	Potential SRE: DD	W.A. Museum assessment	Mulga Downs Station, E. of Outcamp, Pilbara Biological Survey site RHNW13	-22.3613	119.0067	20/11/2003
T82772	Chilopoda	Geophilomorpha (soil centipedes)	Scolopendromo	Scolopendridae	Cormocephalus 'long anal legs'	epigean	Potential SRE: DD	W.A. Museum assessment	`Cloudbreak` Mining Lease, Fortescue Metals Group (site 29)	-22.3358	119.4242	1/06/2006
T51583	Diplopoda	Diplopoda (millipedes)			Diplopoda sp.	epigean	Potential SRE: DD	Class contains SREs and potential SREs	Weeli Wolli Creek, site HDA05	-22.8786	119.2406	24/04/2003
T32305	Diplopoda	Diplopoda (millipedes)			Diplopoda sp.	epigean	Potential SRE: DD	Class contains SREs and potential SREs	Hancock Gorge, 15 km S. of Wittenoom, Karijini National Park [Formerley Hamersley Range National Park]	-22.35	118.2667	15/05/1980
T128724	Diplopoda	Diplopoda (millipedes)			Helminthomorpha sp.	epigean	Potential SRE: DD	Class contains SREs and potential SREs	ca. 51 km NE. of Auski Roadhouse	-21.97474	118.943	13/04/2013
T128722	Diplopoda	Diplopoda (millipedes)			Helminthomorpha sp.	epigean	potential SRE: DD	order contains SREs and potential SREs	ca. 56 km NE. of Auski Roadhouse	-21.92352	118.9326	13/04/2013
T98176	Diplopoda	Diplopoda (millipedes)	`Order indet.`	`Family indet.`	Diplopoda sp.	epigean	Potential SRE: DD	Class contains SREs and potential SREs	Roy Hill Station, Ecologia Project 1106	-22.49669	120.0096	24/05/2009
T127459	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida		Polydesmida sp.	?epigean	Potential SRE: DD	Order contains SREs and potential SREs	Phil`s Creek, ca. 100 km NNW. of Newman	-22.73464	119.1852	10/03/2009
T93869	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	`Family indet.`	Polydesmida sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Chichester Range, Ecologia site 03	-22.17471	118.9918	9/06/2008
T102823	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Dalodesmidae	Dalodesmidae sp.	epigean	Potential SRE: DD	Genus contains SREs and potential SREs	76.7 km NW. of Newman, Yandi Lease	-22.79056	119.305	7/03/2010
T76073	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomati	Antichiropus antius	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	24.5 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW10	-22.13467	119.0242	15/05/2004
T93875	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomati	Antichiropus antius	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Chichester Range, Ecologia site 24	-22.05037	118.9934	9/06/2008
T146699	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomati	Antichiropus antius	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Chichester Range, Pilbara, site 24	-22.05037	118.9934	9/06/2008
T144620	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomati	Antichiropus antius	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	24.5 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW10	-22.13467	119.0242	27/08/2003
T105993	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomati	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Area C, 87.2 km NW. of Newman	-22.98917	118.9822	1/05/2010
T107388	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomati	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Hope Downs, 81.4 km NW. of Newman	-22.94194	119.0839	26/06/2010
T106134	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomati	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Area C, 85.2 km NW. of Newman	-23.00361	118.9942	1/05/2010
T106004	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomati	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Area C, 81.8 km NW. of Newman	-23.005	119.0331	1/05/2010
T105994	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomati	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Area C, 87.2 km NW. of Newman	-22.98917	118.9822	1/05/2010
T105992	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomati	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Area C, 86.2 km NW. of Newman	-23.00139	118.9817	1/05/2010

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T105991	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Area C, 89.6 km NW. of Newman	-23.00111	118.9478	1/05/2010
T105988	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Area C, 101 km NW. of Newman	-23.00556	118.8275	1/05/2010
T105995	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Area C, 85.2 km NW. of Newman	-23.00361	118.9942	1/05/2010
T140199	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	South Flank, ca. 95 km NW. of Newman	-22.98761	118.9976	23/03/2016
T140189	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	South Flank, ca. 95 km NW. of Newman	-23.00542	119.0326	23/03/2016
T140196	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	South Flank, ca. 95 km NW. of Newman	-22.95822	118.9546	23/03/2016
T140198	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	South Flank, ca. 95 km NW. of Newman	-22.98761	118.9976	23/03/2016
T140193	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	South Flank, ca. 95 km NW. of Newman	-22.96961	118.946	23/03/2016
T144537	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Area C [mine lease], 87.2 km NW. of Newman	-22.98917	118.9822	1/05/2010
T140197	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	South Flank, ca. 95 km NW. of Newman	-22.98761	118.9976	23/03/2016
T140190	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	South Flank, ca. 95 km NW. of Newman	-23.00386	118.9956	23/03/2016
T140195	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	South Flank, ca. 95 km NW. of Newman	-22.96961	118.946	23/03/2016
T140194	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	South Flank, ca. 95 km NW. of Newman	-22.96961	118.946	23/03/2016
T140188	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	South Flank, ca. 95 km NW. of Newman	-23.00542	119.0326	23/03/2016
T140187	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	South Flank, ca. 95 km NW. of Newman	-22.95386	118.889	23/03/2016
T140191	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	South Flank, ca. 95 km NW. of Newman	-22.96856	118.9492	23/03/2016
T140192	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cirratus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	South Flank, ca. 95 km NW. of Newman	-22.96939	118.9494	23/03/2016
T104778	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cristatus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, site6-P7	-23.40177	119.5745	12/03/2010
T124596	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cucumeraceous	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	16 km E. of Mt Bruce, Pilbara Biological Survey site TCMBE05	-22.60944	118.2992	2/08/2005
T124598	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus cucumeraceous	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	15.5 km ENE. of Mt Bruce, Pilbara Biological Survey site TCMBE02	-22.58333	118.2903	2/08/2005
T146783	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP006, Area C, species1'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range, 93 km NW. of Newman	-22.90064	118.9933	1/06/2017
T146786	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP006, Area C, species1'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range, 80 km NW. of Newman	-22.89594	119.0772	1/06/2017

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T146788	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP006, Area C, species1'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 105 km NW. of Newman	-22.89691	118.8593	1/06/2017
T146784	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP006, Area C, species1'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range,93 km NW. of Newman	-22.93177	118.7645	1/06/2017
T146785	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP006, Area C, species1'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range, 108 km NW. of Newman	-22.93177	118.7645	1/06/2017
T106003	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP007, Area C, species2'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Area C, 81.8 km NW. of Newman	-23.005	119.0331	1/05/2010
T105989	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP007, Area C, species2'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Area C, 61.8 km NW. of Newman	-22.99861	118.8686	1/05/2010
T146750	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP007, Area C, species2'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Area C, 87.2 km NW. of Newman	-22.98917	118.9822	1/05/2010
T111846	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP031, christmas'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman; Molecular Species	-22.35158	119.7715	10/04/2011
T113250	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP031, christmas'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman; Molecular Species	-22.41906	119.8968	8/04/2011
T113251	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP032', bluespec	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman; Molecular Species	-22.41906	119.8968	8/04/2011
T135570	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP048, karijini'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Karijini National Park, c. 21 km SW. of Dales Gorge, site MAM 1	-22.57131	118.37703	17/03/2015
T118102	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP163, wonmunna'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Wonmunna, ca. 79 km NW. of Newman	-23.15928	118.9928	17/05/2011
T118101	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP163, wonmunna'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Wonmunna, ca. 78 km NW. of Newman	-23.1615	119.002	18/05/2011
T118100	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP163, wonmunna'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Wonmunna, ca. 79 km NW. of Newman	-23.15929	118.9928	17/05/2011
T118099	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP163, wonmunna'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Wonmunna, ca. 78 km NW. of Newman	-23.1615	119.002	18/05/2011
T118104	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP163, wonmunna'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Wonmunna, ca. 72 km NW. of Newman	-23.13091	119.0689	19/05/2011
T149520	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP163, wonmunna'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	79.9 km NW. of Newman	-23.07775	119.0114	16/03/2019
T149519	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP163, wonmunna'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	81.6 km NW. of Newman	-23.07701	118.9937	17/03/2019
T149518	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP163, wonmunna'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	79.9 km NW. of Newman	-23.07775	119.0114	16/03/2019
T149460	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP163, wonmunna'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	79.9 km NW. of Newman	-23.07775	119.0114	16/03/2019
T144921	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP163, wonmunna'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Wonmunna, ca. 78 km E. of Newman	-23.1615	119.002	18/08/2011
T146757	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP163, wonmunna'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Wonmunna, ca. 78 km heading 286° from Newman	-23.1615	119.002	18/05/2011
T149461	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP163, wonmunna?'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	81.6 km NW. of Newman	-23.07701	118.9937	17/03/2019

T149521	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP163, wonmunna?'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	79.9 km NW. of Newman	-23.07775	119.0114	16/03/2019
T146787	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP173, danberrin5'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 105 km NW. of Newman	-22.8989	118.8602	1/06/2017
T144512	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'DIP173, danberrin5'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 105 km NW. of Newman	-22.8989	118.8602	1/06/2017
T76075	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus echinus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	13 km SSW. of Giles Point, Pilbara Biological Survey site RHNC01	-23.36111	119.1125	15/05/2004
T146708	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus echinus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	13 km SSW. of Giles Point, Pilbara Biological Survey site RHNC01	-23.36111	119.1125	15/05/2004
T112620	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus echinus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	13 km SSW. of Giles Point, Pilbara Biological Survey site RHNC01	-23.36111	119.1125	15/05/2004
T144610	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus echinus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	13 km SSW of Giles point, Pilbara Biological Survey site RHNC01	-23.36111	119.1125	1/05/2004
T94687	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus gibbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Auski Road House, 55.5 km S. of (Ecologia 997)	-22.8725	118.6747	17/06/2008
T94688	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus gibbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Auski Road House, 55.5 km S. of (Ecologia 997)	-22.88694	118.6408	17/06/2008
T94689	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus gibbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Auski Road House, 55.5 km S. of (Ecologia 997)	-22.88694	118.6408	17/06/2008
T94686	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus gibbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Auski Road House, 55.5 km S. of (Ecologia 997)	-22.89778	118.6531	17/06/2008
T144578	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus gibbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Auski Road House, 55.5 km S. of (Ecologia 997)	-22.88694	118.6408	17/06/2008
T146714	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus gibbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Auski Road House, 55.5 km S. of (Ecologia 997)	-22.88694	118.6408	17/06/2008
T76054	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus lucyae	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	24 km WSW. of Mt Marsh, Pilbara Biological Survey site RHNW02	-22.53583	118.9976	15/05/2004
T144605	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus lucyae	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	24 km WSW. of Mt Marsh, Pilbara Biological Survey site RHNW02	-22.53583	118.9976	15/05/2004
T146717	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus lucyae	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	24 km WSW. of Mt Marsh, Pilbara Biological Survey site RHNW02	-22.53583	118.9976	15/05/2004
T109073	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus nimbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Cloudbreak [Chichester Range, c. 64 km WSW. of Bonney Downs h`std]	-22.31462	119.302	26/10/2010
T109074	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus nimbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Cloudbreak [Chichester Range]	-22.31462	119.302	26/10/2010
T109072	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus nimbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Cloudbreak [Chichester Range]	-22.31462	119.302	26/10/2010
T109075	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus nimbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Cloudbreak [Chichester Range]	-22.31462	119.302	26/10/2010
T112610	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus nimbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Cloudbreak [Chichester Range]	-22.31462	119.302	26/10/2010
T146719	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus nimbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Cloudbreak [Chichester Range]	-22.31462	119.302	26/10/2010

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T146720	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus nimbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Cloudbreak [Chichester Range]	-22.31462	119.302	26/10/2010
T121031	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus nimbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Newman, ca. 130 km NW. of Newman, BFS2, site 08	-22.28728	119.0301	6/06/2010
T144574	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus nimbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Cloudbreak [Chichester Range]	-22.31462	119.302	26/10/2010
T146721	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus nimbus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Newman, ca. 130 km NW. of Newman, BFS2, site 08	-22.28728	119.0301	6/06/2010
T104717	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'OB35_1? (female)'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site13-P5	-23.39471	119.6384	12/03/2010
T104762	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus 'OB35_2? (female)'	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, site3-P9	-23.40477	119.605	14/03/2010
T76079	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus patriciae	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	9.3 km NE. of Cowra Line Camp, Pilbara Biological Survey site RHNW11	-22.29411	119.0614	15/05/2004
T91863	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Area C, ca. 120 km NNW. Newman, site 12-12B	-22.91681	118.9105	11/06/2008
T91864	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Area C, ca. 120 km NNW. of Newman, site 08-8B	-22.90061	118.9932	12/06/2008
T91862	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Area C, ca. 120 km NNW. of Newman, site 12-12N	-22.91681	118.9105	11/06/2008
T144506	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range, 80 km NW. of Newman	-22.91749	119.1518	1/06/2017
T144507	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range, 80 km NW. of Newman	-22.91976	119.145	
T144505	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range, 93 km NW. of Newman	-22.89147	118.9956	
T144508	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range, 80 km NW. of Newman	-22.9094	119.1275	1/06/2017
T144504	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range, 93 km NW. of Newman	-22.88865	119.0293	1/06/2017
T144503	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range, 108 km NW. of Newman	-22.92754	118.8052	1/06/2017
T144502	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range, 108 km NW. of Newman	-22.92947	118.7876	
T144500	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range, 108 km NW. of Newman	-22.93177	118.7645	1/06/2017
T144501	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range, 108 km NW. of Newman	-22.9251	118.7814	
T144513	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 105 km NW. of Newman	-22.89691	118.8593	1/06/2017
T144514	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 105 km NW. of Newman	-22.8991	118.8516	
T144515	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 105 km NW. of Newman	-22.90022	118.854	

T144498	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range,93 km NW. of Newman	-22.93177	118.7645	1/06/2017
T144497	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range, 93 km NW. of Newman	-22.90064	118.9933	1/06/2017
T144509	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range, 80 km NW. of Newman	-22.89594	119.0772	1/06/2017
T144510	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 105 km NW. of Newman	-22.87221	118.8605	
T144499	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus pendiculus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Packsaddle Range, 108 km NW. of Newman	-22.89812	119.0023	
T135581	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus rupinus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Karijini National Park, c. 21 km SW. of Dales Gorge, site MAM 1	-22.57131	118.37703	16/03/2015
T135512	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus rupinus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Karijini National Park, near Rangers Station	-22.57139	118.3781	14/03/2015
T111856	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sloanae	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman	-22.37891	119.8186	23/03/2011
T144612	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sloanae	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	90 km NE. of Newman	-22.47889	119.9419	16/02/2012
T113481	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sloanae	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman; Molecular Species	-22.39327	119.7797	11/04/2011
T124140	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sloanae	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	100 km N. of Newman	-22.39665	119.7767	11/04/2011
T121032	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sloanae	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Roy Hill 1 Mine, ca. 90 km NE. of Newman	-22.47892	119.9421	16/02/2012
T93447	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Hope Downs 4, ca. 30 km NW. of Newman, HD4-13, 29	-23.10378	119.2799	22/09/2008
T107384	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Hope Downs, 73.3 km NW. of Newman	-23.00694	119.1517	23/06/2010
T76071	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Mulga Downs Station, 16 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW07	-22.22172	119.0249	14/08/2003
T93877	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Chichester Range, Ecologia site 10	-22.15031	119.0169	9/06/2008
T93876	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Chichester Range, Ecologia site 22	-22.05167	118.9884	9/06/2008
T76064	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	34 km NNW. of Cowra Line Camp, Pilbara Biological Survey site RHNW09	-22.06881	118.9787	15/05/2004
T76055	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	1.5 km W. of Giles Point, Pilbara Biological Survey site RHNC04	-23.25094	119.1447	15/05/2004
T111973	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	115 km N. of Newman	-22.31347	119.7886	25/03/2011
T76061	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	4 km SSW. of Mile Camp, Pilbara Biological Survey site RHNE01	-22.82014	119.6127	10/08/2003
T111975	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	112 km NNE. of Newman	-22.36219	119.9691	23/03/2011

T111977	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	110 km NNE. of Newman	-22.38274	119.9727	23/03/2011
T76063	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	24 km ENE. of Moorimoordinina Native Well, Pilbara Biological Survey site RHNE08	-22.45183	119.976	15/05/2004
T111976	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	112 km NNE. of Newman	-22.36219	119.9691	23/03/2011
T111974	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	115 km N. of Newman	-22.31347	119.7886	25/03/2011
T135508	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Karijini National Park, near Rangers Station	-22.57139	118.3781	14/03/2015
T135509	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Karijini National Park, near Rangers Station	-22.57139	118.3781	14/03/2015
T130962	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 19, ca. 28 km ENE. of Newman	-23.32906	119.9997	19/03/2013
T130961	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 19, ca. 28 km ENE. of Newman	-23.32906	119.9997	19/03/2013
T144517	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 105 km NW. of Newman	-22.8989	118.8602	
T144516	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 105 km NW. of Newman	-22.90247	118.8394	1/06/2017
T118105	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Wonmunna, ca 80 km heading 285 degrees from Newman	-23.16326	118.977	17/05/2011
T146741	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	1.5 km W. of Giles Point, Pilbara Biological Survey site RHNC04	-23.25094	119.1447	15/05/2004
T144576	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	55.5 km south of Auski Roadhouse	-22.89833	118.6728	17/06/2008
T144519	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus sp.	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 105 km NW. of Newman	-22.8991	118.8516	1/06/2017
T146749	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus spathion	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site13-P10	-23.39451	119.6392	12/03/2010
T104729	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site13-P10	-23.39451	119.6392	12/03/2010
T104725	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site1-P6	-23.39449	119.6317	13/03/2010
T104726	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site17-P2	-23.40458	119.6249	12/03/2010
T104724	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site1-P5	-23.39446	119.6318	13/03/2010
T104772	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, site1-P9	-23.39447	119.632	13/03/2010
T104722	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site13-P1	-23.39455	119.639	12/03/2010
T104721	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site13-P1	-23.39455	119.639	12/03/2010

T104757	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, site1-P4	-23.39436	119.6317	13/03/2010
T104758	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, site1-P4	-23.39436	119.6317	13/03/2010
T104759	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, site1-P4	-23.39436	119.6317	13/03/2010
T104765	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, site1-P10	-23.39453	119.6318	13/03/2010
T104783	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site1-P2	-23.39436	119.6316	13/03/2010
T104731	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site7-P2	-23.40526	119.6223	14/03/2010
T104775	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, site3-P6	-23.40496	119.6053	14/03/2010
T104770	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, site1-P9	-23.39447	119.632	13/03/2010
T104728	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site17-P2	-23.40458	119.6249	12/03/2010
T104773	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, site1-P9	-23.39447	119.632	13/03/2010
T104715	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site20-P3	-23.39499	119.5915	12/03/2010
T104771	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, site1-P9	-23.39447	119.632	13/03/2010
T104733	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site1-P3	-23.39443	119.6316	13/03/2010
T104769	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, site1-P9	-23.39447	119.632	13/03/2010
T104734	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site1-P3	-23.39443	119.6316	13/03/2010
T104768	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, site1-P9	-23.39447	119.632	13/03/2010
T104767	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, site1-P9	-23.39447	119.632	13/03/2010
T104727	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site17-P2	-23.40458	119.6249	12/03/2010
T112607	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35, ca. 8 km W. of Newman, Site13-P10	-23.39451	119.6392	12/03/2010
T146806	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Antichiropus verutus	epigean	Potential SRE: DD	Genus contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Orebody 35 [mine lease], ca. 8 km W. of Newman, site 1-P10	-23.39453	119.6318	13/03/2010
T94690	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Auski Road House, 55.5 km S. of (Ecologia 997)	-22.89833	118.6728	17/06/2008
T111850	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman	-22.39665	119.7767	11/04/2011

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T111849	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman	-22.39327	119.7797	11/04/2011
T93874	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Chichester Range, Ecologia site 04	-22.15635	119.0109	9/06/2008
T111848	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman	-22.38902	119.8553	9/04/2011
T111851	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman	-22.39665	119.7767	11/04/2011
T109962	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Hamersley Range, SE. of Mt Robinson, Pilbara Biological Survey site RHNC07	-23.14611	119.2658	18/10/2004
T111855	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman; Molecular Species	-22.36568	119.6031	11/04/2011
T111857	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman	-22.34728	119.6333	10/04/2011
T91905	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	10 km NE. of Newman, Ore-body 24, site 03-3A	-23.29464	119.7559	24/06/2008
T111854	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman	-22.41707	119.8941	8/04/2011
T111853	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman; Molecular Species	-22.41707	119.8941	8/04/2011
T111852	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman	-22.41906	119.8968	8/04/2011
T111844	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman	-22.39327	119.7797	11/04/2011
T111845	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman	-22.34728	119.6333	10/04/2011
T111847	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman	-22.40771	119.8662	8/04/2011
T91908	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	10 km NE. of Newman, Ore-body 24, site 02-2B	-23.29095	119.7562	26/06/2008
T111858	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman; Molecular Species	-22.38198	119.8184	10/04/2011
T113249	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	Christmas Creek, 110 km N. of Newman	-22.34728	119.6333	10/04/2011
T136032	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	West Angelas mine [lease], 46.2 km ESE. of Juna Downs homestead	-23.06889	118.89	9/09/2005
T124760	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 104 km heading 53.8° NE. from Tom Price	-22.1562	118.6538	21/10/2011
T124759	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 104 km heading 53.8° NE. from Tom Price	-22.13814	118.5822	16/02/2012
T128120	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 15 km NE. of Roy Hill	-22.53944	120.0287	18/04/2013
T124758	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 91.75 km heading 45.69° NE. from Tom Price	-22.10966	118.4473	15/02/2012

T128119	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 15 km NE. of Roy Hill	-22.53944	120.0287	18/04/2013
T124757	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 91.75 km heading 45.69° NE. from Tom Price	-22.11557	118.4428	25/10/2011
T124756	Diplopoda	Polydesmida (flat back millipedes)	Polydesmida	Paradoxosomat	Paradoxosomatidae sp.	epigean	Potential SRE: DD	Family contains numerous SRE taxa: {Car, 2013 #37321;Car, 2014 #38427;Car, 2013 #38389; Harvey, 2002 #31719}	ca. 91.75 km heading 45.69° NE. from Tom Price	-22.11258	118.4451	25/10/2011
T104738	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, Site5-P9	-23.40974	119.5714	12/03/2010
T107455	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 18-P3	-23.41788	119.5843	18/08/2010
T98378	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	?epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Hope Downs, 32.7 km NW. of Newman	-23.18667	119.4758	8/06/2009
T98379	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	?epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Hope Downs, 35.9 km NW. of Newman	-23.10722	119.5133	8/06/2009
T104781	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site6-P5	-23.40157	119.5747	12/03/2010
T100182	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Marillana Station, 60 km ESE. of Auski Roadhouse	-22.6118	119.2143	15/04/2009
T98377	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	?epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Hope Downs, 32.7 km NW. of Newman	-23.18667	119.4758	8/06/2009
T104732	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, Site1-P3	-23.39443	119.6316	13/03/2010
T100183	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	55 km S. of Auski Roadhouse	-22.8733	118.6755	1/12/2008
T107466	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 10-P9	-23.39965	119.6519	13/08/2010
T107470	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 24-HC573	-23.41399	119.5826	16/08/2010
T104776	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, Sste11-P4	-23.42057	119.5675	12/03/2010
T104763	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site3-P9	-23.40477	119.605	14/03/2010
T107467	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 27-HC569	-23.39462	119.5876	18/08/2010
T107472	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 3-HC579	-23.40472	119.6052	15/08/2010
T104777	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site6-P6	-23.40167	119.5747	12/03/2010
T104779	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site6-P7	-23.40177	119.5745	12/03/2010
T104780	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site8-P6	-23.41537	119.5915	14/03/2010
T107468	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 10-P8	-23.39973	119.6519	16/08/2010
T103929	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	West Angelas, 115 km SE. of Tom Price	-23.37417	118.6444	27/06/2010
T107480	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 10-P10	-23.3996	119.6519	14/08/2010
T104749	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site4-P2	-23.40215	119.5971	12/03/2010
T107461	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 10-P6	-23.3999	119.6521	15/08/2010
T107460	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 10-P10	-23.3996	119.6519	20/08/2010
T104745	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, Site2-P5	-23.4036	119.611	13/03/2010
T104744	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, Site5-P7	-23.4096	119.5716	12/03/2010
T100184	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Marillana Station, 60 km ESE. of Auski Roadhouse	-22.59096	119.2212	14/07/2009
T104753	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site3-P2	-23.40471	119.6054	14/03/2010
T92111	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Hope Downs [Station], bore PC550	-23.13194	119.5869	12/03/2008

T104754	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site20-P10	-23.39498	119.5927	12/03/2010
T107463	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 23-HC564	-23.39704	119.6138	17/08/2010
T104755	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site19-P8	-23.4047	119.6211	14/03/2010
T104756	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site4-P6	-23.40224	119.5969	12/03/2010
T104761	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site5-P2	-23.41063	119.5715	12/03/2010
T107457	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 11-HC552	-23.42061	119.5673	12/08/2010
T107367	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 10-P6	-23.3999	119.6521	14/08/2010
T107478	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 10-P10	-23.3996	119.6519	17/08/2010
T107464	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 3-P7	-23.40499	119.6052	14/08/2010
T107477	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 10-P10	-23.3996	119.6519	16/08/2010
T107465	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 10-P9	-23.39965	119.6519	14/08/2010
T107476	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 10-P10	-23.3996	119.6519	15/08/2010
T107474	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 14-P9	-23.38308	119.6481	19/08/2010
T107473	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 10-P9	-23.39965	119.6519	16/08/2010
T104746	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, Site1-P7	-23.39447	119.6319	13/03/2010
T104760	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site1-P4	-23.39436	119.6317	13/03/2010
T107462	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Indet	Polyxenida sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Orebody 35, ca. 8 km W. of Newman, site 3-P6	-23.40496	119.6053	14/08/2010
T97626	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Phils Creek, Pilbara, Ecologia project 1038	-22.74264	119.1929	3/04/2009
T97624	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Phils Creek, Pilbara, Ecologia project 1038	-22.74126	119.1959	3/04/2009
T97622	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Phils Creek, Pilbara, Ecologia project 1038	-22.73175	119.1798	2/04/2009
T96107	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	?epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Hope Downs, 31.9 km NW. of Newman	-23.12444	119.5533	22/01/2009
T92113	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	?epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Hope Downs [Station], bore RC06EA049	-23.13278	119.5058	13/03/2008
T111890	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.34925	119.632	10/04/2011
T111882	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.39853	119.793	9/04/2011
T108716	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	74 km NW. of Newman	-22.88319	119.2148	6/09/2008
T93450	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Hope Downs 4, ca. 30 km NW. of Newman, HD4-3 Gully, 12	-23.15347	119.5329	17/09/2008
T59256	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Juna Downs Station, c. 68 km NE. of Mt Meharry, bore RC13KOOD0198	-22.54967	119.0528	1/11/2013
T111873	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.39307	119.7154	12/04/2011
T59253	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Juna Downs Station, c. 64 km NE. of Mt Meharry, bore RC12KOOD2210	-22.53094	118.969	1/11/2013
T111875	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.39853	119.793	9/04/2011
T129476	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	West Angelas mining village	-23.13333	118.6667	6/01/2003
T135623	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Karijini National Park, Karijini Drive	-22.56	118.4492	14/03/2015
T135464	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Karijini National Park, Dales Gorge, walking path	-22.47722	118.5614	12/03/2015

T135446	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Karijini National Park, near Rangers Station, vertebrate trapline 2	-22.58278	118.4589	12/03/2015
T144480	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Polyxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Weano Gorge, Karijini National Park	-22.35639	118.2872	14/05/2015
T111881	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus attemsi	epigean	widespread	W.A. Museum assessment	Christmas Creek, 110 km N. of Newman	-22.40149	119.7938	6/04/2011
T115549	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus attemsi	epigean	widespread	W.A. Museum assessment	Phils Creek, Pilbara, Ecologia project 1038	-22.74631	119.2056	4/04/2009
T71106	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karajinensis	epigean	widespread	W.A. Museum assessment	Wittenoom Gorge, asbestos mine	-22.31667	118.3167	20/05/1977
T116469	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karajinensis	epigean	widespread	W.A. Museum assessment	Wittenoom [townsite]	-22.23333	118.3333	30/04/1973
T116452	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karajinensis	epigean	widespread	W.A. Museum assessment	Wittenoom Gorge, asbestos mine	-22.31667	118.3167	20/05/1977
T116453	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karajinensis	epigean	widespread	W.A. Museum assessment	Wittenoom Gorge, asbestos mine	-22.31667	118.3167	20/05/1977
T116455	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karajinensis	epigean	widespread	W.A. Museum assessment	Wittenoom Gorge, asbestos mine	-22.31667	118.3167	20/05/1977
T116456	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karajinensis	epigean	widespread	W.A. Museum assessment	Wittenoom Gorge, asbestos mine	-22.31667	118.3167	20/05/1977
T116454	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karajinensis	epigean	widespread	W.A. Museum assessment	Wittenoom Gorge, asbestos mine	-22.31667	118.3167	20/05/1977
T116468	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karajinensis	epigean	widespread	W.A. Museum assessment	Wittenoom [townsite]	-22.23333	118.3333	10/10/1983
T116457	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karajinensis	epigean	widespread	W.A. Museum assessment	Wittenoom Gorge, asbestos mine	-22.31667	118.3167	20/05/1977
T116451	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karajinensis	epigean	widespread	W.A. Museum assessment	Wittenoom Gorge, asbestos mine	-22.31667	118.3167	20/05/1977
T116467	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karajinensis	epigean	widespread	W.A. Museum assessment	Wittenoom [townsite]	-22.23333	118.3333	15/05/1973
T129519	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karajinensis	epigean	widespread	W.A. Museum assessment	Wittenoom Gorge, asbestos mine	-22.31667	118.3167	20/05/1977
T116466	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karajinensis	epigean	widespread	W.A. Museum assessment	Wittenoom [townsite]	-22.23333	118.3333	15/05/1973
T71079	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karajinesis	epigean	widespread	W.A. Museum assessment	West Angelas mining village	-23.1333	118.6667	6/01/2003
T93442	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karijinensis	epigean	widespread	W.A. Museum assessment	Hope Downs 4 [mine lease], ca. 30 km NW. of Newman, HD4-15, 21	-23.09185	119.188	20/09/2008
T117556	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus karijinesis	epigean	widespread	W.A. Museum assessment	West Angelas [mine lease], 90 km NW. of Newman, site WES006	-23.2	118.85	5/05/2004
T104737	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus mjoebergi	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site5-P9	-23.40974	119.5714	12/03/2010
T131342	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus mjoebergi	epigean	widespread	W.A. Museum assessment	ca.15 km NE. of Roy Hill	-22.51667	120.0378	18/04/2013
T131337	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus mjoebergi	epigean	widespread	W.A. Museum assessment	ca.15 km NE. of Roy Hill	-22.5218	120.0378	18/04/2013
T131335	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus mjoebergi	epigean	widespread	W.A. Museum assessment	ca.15 km NE. of Roy Hill	-22.53	120.0354	18/04/2013
T131624	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus mjoebergi	epigean	widespread	W.A. Museum assessment	ca.15 km NE. of Roy Hill	-22.5218	120.0378	18/04/2013
T131348	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus mjoebergi	epigean	widespread	W.A. Museum assessment	ca.15 km NE. of Roy Hill	-22.5218	120.0378	18/04/2013
T107469	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus 'mjoebergi complex'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, site 1-HC572	-23.39433	119.6316	12/08/2010
T107385	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus 'mjoebergi complex'	epigean	widespread	W.A. Museum assessment	Hope Downs, 76.0 km NW. of Newman	-22.98972	119.0883	25/06/2010
T107387	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus 'mjoebergi complex'	epigean	widespread	W.A. Museum assessment	Hope Downs, 75.1 km NW. of Newman	-22.97556	119.1483	26/06/2010
T107475	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus 'mjoebergi complex'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, site 23-HC582	-23.39704	119.6138	17/08/2010
T104736	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus 'mjoebergi complex'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site5-P9	-23.40974	119.5714	12/03/2010

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T107330	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus 'mjoebergi?'	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, site 10-P9	-23.39965	119.6519	17/08/2010
T107479	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus sp.	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, site 18-HC587	-23.41822	119.5847	14/08/2010
T104766	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus sp.	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, site1-P9	-23.39447	119.632	13/03/2010
T104750	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus sp.	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, site17-P7	-23.40458	119.6249	12/03/2010
T104739	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus sp.	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site5-P10	-23.4096	119.5716	12/03/2010
T104782	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus sp.	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, site4-P1	-23.40216	119.5971	12/03/2010
T104735	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus sp.	epigean	widespread	W.A. Museum assessment	Orebody 35, ca. 8 km W. of Newman, Site5-P3	-23.41051	119.5716	12/03/2010
T128628	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus sp.	epigean	widespread	W.A. Museum assessment	ca. 18 km N. of Wittenoom	-22.08333	118.4139	20/05/2013
T115425	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Polyxenidae	Unixenus sp.	?epigean	widespread	W.A. Museum assessment	Yandi, 73.1 km NW. of Newman	-22.84194	119.2825	9/12/2009
T97627	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	Phils Creek, Pilbara, Ecologia project 1038	-22.73519	119.1856	2/04/2009
T107456	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	Orebody 35, ca. 8 km W. of Newman, site 23-HC550	-23.39704	119.6138	17/08/2010
T97623	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	Phils Creek, Pilbara, Ecologia project 1038	-22.7361	119.1834	4/04/2009
T111889	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	Christmas Creek, 110 km N. of Newman	-22.36622	119.6202	26/03/2011
T104774	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	Orebody 35, ca. 8 km W. of Newman, site3-P6	-23.40496	119.6053	14/03/2010
T111884	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	Christmas Creek, 110 km N. of Newman	-22.40898	119.8845	8/04/2011
T97625	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	Phils Creek, Pilbara, Ecologia project 1038	-22.74631	119.2056	4/04/2009
T131346	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	ca.15 km NE. of Roy Hill	-22.5218	120.0378	18/04/2013
T131347	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	ca.15 km NE. of Roy Hill	-22.5218	120.0378	18/04/2013
T131345	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	ca.15 km NE. of Roy Hill	-22.5218	120.0378	18/04/2013
T128624	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	ca. 18 km N. of Wittenoom	-22.1	118.3878	20/05/2013
T115550	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	Orebody 35, ca. 8 km W. of Newman, Site5-P10	-23.4096	119.5716	12/03/2010
T128627	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	ca. 18 km N. of Wittenoom	-22.1	118.3878	20/05/2013
T128626	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	ca. 18 km N. of Wittenoom	-22.1	118.3878	20/05/2013
T128625	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	ca. 18 km N. of Wittenoom	-22.06667	118.3625	19/06/2013
T131334	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	ca.15 km NE. of Roy Hill	-22.5369	120.0363	18/04/2013
T131336	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus novaehollandiae	epigean	widespread	naturemap	ca.15 km NE. of Roy Hill	-22.5218	120.0378	18/04/2013
T131341	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus sp.	epigean	widespread	naturemap	ca.15 km NE. of Roy Hill	-22.48333	120.0185	18/04/2013
T131343	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus sp.	epigean	widespread	naturemap	ca.15 km NE. of Roy Hill	-22.51667	120.0378	18/04/2013
T131333	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus sp.	epigean	widespread	naturemap	ca.15 km NE. of Roy Hill	-22.5369	120.0363	18/04/2013
T131340	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus sp.	epigean	widespread	naturemap	ca.15 km NE. of Roy Hill	-22.53333	120.0287	18/04/2013
T131339	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus sp.	epigean	widespread	naturemap	ca.15 km NE. of Roy Hill	-22.53333	120.0287	18/04/2013
T131349	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Phryssonotus sp.	epigean	widespread	naturemap	ca.15 km NE. of Roy Hill	-22.53333	120.0287	18/04/2013
T111891	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.39307	119.7154	12/04/2011

T111874	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.40612	119.7376	12/04/2011
T111887	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.41707	119.8941	8/04/2011
T111885	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.36917	119.7387	11/04/2011
T100875	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	12 km NE. of Roy Hill Station homestead	-22.50397	120.021	24/05/2009
T100873	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	7 km NNE. of Roy Hill Station homestead	-22.55656	119.9703	25/05/2009
T111883	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.39665	119.7767	11/04/2011
T111888	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.36568	119.6031	11/04/2011
T101060	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	?epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Chichester Range, Cloud Break mine area@	-22.29972	119.3736	3/07/2006
T111886	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.41906	119.8968	8/04/2011
T111876	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.36568	119.6031	11/04/2011
T111880	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.39276	119.8546	9/04/2011
T111879	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.40399	119.8653	11/04/2011
T111878	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.40771	119.8662	8/04/2011
T111877	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Christmas Creek, 110 km N. of Newman	-22.40612	119.7376	8/04/2011
T114446	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	18/03/2015
T114451	Diplopoda	Polyxenida (pincushion millipedes)	Polyxenida	Synxenidae	Synxenidae sp.	epigean	widespread	Epigean representatives are widespread. Subterranean species may be SRE	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	18/03/2015
T144518	Diplopoda	Diplopoda (millipedes)	Polyzoniida	`Family indet.`	Polyzoniida sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	ca. 105 km NW. of Newman	-22.898896	118.860218	1/06/2017
T106002	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	`Family indet.`	Spirobolida sp.	epigean	Potential SRE: DD	Order contains SREs and potential SREs	Area C, 83.9 km NW. of Newman	-22.99306	119.0158	1/05/2010
T118342	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	`Trigoniulidae?`	'Trigoniulidae?' sp.	epigean	Potential SRE: DD	Class contains SREs and potential SREs	ca. 120 km NW. of Newman	-22.85833	118.8417	4/04/2012
T149522	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus 'clade A'	epigean	Potential SRE: DD	W.A. Museum assessment	69.8 km NW. of Newman	-23.04071	119.1411	13/03/2019
T149524	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus 'clade E'	epigean	Potential SRE: DD	W.A. Museum assessment	88.2 km NW. of Newman	-23.06007	118.9316	9/03/2019
T149462	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus 'clade E'	epigean	Potential SRE: DD	W.A. Museum assessment	18.4 km NW. of Newman	-23.05806	119.0052	10/03/2019
T149523	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus 'clade E'	epigean	Potential SRE: DD	W.A. Museum assessment	82.5 km NW. of Newman	-23.04832	118.9978	14/03/2019
T149463	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus 'clade E'	epigean	Potential SRE: DD	W.A. Museum assessment	81.6 km NW. of Newman	-23.07701	118.9937	17/03/2019
T106000	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus 'DIP018'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-23.005	119.0239	1/05/2010
T126751	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus 'DIP018'	epigean	Potential SRE: DD	W.A. Museum assessment	E. of Woodstock Aboriginal Reserve, 6 km SW. of Redmont Airport	-22.01723	118.982	15/04/2012
T106001	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus 'DIP018 (female)'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 90.6 km NW. of Newman	-22.99778	119.0297	1/05/2010
T106005	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus 'DIP018 (juvenile)'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 82.7 km NW. of Newman	-22.96361	119.0472	1/05/2010
T106006	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus 'DIP018 (juvenile)'	epigean	Potential SRE: DD	W.A. Museum assessment	Area C, 89.6 km NW. of Newman	-22.92278	119.1628	1/05/2010
T135562	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus 'DIP053'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, Hancock Gorge	-22.35917	118.2844	15/03/2015
T135489	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus 'DIP053'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, Kalamina Gorge	-22.41722	118.4025	13/03/2015
T135488	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus 'DIP053'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, Kalamina Gorge	-22.41722	118.4025	13/03/2015
T135487	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus 'DIP053'	epigean	Potential SRE: DD	W.A. Museum assessment	Karijini National Park, Kalamina Gorge	-22.41722	118.4025	13/03/2015
T101131	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 90.6 km NW. of Newman	-22.89889	119.0019	16/02/2010

T101145	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 90.6 km NW. of Newman	-22.89889	119.0019	16/02/2010
T101144	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 90.6 km NW. of Newman	-22.89889	119.0019	16/02/2010
T101143	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 87.2 km NW. of Newman	-22.98944	118.9828	22/02/2010
T101141	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 83.6 km NW. of Newman	-22.99167	118.9589	23/02/2010
T101139	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 75.9 km NW. of Newman	-22.92278	119.1628	18/02/2010
T101138	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 89 km NW. of Newman	-22.95611	118.9831	23/02/2010
T101137	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 88.4 km NW. of Newman	-22.89889	119.0303	17/02/2010
T101136	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 82.7 km NW. of Newman	-23.005	119.0239	21/02/2010
T101134	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 93.1 km NW. of Newman	-23	118.9131	24/02/2001
T91861	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 11-11A	-22.92006	118.8941	11/06/2008
T101130	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	19/02/2010
T101127	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	19/02/2010
T101125	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 89.2 km NW. of Newman	-22.96556	118.9756	23/02/2010
T101124	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 89 km NW. of Newman	-22.95611	118.9831	23/02/2010
T101122	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 75.9 km NW. of Newman	-22.92278	119.1628	18/02/2010
T101120	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 83.9 km NW. of Newman	-22.99306	119.0156	21/02/2010
T101119	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 93.7 km NW. of Newman	-22.99861	118.9067	24/02/2001
T101118	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 83.9 km NW. of Newman	-22.99306	119.0156	21/02/2010
T100797	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	19/02/2010
T100796	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 75.9 km NW. of Newman	-22.92278	119.1628	18/02/2010
T101135	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 82.7 km NW. of Newman	-23.005	119.0239	21/02/2010
T101148	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	19/02/2010
T104752	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, site17-P7	-23.40458	119.6249	12/03/2010
T104751	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, site17-P7	-23.40458	119.6249	12/03/2010
T104743	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site5-P10	-23.4096	119.5716	12/03/2010
T104742	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site5-P10	-23.4096	119.5716	12/03/2010
T104741	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site5-P10	-23.4096	119.5716	12/03/2010
T104740	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site5-P10	-23.4096	119.5716	12/03/2010
T111817	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	62.3 km NW. of Newman	-22.95	119.3089	11/03/2011
T111816	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	62.3 km NW. of Newman	-22.95	119.3089	11/03/2011
T104720	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site13-P3	-23.39472	119.6388	12/03/2010
T101146	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 81.8 km NW. of Newman	-23.00556	119.0328	21/02/2010
T101149	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 82.7 km NW. of Newman	-23.005	119.0239	21/02/2010

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T101147	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 84.7 km NW. of Newman	-22.90556	119.0286	18/02/2010
T91852	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 05-5B	-22.93797	119.008	13/06/2008
T91853	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 12-12K	-22.91667	118.9105	11/06/2008
T91854	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 07-7B	-22.89989	119.013	12/06/2008
T91855	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 06-6A	-22.89981	119.024	16/06/2008
T91856	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 12-12D	-22.91681	118.9105	11/06/2008
T91857	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 08-8A	-22.90061	118.9932	12/06/2008
T91858	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 12-12O	-22.91681	118.9105	11/06/2008
T91859	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 05-5A	-22.93797	119.008	12/06/2008
T91860	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, ca. 120 km NNW. of Newman, site 13-13A	-22.91375	118.9159	16/06/2008
T73154	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Hamersley Range, The Governor	-23.0797	118.8108	9/09/2005
T104716	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, Site20-P9	-23.39514	119.5924	12/03/2010
T93873	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Chichester Range, Ecologia site 04	-22.15635	119.0109	9/06/2008
T100794	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 83.9 km NW. of Newman	-22.99306	119.0156	21/02/2010
T100768	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 92.7 km NW. of Newman	-23.01778	118.9067	23/02/2010
T100767	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 93.1 km NW. of Newman	-23	118.9131	23/02/2010
T100200	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 93.7 km NW. of Newman	-22.99861	118.9067	24/02/2001
T107471	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, site 13-HC574	-23.39455	119.639	15/08/2010
T100196	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 83.6 km NW. of Newman	-22.99167	118.9589	23/02/2010
T100194	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 89 km NW. of Newman	-22.95611	118.9831	23/02/2010
T100193	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 87.3 km NW. of Newman	-22.89528	119.045	17/02/2010
T96155	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.01292	119.2371	8/02/2009
T100771	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	23/02/2010
T93879	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Chichester Range, Ecologia site 24	-22.05037	118.9934	8/04/2008
T100773	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 82.7 km NW. of Newman	-23.005	119.0239	23/02/2010
T93872	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Chichester Range, Ecologia site 14	-22.15081	119.0179	9/06/2008
T93870	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Chichester Range, Ecologia site 17	-22.14652	119.0184	8/04/2008
T107459	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, site 20-HC555	-23.39474	119.5913	15/08/2010
T107458	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, site 5-HC554	-23.41086	119.5715	12/08/2010
T93868	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Chichester Range, Pilbara, site 16	-22.14653	119.019	9/06/2008
T93593	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.01292	119.2371	30/08/2008
T93592	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-22.98428	119.2677	31/08/2008
T107386	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Hope Downs, 78.8 km NW. of Newman	-22.97639	119.1336	26/06/2010

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T107389	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Hope Downs, 73.7 km NW. of Newman	-22.99028	119.1217	27/06/2010
T96154	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Jinayri, ca. 60 km NW. of Newman	-23.00697	119.2462	8/02/2009
T93445	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Hope Downs 4, ca. 30 km NW. of Newman, HD4 Eagle Rock Falls	-23.10302	119.5821	18/09/2008
T107390	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Hope Downs, 73.7 km NW. of Newman	-22.99028	119.1217	27/06/2010
T100791	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 81.6 km NW. of Newman	-22.90667	119.1239	18/02/2010
T100790	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	19/02/2010
T100789	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 89.2 km NW. of Newman	-22.96556	118.9756	23/02/2010
T100788	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 88.4 km NW. of Newman	-22.89889	119.0303	17/02/2010
T93440	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Hope Downs 4, ca. 30 km NW. of Newman, HD4-13, 28	-23.10378	119.2799	22/09/2008
T93441	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Hope Downs 4, ca. 30 km NW. of Newman, HD4-13, 30	-23.10378	119.2799	22/09/2008
T100787	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 83.9 km NW. of Newman	-22.99306	119.0156	21/02/2010
T93443	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Hope Downs 4, ca. 30 km NW. of Newman, HD4-3, 9	-23.15328	119.529	17/09/2008
T100770	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 84.9 km NW. of Newman	-22.98167	119.0136	23/02/2010
T93444	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Hope Downs 4, ca. 30 km NW. of Newman, HD4-15, 22	-23.09185	119.188	20/09/2008
T100792	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 83.6 km NW. of Newman	-22.99167	118.9589	23/02/2010
T100785	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 83.1 km NW. of Newman	-22.97472	119.0378	20/02/2010
T93446	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Hope Downs 4, ca. 30 km NW. of Newman, HD4-12, 32	-23.1063	119.2919	23/09/2008
T100784	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 92.7 km NW. of Newman	-23.01778	118.9067	24/02/2001
T100783	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 93.1 km NW. of Newman	-23	118.9131	24/02/2001
T100782	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 78.2 km NW. of Newman	-22.91778	119.1392	18/02/2010
T100781	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 93.7 km NW. of Newman	-22.99861	118.9067	24/02/2001
T100777	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	19/02/2010
T100776	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 83.6 km NW. of Newman	-22.99167	118.9589	23/02/2010
T100775	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 78.2 km NW. of Newman	-22.91778	119.1392	23/02/2010
T100786	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Area C, 78.2 km NW. of Newman	-22.91778	119.1392	23/02/2010
T130389	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.69913	118.9966	14/05/2013
T136357	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Hamersley Range, ca. 30 km ESE. of Juna Downs	-22.69533	119.0584	30/03/2014
T149529	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	genus contains potential SREs	80.3 km NW. of Newman	-23.04843	119.0211	9/03/2019
T149528	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	genus contains potential SREs	81.6 km NW. of Newman	-23.07701	118.9937	17/03/2019
T149527	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	genus contains potential SREs	83.2 km NW. of Newman	-23.08254	118.9746	10/03/2019
T149526	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	genus contains potential SREs	84.2 km NW. of Newman	-23.06062	118.9743	12/03/2019
T115768	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Orebody 35, ca. 8 km W. of Newman, site 20-HC555	-23.39474	119.5913	15/08/2010
T126630	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	63 km E. of Paraburdoo, site 1000-tur08	-23.23551	118.2876	27/04/2012

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T149464	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	potential SRE: DD	genus contains potential SREs	71.9 km NW. of Newman	-23.04277	119.1169	11/03/2019
T130388	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Yandi (Marillana Ck), ca. 98 km NW. of Newman	-22.77458	119.1234	14/05/2013
T149525	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	genus contains potential SREs	70.8 km NW. of Newman	-23.04168	119.1292	11/03/2019
T116684	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	OB35, ca. 8 km WSW. of Newman	-23.39083	119.6625	13/09/2011
T97354	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.10556	119.2919	23/04/2009
T101129	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 93.7 km NW. of Newman	-22.99861	118.9067	24/02/2001
T96156	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Jinayri, ca. 60 km NW. of Newman	-23.01042	119.2364	8/02/2009
T100774	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 75.8 km NW. of Newman	-22.90944	119.1758	23/02/2010
T100778	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 83.9 km NW. of Newman	-22.99306	119.0156	21/02/2010
T100779	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 83.6 km NW. of Newman	-22.99167	118.9589	23/02/2010
T100780	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 75.9 km NW. of Newman	-22.92278	119.1628	18/02/2010
T100793	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 82.7 km NW. of Newman	-23.005	119.0239	21/02/2010
T100795	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 93.1 km NW. of Newman	-23	118.9131	24/02/2001
T101121	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 84.7 km NW. of Newman	-22.90556	119.0286	18/02/2010
T101123	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 81.6 km NW. of Newman	-22.90667	119.1239	18/02/2010
T100772	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 78.2 km NW. of Newman	-22.91778	119.1392	23/02/2010
T101128	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 88.4 km NW. of Newman	-22.89889	119.0303	17/02/2010
T100769	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 93.7 km NW. of Newman	-22.99861	118.9067	23/02/2010
T101132	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 78.2 km NW. of Newman	-22.91778	119.1392	18/02/2010
T101133	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 85.2 km NW. of Newman	-23.00389	118.9947	22/02/2010
T101140	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 89.6 km NW. of Newman	-23.00083	118.9469	24/02/2001
T101142	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 89.6 km NW. of Newman	-23.00083	118.9469	24/02/2001
T101264	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 93.7 km NW. of Newman	-22.99861	118.9067	24/02/2010

T104718	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 35, ca. 8 km W. of Newman, Site13-P3	-23.39472	119.6388	12/03/2010
T104719	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 35, ca. 8 km W. of Newman, Site13-P3	-23.39472	119.6388	12/03/2010
T104723	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 35, ca. 8 km W. of Newman, Site11-P7	-23.42069	119.5677	12/03/2010
T104730	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 35, ca. 8 km W. of Newman, Site5-P1	-23.4108	119.5714	12/03/2010
T104748	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 35, ca. 8 km W. of Newman, site3-P2	-23.40471	119.6054	14/03/2010
T101126	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 90.6 km NW. of Newman	-22.89889	119.0019	16/02/2010
T97353	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.09139	119.209	22/04/2009
T91650	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	10 km NE. of Newman, ore-body 24, site 04-4E	-23.29925	119.7861	27/06/2008
T91670	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	10 km NE. of Newman, ore-body 24, site 01-1A	-23.29464	119.7559	28/06/2008
T91687	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	10 km NE. of Newman, ore-body 24, site 04-4B	-23.29917	119.786	29/06/2008
T91904	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	10 km NE. of Newman, Ore-body 24, site 04-4D	-23.29917	119.786	26/06/2008
T91906	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	10 km NE. of Newman, Ore-body 24, site 02-2A	-23.29095	119.7562	24/06/2008
T91907	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	10 km NE. of Newman, Ore-body 24, site 07-7A	-23.30808	119.815	29/06/2008
T93871	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Chichester Range, Ecologia site 20	-22.13991	119.0155	9/06/2008
T91638	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	10 km NE. of Newman, ore-body 24, site 04-4C	-23.29917	119.786	29/06/2008
T97355	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.10308	119.2918	23/04/2009
T100199	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 81.6 km NW. of Newman	-22.90667	119.1239	18/02/2010
T97357	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.10556	119.2919	23/04/2009
T100195	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 78.2 km NW. of Newman	-22.91778	119.1392	18/02/2010
T100197	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 82.7 km NW. of Newman	-23.005	119.0239	21/02/2010
T105997	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 82.7 km NW. of Newman	-23.005	119.0239	1/05/2010
T100198	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Area C, 89.6 km NW. of Newman	-23.00083	118.9469	24/02/2001

T97356	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Hamersley Range, 60 km WNW. of Newman, Hope Downs 4	-23.10308	119.2918	23/04/2009
T140212	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-23.008	119.0348	16/03/2016
T131516	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32045	120.0389	27/08/2013
T139745	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Ministers North, ca. 93 km NW. of Newman	-22.81159	119.0909	31/03/2015
T140213	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-23.008	119.0348	16/03/2016
T140226	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.98317	118.9337	16/03/2016
T140225	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.96536	118.9721	16/03/2016
T140224	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.96536	118.9721	16/03/2016
T140223	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.96422	118.9546	16/03/2016
T140222	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.96961	118.946	16/03/2016
T140221	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.95697	118.8552	16/03/2016
T140220	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.95372	118.9082	16/03/2016
T140219	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.95422	118.9209	16/03/2016
T140218	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.96854	118.9492	16/03/2016
T140217	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.99531	119.0405	16/03/2016
T140216	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-23.00542	119.0326	16/03/2016
T140210	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.96958	118.9445	16/03/2016
T140214	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-23.008	119.0348	16/03/2016
T139746	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Ministers North, ca. 93 km NW. of Newman	-22.83268	119.1297	3/09/2015
T140201	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.95283	118.9758	16/03/2016
T140211	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.96947	118.9548	16/03/2016
T140209	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.96097	118.9173	16/03/2016

T140208	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.96206	118.9125	16/03/2016
T140207	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.96206	118.9125	16/03/2016
T140206	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.96175	118.909	16/03/2016
T140205	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.96333	118.9378	16/03/2016
T140204	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.96095	118.9231	16/03/2016
T140202	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.96095	118.9231	16/03/2016
T140200	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.94711	118.978	16/03/2016
T139748	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Ministers North, ca. 93 km NW. of Newman	-22.82664	119.072	2/04/2015
T139747	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Ministers North, ca. 93 km NW. of Newman	-22.84593	119.1269	1/04/2015
T140215	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-23.008	119.0348	16/03/2016
T115782	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.12877	119.0904	19/05/2011
T128924	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	West Angelas, ca. 21 km SE. of Mt Meharry	-23.14808	118.6912	25/09/2012
T128623	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	ca. 18 km N. of Wittenoom	-22.06667	118.3026	20/05/2013
T126298	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	112.4 km NW. of Newman	-22.70333	118.8733	17/11/2011
T126289	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	114.3 km NW. of Newman	-22.65444	118.9169	18/11/2011
T126287	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	114.3 km NW. of Newman	-22.65444	118.9169	21/11/2011
T126247	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	112.5 km NW. of Newman	-22.60417	118.9869	20/11/2011
T122387	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Mudlark, 91 km NW. of Newman	-23.04772	118.885	6/02/2012
T122386	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Mudlark, 91 km NW. of Newman	-23.04772	118.885	6/02/2012
T122345	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Marillana, 95.3 km NW. of Newman	-22.63133	119.2218	6/02/2012
T122344	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Marillana, 95.4 km NW. of Newman	-22.63361	119.2251	6/02/2012
T122166	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Parmelia, 67.4 km NW. of Newman	-23.03111	119.1789	2/02/2012

T130957	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.3341	120.0176	19/03/2013
T115784	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Wonmunna, ca. 73 km heading 291° from Newman	-23.12202	119.0611	20/05/2011
T115771	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Wonmunna, ca. 73 km heading 291° from Newman	-23.12202	119.0611	20/05/2011
T115779	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.13186	119.0964	21/05/2011
T115778	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Wonmunna	-23.134	119.0505	23/05/2011
T115777	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Wonmunna, ca. 79 km heading 286° from Newman	-23.15466	118.9932	18/05/2011
T115776	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.12877	119.0904	19/05/2011
T115772	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Wonmunna, ca. 78 km heading 288° from Newman	-23.14284	119.0099	18/05/2011
T115770	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.13186	119.0964	21/05/2011
T115767	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Wonmunna, ca. 75 km heading 289° from Newman	-23.13551	119.0384	19/05/2011
T115764	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Wonmunna, ca. 77 km heading 288° from Newman	-23.13937	119.0182	19/05/2011
T115762	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Wonmunna, ca. 70 km heading 291° from Newman	-23.13186	119.0964	21/05/2011
T114705	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Angelo River, 118 km W. of Newman	-23.20142	118.5851	20/06/2011
T131255	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 24, ca. 7 km N. of Newman	-23.28391	119.7468	5/08/2013
T140203	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Flank, ca. 95 km NW. of Newman	-22.96095	118.9231	16/03/2016
T122165	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	South Parmelia, 67.4 km NW. of Newman	-23.03111	119.1789	2/02/2012
T130984	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 25, ca. 5 km N. of Newman	-23.33228	119.7798	29/04/2013
T131158	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	18 km E. of of West Angelas Aerodrome	-23.12279	118.8753	18/03/2013
T131157	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	18 km E. of of West Angelas Aerodrome	-23.12279	118.8753	18/03/2013
T130958	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.33136	120.0187	19/03/2013
T130987	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 25, ca. 5 km N. of Newman	-23.32689	119.7685	29/04/2013
T130986	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 25, ca. 5 km N. of Newman	-23.32689	119.7685	29/04/2013

T130985	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 25, ca. 5 km N. of Newman	-23.32341	119.77	29/04/2013
T130983	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 24, ca. 7 km N. of Newman	-23.28253	119.7497	29/04/2013
T130982	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 24, ca. 7 km N. of Newman	-23.28391	119.7468	29/04/2013
T130980	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 25, ca. 5 km N. of Newman	-23.32746	119.7644	5/04/2013
T130979	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 25, ca. 5 km N. of Newman	-23.32173	119.7858	5/04/2013
T130978	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 25, ca. 5 km N. of Newman	-23.32755	119.7733	5/04/2013
T130977	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 24, ca. 7 km N. of Newman	-23.28841	119.7315	5/04/2013
T130976	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 24, ca. 7 km N. of Newman	-23.29307	119.7571	5/04/2013
T130965	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32269	119.9822	19/03/2013
T130959	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.33136	120.0187	19/03/2013
T130963	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32269	119.9822	19/03/2013
T130960	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32917	119.9956	19/03/2013
T130964	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32269	119.9822	19/03/2013
T130966	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32269	119.9822	19/03/2013
T130967	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32319	119.9946	19/03/2013
T130968	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32283	120.0099	19/03/2013
T130969	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32075	120.0014	19/03/2013
T130970	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 19, ca. 28 km ENE. of Newman	-23.32158	120.0014	19/03/2013
T130975	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Austrostrophus stictopygus	epigean	Potential SRE: DD	Species currently under investigation with molecular data, likely to contain one or more SREs	Orebody 24, ca. 7 km N. of Newman	-23.28526	119.7435	29/04/2013
T109959	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	'Austrostrophus?' sp.	epigean	potential SRE: DD	family contains potential SREs	24.5 km N. of Cowra Line Camp, Pilbara Biological Survey site RHNW10	-22.13467	119.0242	27/08/2003
T109961	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	'Austrostrophus?' sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	33 km W. of Rhodes Ridge, Pilbara Biological Survey site RHNC08	-23.10322	119.0389	2/09/2003
T115774	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	'Austrostrophus?' sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 72 km heading 290° from Newman	-23.13091	119.0689	19/05/2011
T115773	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	'Austrostrophus?' sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 79 km heading 286° from Newman	-23.15466	118.9932	18/05/2011
T115765	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	'Austrostrophus?' sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 72 km heading 290° from Newman	-23.12832	119.0736	19/05/2011

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T115769	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	'Austrostrophus?' sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 75 km heading 290° from Newman	-23.12662	119.047	20/05/2011
T115785	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	'Austrostrophus?' sp.	epigean	Potential SRE: DD	Genus likely to contain SREs and potential SREs	Wonmunna, ca. 72 km heading 290° from Newman	-23.12832	119.0736	19/05/2011
T93439	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Trigoniulidae sp.	epigean	Potential SRE: DD	Presence of SRE or potential SRE species in this family	Hope Downs 4, ca. 30 km NW. of Newman, HD4-11, 41	-23.10145	119.2918	24/09/2008
T93594	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Trigoniulidae sp.	epigean	Potential SRE: DD	Presence of SRE or potential SRE species in this family	Jinary, ca. 60 km NW. of Newman	-23.05303	119.2701	27/08/2008
T105999	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Trigoniulidae sp.	epigean	Potential SRE: DD	Presence of SRE or potential SRE species in this family	Area C, 82.7 km NW. of Newman	-23.005	119.0239	1/05/2010
T105998	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Trigoniulidae sp.	epigean	Potential SRE: DD	Presence of SRE or potential SRE species in this family	Area C, 82.7 km NW. of Newman	-23.005	119.0239	1/05/2010
T105990	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Trigoniulidae sp.	epigean	Potential SRE: DD	Presence of SRE or potential SRE species in this family	Area C, 93.1 km NW. of Newman	-23	118.9131	1/05/2010
T105996	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Trigoniulidae sp.	epigean	Potential SRE: DD	Presence of SRE or potential SRE species in this family	Area C, 85.2 km NW. of Newman	-23.00361	118.9942	1/05/2010
T78984	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Trigoniulidae sp.	epigean	Potential SRE: DD	Presence of SRE or potential SRE species in this family	Hamersley Range, SE. of Mt Robinson, Pilbara Biological Survey site RHNC7	-23.14611	119.2658	18/10/2004
T115781	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Trigoniulidae sp.	epigean	Potential SRE: DD	Presence of SRE or potential SRE species in this family	Southern Carnarvon Range	-23.13551	119.0384	17/05/2013
T115780	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Trigoniulidae sp.	epigean	Potential SRE: DD	Presence of SRE or potential SRE species in this family	Southern Carnarvon Range WP32, W. side of gorge	-23.16326	118.977	18/05/2013
T138827	Diplopoda	Spirobolida (Roundback millipedes)	Spirobolida	Trigoniulidae	Trigoniulidae sp.	epigean	Potential SRE: DD	Presence of SRE or potential SRE species in this family	Hamersley Range, SE. of Mt Robinson, Pilbara Biological Survey site RHNC7	-23.14611	119.2658	18/10/2004
S83546	Gastropoda	Gastropoda (Snails)	Indet	Bithyniidae	Gabbia aff. Smithii	epigean	widespread	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4417	119.649	10/05/2012
S83542	Gastropoda	Gastropoda (Snails)	Indet	Bithyniidae	Gabbia aff. Smithii	epigean	widespread	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4295	119.627	10/05/2012
S83536	Gastropoda	Gastropoda (Snails)	Indet	Bithyniidae	Gabbia aff. Smithii	epigean	widespread	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.459	119.692	10/05/2012
S83535	Gastropoda	Gastropoda (Snails)	Indet	Bithyniidae	Gabbia aff. Smithii	epigean	widespread	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4659	119.72	10/05/2012
S83530	Gastropoda	Gastropoda (Snails)	Indet	Bithyniidae	Gabbia aff. Smithii	epigean	widespread	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4294	119.628	10/05/2012
S83528	Gastropoda	Gastropoda (Snails)	Indet	Bithyniidae	Gabbia aff. Smithii	epigean	widespread	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4972	119.76	10/05/2012
S65281	Gastropoda	Gastropoda (Snails)	Indet	Bithyniidae	Gabbia aff. Smithii	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3988	119.445	26/10/2010
S66677	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT062'	epigean	potential SRE: DD	Alacran, unpublished data	Karijini National Park; Dales Gorge; 82 kms ENE of Tom Price	-22.4782	118.56	30/07/2010
S67039	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT062'	epigean	potential SRE: DD	Alacran, unpublished data	Pilbara area	-22.7741	118.298	18/02/2007
S66644	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT062'	epigean	potential SRE: DD	Alacran, unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/05/2010
S67343	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT062'	epigean	potential SRE: DD	Alacran, unpublished data	Pilbara; Marando MAR03	-22.6466	118.185	6/03/2007
S87822	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT062'	epigean	potential SRE: DD	Alacran, unpublished data	Karijini NP;Road to Visitors Center	-22.7283	118.456	18/03/2015
S87812	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT062'	epigean	potential SRE: DD	Alacran, unpublished data	Karijini NP; Near turn-off to Kalamina Gorge	-22.4305	118.357	15/03/2015
S67143	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT063'	epigean	potential SRE: DD	Alacran, unpublished data	Pilbara area	-23.3261	118.73	19/02/2007
S66696	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT063'	epigean	potential SRE: DD	Alacran, unpublished data	Pilbara; Hope Downs	-23.0379	119.212	11/05/2008
S66703	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT063'	epigean	potential SRE: DD	Alacran, unpublished data	Pilbara; Hope Downs	-23.0379	119.212	11/05/2008
S67145	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT063'	epigean	potential SRE: DD	Alacran, unpublished data	Pilbara area	-23.3261	118.73	19/02/2007
S66701	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT063'	epigean	potential SRE: DD	Alacran, unpublished data	Pilbara; Hope Downs	-23.0379	119.212	11/05/2008
S67142	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT063'	epigean	potential SRE: DD	Alacran, unpublished data	Pilbara area	-23.3261	118.73	19/02/2007
S67240	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara;	-22.6533	118.181	2/03/2007
S67051	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S67215	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara; Marandoo MAR09	-22.6399	118.155	7/11/2007
S66668	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010
S83357	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Mudlark, 91.3km NW of Newman	-23.0483	118.886	6/02/2012
S67292	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara;	-23.0233	119.021	13/11/2005

S66661	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010
S67290	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara;	-23.0233	119.021	13/11/2005
S67170	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-22.5598	118.455	22/02/2007
S67169	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-22.5598	118.455	22/02/2007
S67234	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara;	-22.6533	118.181	2/03/2007
S67168	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-22.5598	118.455	22/02/2007
S67134	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S67172	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-22.5598	118.455	22/02/2007
S67274	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara; Corridor	-22.997	119.114	13/01/2005
S67159	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-23.3637	119.116	20/02/2007
S66643	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/05/2010
S67152	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-23.3637	119.116	20/02/2007
S67007	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-22.5811	118.161	15/02/2007
S67132	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S87807	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Karijini NP; Access track to Rangers Quarters in Karinjini NP	-22.5658	118.453	14/03/2015
S67213	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara; Marandoo MAR09	-22.6399	118.155	7/11/2007
S84091	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara; Pebble Mouse Creek	-23.023	119.02	13/11/2005
S66616	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Mudlark, 91.3km NW of Newman	-23.0483	118.886	6/02/2012
S67057	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S66681	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Karijini National Park; Dales Gorge; 82 kms ENE of Tom Price	-22.4778	118.559	30/07/2010
S67063	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S84098	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara; Weeli Wolli Spring Calcretes	-22.9288	119.196	13/11/2005
S67126	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S84094	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	South of deposit F (Pilbara)	-23.2581	118.841	14/11/2005
S87809	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Karijini NP; Karinjini Drive west of access to angers quarters (Site MH1009)	-22.5713	118.378	14/03/2015
S67101	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-23.2618	119.006	19/02/2007
S67121	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S87808	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Karijini NP; Access track to Rangers Quarters in Karinjini NP	-22.5658	118.453	14/03/2015
S67337	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara; Manrando MAR02	-22.6488	118.182	6/03/2007
S87821	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Karijini NP;Road to Visitors Center	-22.7283	118.456	18/03/2015
S67335	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara; Weeli Wolli Springs calacretes	-22.9288	119.196	13/11/2005
S67095	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'BOT065'	epigean	widespread	Alacran, unpublished data	Pilbara area	-23.2618	119.006	19/02/2007
S34996	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Hope Downs	-23.0379	119.212	11/05/2008

S59568	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	65km NW of Newman; Jinayri	-22.9177	119.204	19/06/2009
S59567	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	65km NW of Newman; Jinayri	-22.9161	119.199	21/06/2009
S81071	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S84099	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Spring	-22.93	119.195	13/11/2005
S67255	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S81070	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S59565	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	65km NW of Newman; Jinayri	-22.9161	119.199	21/06/2009
S66692	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 64 kms ESE of Tom Price	-22.9268	118.372	31/07/2010
S81069	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S59563	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	65km NW of Newman; Jinayri	-22.9427	119.233	19/06/2009
S59562	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	65km NW of Newman; Jinayri	-22.9247	119.199	21/06/2009
S59561	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	65km NW of Newman; Jinayri	-22.9166	119.196	19/06/2009
S59560	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hammersley Range; 60km WNW Newman; Hope Downs	-23.0913	119.209	22/04/2009
S66693	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 64 kms ESE of Tom Price	-22.9268	118.372	31/07/2010
S59566	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	65km NW of Newman; Jinayri	-22.9316	119.187	19/06/2009
S66690	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8446	118.54	1/08/2010
S84097	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; near Deposits E and F	-23.2665	118.832	14/11/2005
S67262	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S67006	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.5811	118.161	15/02/2007
S59325	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	East Pilbara; Juna Downs Pastoral lease; ~55.5km S of Auski Roadhouse	-22.8977	118.653	17/06/2008
S3773	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range; northern arm of Gorge below car park	-22.4666	118.617	31/08/1975
S67261	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S67005	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.5811	118.161	15/02/2007
S67258	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S3772	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range; northern arm of Gorge below car park	-22.4666	118.617	31/08/1975
S67256	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S67260	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S59323	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	East Pilbara; Juna Downs Pastoral lease; ~55.5km S of Auski Roadhouse	-22.8725	118.675	17/06/2008
S3771	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range; northern arm of Gorge below car park	-22.4666	118.617	31/08/1975
S67259	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S59302	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	NW of Newman; Hope Downs	-23.0918	119.188	20/09/2008
S66691	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8446	118.54	1/08/2010
S67257	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995

S59324	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	East Pilbara; Juna Downs Pastoral lease; ~55.5km S of Auski Roadhouse	-22.8936	118.7	17/06/2008
S84116	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Marandoo Powerline Corridor	-22.7558	118.274	16/11/2005
S59303	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	NW of Newman; Hope Downs	-23.0925	119.206	21/09/2008
S66698	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Hope Downs	-23.0379	119.212	11/05/2008
S66699	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Hope Downs	-23.0379	119.212	11/05/2008
S11933	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	along road to Marillana, 3 miles west of Great Northern Highway, near Marina Bore	-22.6666	119.9	3/05/1970
S59291	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	NW of Newman; Hope Downs	-23.1014	119.292	24/09/2008
S83355	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Mudlark, 94 km West of Newman	-23.0811	118.858	6/07/2011
S67211	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Marandoo MAR09	-22.6399	118.155	7/11/2007
S66697	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Hope Downs	-23.0379	119.212	11/05/2008
S66700	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Hope Downs	-23.0379	119.212	11/05/2008
S3777	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range; Weeli Wolli Spring	-22.9166	119.2	12/07/1964
S84115	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; West Angelas Mine (New Governor)	-23.0731	118.913	6/10/2005
S84112	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; West Angelas (The Governor)	-23.0398	118.965	6/10/2005
S67216	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Marandoo MAR09	-22.6399	118.155	7/11/2007
S66704	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Hope Downs	-23.0379	119.212	11/05/2008
S65936	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Angelo River	-23.2756	118.824	20/06/2011
S84111	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	West Angelas Mine (New Governor)	-23.0731	118.913	6/10/2005
S67212	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Marandoo MAR09	-22.6399	118.155	7/11/2007
S67214	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Marandoo MAR09	-22.6399	118.155	7/11/2007
S81051	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna; ~73 km heading 291° from Newman	-23.1192	119.064	20/05/2011
S28578	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; mulga flat N of Ranger Headquarters (GR 64875E,7504005N);	-22.6166	118.383	10/05/1995
S67231	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-22.6533	118.181	2/03/2007
S67239	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-22.6533	118.181	2/03/2007
S66702	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Hope Downs	-23.0379	119.212	11/05/2008
S67238	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-22.6533	118.181	2/03/2007
S28581	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range, Dales Gorge	-22.4666	118.617	29/07/1987
S67237	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-22.6533	118.181	2/03/2007
S66694	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Roy Hill Station; EE09:1954	-22.6593	119.92	29/10/2009
S83358	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Mudlark, 91.9km NW of Newman	-23.0477	118.885	6/02/2012
S67235	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-22.6533	118.181	2/03/2007
S59559	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hammersley Range; 60km WNW Newman; Hope Downs	-23.0913	119.209	22/04/2009
S84102	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; West Angelas Mine; mulga flat	-23.0755	118.896	11/11/2005

S66695	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Hope Downs	-23.0379	119.212	11/05/2008
S84103	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Pebble Mouse Creek	-23.0269	119.021	13/11/2005
S67233	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-22.6533	118.181	2/03/2007
S59296	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	NW of Newman; Hope Downs	-23.0918	119.188	20/09/2008
S83360	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Mudlark, 93.6km NW of Newman	-23.0476	118.885	6/02/2012
S67232	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-22.6533	118.181	2/03/2007
S3774	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range; Dales Gorge	-22.4666	118.617	15/07/1956
S67236	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-22.6533	118.181	2/03/2007
S67041	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.8481	118.455	18/02/2007
S67052	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S67050	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S67049	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S67048	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S67047	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S60390	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Roy Hill Station; EE09:1952	-22.6593	119.92	29/10/2009
S67046	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S67045	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.8808	118.517	18/02/2007
S67044	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.8808	118.517	18/02/2007
S67033	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.0864	118.26	17/02/2007
S67042	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.8808	118.517	18/02/2007
S67055	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S67294	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; West Angelas, The Governor	-23.0822	118.77	3/10/2005
S67038	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.7741	118.298	18/02/2007
S67293	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-23.0233	119.021	13/11/2005
S67037	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.7741	118.298	18/02/2007
S67036	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.7741	118.298	18/02/2007
S67291	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-23.0233	119.021	13/11/2005
S67035	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.7741	118.298	18/02/2007
S67034	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.0864	118.26	17/02/2007
S1498	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 10km NW of Mt Windell	-22.6005	118.465	6/08/1981
S67009	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.5811	118.161	15/02/2007
S67043	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.8808	118.517	18/02/2007
S67064	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007

S67122	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S67071	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.8868	118.712	18/02/2007
S87806	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini NP; Access track to Rangers Quarters in Karinjini NP	-22.568	118.453	14/03/2015
S67070	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.8868	118.712	18/02/2007
S87805	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini NP; Dales Gorge where ladder is located for access to circular pool	-22.4766	118.557	13/03/2015
S67069	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S87804	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini NP; Dales Gorge where ladder is located for access to circular pool	-22.4766	118.557	13/03/2015
S67068	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S87803	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini NP; Dales Gorge where ladder is located for access to circular pool	-22.4766	118.557	13/03/2015
S67067	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S67053	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S67065	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S67054	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S67062	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S67061	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S67060	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S1524	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; Slumpy Mountain; in moist gorges high on hills	-22.6138	118.328	29/04/1995
S67059	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S67058	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S60401	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Roy Hill Station; EE09:1954	-22.6593	119.92	29/10/2009
S60400	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Roy Hill Station; EE09:1713	-22.6593	119.92	29/10/2009
S67056	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S1497	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karajini National Park; Dales Gorge; 200m upstream of Fortescue Falls	-22.4666	118.55	3/08/1991
S67066	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.866	118.645	18/02/2007
S59329	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	East Pilbara; Juna Downs Pastoral lease; ~55.5km S of Auski Roadhouse	-22.8725	118.675	17/06/2008
S67270	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S7621	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	potential paratypes :	-22.9166	119.217	
S67269	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S81092	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna; ~73 km heading 291° from Newman	-23.1185	119.065	20/05/2011
S7620	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Marillana Station : Hammersley Ranges :	-22.9166	119.217	30/05/1966
S3780	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range; Marillana Station; Weeli Wolli Spring	-22.9166	119.2	30/05/1966
S67268	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S3779	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range; Weeli Wolli Creek	-22.5	119.217	28/08/1959

S67267	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S67289	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-23.0233	119.021	13/11/2005
S67266	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S67272	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S67040	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.8481	118.455	18/02/2007
S67265	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S66689	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8446	118.54	1/08/2010
S59328	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	East Pilbara; Juna Downs Pastoral lease; ~55.5km S of Auski Roadhouse	-22.8858	118.688	1/09/2008
S3776	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range; Weeli Wolli Gorge (northern side); Marillana Station	-22.6333	119.4	30/05/1966
S67264	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S67008	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.5811	118.161	15/02/2007
S59327	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	East Pilbara; Juna Downs Pastoral lease; ~55.5km S of Auski Roadhouse	-22.8725	118.675	17/06/2008
S3775	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range; northern arm of Gorge below car park	-22.4666	118.617	31/08/1975
S67263	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S3778	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range; Weeli Wolli Creek (26 miles from Marillana Homestead)	-22.5	119.217	30/05/1966
S67280	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-23.0233	119.021	13/11/2005
S67288	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-23.0233	119.021	13/11/2005
S67032	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.0864	118.26	17/02/2007
S67287	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-23.0233	119.021	13/11/2005
S12246	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	24km E of Karijini National Park Headquarters; rocky gully on hillside	-22.6375	118.658	1/08/1991
S67286	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-23.0233	119.021	13/11/2005
S59093	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Jinayri area	-22.9316	119.187	27/03/2009
S67285	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-23.0233	119.021	13/11/2005
S3796	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range; 2km ESE of Wittenoom Town; at bottom of small gorge at the base of Mount Watkins	-22.25	118.333	26/07/1985
S67284	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-23.0233	119.021	13/11/2005
S67283	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-23.0233	119.021	13/11/2005
S7622	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	150 kilometres East of Tom Price :	-22.8	119.283	30/05/1966
S67281	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-23.0233	119.021	13/11/2005
S67271	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S67279	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-23.0233	119.021	13/11/2005
S3790	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range; Marandoo; on N bank of many branches of Fortescue River	-22.6166	118.117	19/01/1992
S67278	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Corridor	-22.997	119.114	13/01/2005
S67277	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Corridor	-22.997	119.114	13/01/2005

S3788	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Bee Gorge (W of Wittenoom Gorge); by dry creek bed	-22.2166	118.25	2/09/1983
S67276	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Corridor	-22.997	119.114	13/01/2005
S67275	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Corridor	-22.997	119.114	13/01/2005
S67273	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Weeli Wolli Creek	-22.85	119.217	15/04/1995
S7624	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Northern arm of gorge below car park : on lower talus slope :	-22.5	118.6	31/08/1975
S59326	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	East Pilbara; Juna Downs Pastoral lease; ~55.5km S of Auski Roadhouse	-22.8725	118.675	17/06/2008
S67282	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara;	-23.0233	119.021	13/11/2005
S83523	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Lamb Creek, ca. 120 km NW of Newman	-22.8331	118.849	5/04/2012
S66639	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/05/2010
S65350	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; Dales Gorge; 82 kms ENE of Tom Price	-22.4782	118.56	30/07/2010
S66630	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/08/2010
S67141	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2562	118.888	19/02/2007
S66629	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/08/2010
S83524	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Lamb Creek, ca. 120 km NW of Newman	-22.8329	118.849	9/04/2012
S9540	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Marandoo Minesite; Mt Bruce	-22.6	118.133	24/04/1976
S65351	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010
S66628	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/08/2010
S66632	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/08/2010
S9539	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range :Marandoo	-22.6166	118.117	19/01/1992
S67139	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S67138	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S65345	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Juna Downs Station; 75 kms ESE of Tom Price	-22.9211	118.494	26/04/2010
S59201	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Jinayri area	-22.9247	119.199	27/03/2009
S67137	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S65344	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 75 kms East of Tom Price	-22.8397	118.524	28/07/2010
S67140	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2562	118.888	19/02/2007
S67147	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2768	119.116	20/02/2007
S67150	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2768	119.116	20/02/2007
S66638	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/05/2010
S65357	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; Dales Gorge; 82 kms ENE of Tom Price	-22.4782	118.56	29/07/2010
S67149	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2768	119.116	20/02/2007
S66637	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/05/2010
S65356	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 75 kms East of Tom Price	-22.8415	118.521	28/07/2010

S67148	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2768	119.116	20/02/2007
S66631	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/08/2010
S65355	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Juna Downs Station; 75 kms ESE of Tom Price	-22.9211	118.494	27/07/2010
S59199	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Jinayri area	-22.9263	119.204	27/03/2009
S65354	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/08/2010
S67130	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S66634	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/08/2010
S65353	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; Knox Gorge; 63 kms NE of Tom Price	-22.3714	118.299	30/07/2010
S66633	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/08/2010
S65352	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 64 kms ESE of Tom Price	-22.9268	118.372	31/07/2010
S67144	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.3261	118.73	19/02/2007
S66636	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/05/2010
S67128	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S67123	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S65333	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 76 kms East of Tom Price	-22.8469	118.526	2/08/2010
S66614	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Mudlark, 91.3km NW of Newman	-23.0483	118.886	6/02/2012
S34358	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Near Weeli Wolli Creek	-22.9686	119.165	26/04/2003
S66615	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Mudlark, 91.3km NW of Newman	-23.0483	118.886	6/02/2012
S67127	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S9527	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area :	-22.5	118.6	29/07/1987
S59200	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Jinayri area	-22.9247	119.199	27/03/2009
S65335	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Juna Downs Station; 75 kms ESE of Tom Price	-22.9211	118.494	27/04/2010
S66613	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Mudlark, 91.3km NW of Newman	-23.0483	118.886	6/02/2012
S59192	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Jinayri area	-22.9161	119.199	31/03/2009
S67129	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S59193	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Jinayri area	-22.9161	119.199	31/03/2009
S59195	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Jinayri area	-22.9427	119.233	29/03/2009
S34363	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park, mulga flat	-22.6166	118.383	10/05/1995
S67131	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S59194	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Jinayri area	-22.9427	119.233	29/03/2009
S59191	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Jinayri area	-22.9161	119.199	31/03/2009
S34364	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park, Dale Gorge	-22.6166	118.383	13/07/2004
S66635	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/05/2010

S67135	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S65342	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 75 kms East of Tom Price	-22.8415	118.521	28/07/2010
S59198	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Jinayri area	-22.9263	119.204	27/03/2009
S65341	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 75 kms East of Tom Price	-22.8397	118.524	25/04/2010
S59197	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Jinayri area	-22.9263	119.204	27/03/2009
S67133	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S34357	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Weeli Wolli Creek	-22.9368	119.208	25/04/2003
S59196	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Jinayri area	-22.9427	119.233	29/03/2009
S67125	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S65339	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 80 kms East of Tom Price	-22.8523	118.568	27/04/2010
S83937	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	RIOTIO Greater West Angelas; Juna Downs Station	-23.148	118.691	25/09/2012
S84096	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	South of deposit F (Pilbara)	-23.0755	118.899	11/11/2005
S66612	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Mudlark, 91.3km NW of Newman	-23.0483	118.886	6/02/2012
S67124	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S9524	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park	-22.6166	118.383	10/05/1995
S65332	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; Dales Gorge; 82 kms ENE of Tom Price	-22.4778	118.559	30/07/2010
S67136	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S65340	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8446	118.54	1/05/2010
S81005	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S81011	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna; ~73 km heading 291° from Newman	-23.1185	119.065	20/05/2011
S81009	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna; ~73 km heading 291° from Newman	-23.1185	119.065	20/05/2011
S81520	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Area C West; 85.8km NW of Newman (666070,7466190,50)	-22.9038	118.619	17/09/2011
S67146	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2768	119.116	20/02/2007
S66688	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8446	118.54	1/08/2010
S84095	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	South of deposit F (Pilbara)	-23.0755	118.899	11/11/2005
S81519	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Area C West; 85.8km NW of Newman (666825,7467032,50)	-22.8961	118.626	14/09/2011
S66660	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010
S66670	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010
S66678	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; Dales Gorge; 82 kms ENE of Tom Price	-22.4782	118.56	30/07/2010
S66669	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010
S66667	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010
S66666	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010
S66665	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010

S66664	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010
S66663	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010
S66662	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010
S66672	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	NW of Newman; Hope Downs	-23.0925	119.206	21/09/2008
S66684	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Juna Downs Station; 73 kms ESE of Tom Price	-22.9234	118.474	26/04/2010
S81023	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna	-23.1632	118.99	23/05/2011
S66687	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8446	118.54	1/08/2010
S81022	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna	-23.1502	119.009	23/05/2011
S66686	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8446	118.54	1/08/2010
S84093	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	South of deposit F (Pilbara)	-23.2581	118.841	14/11/2005
S81021	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna	-23.1632	118.99	23/05/2011
S66685	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8446	118.54	1/08/2010
S84084	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Juna Downs	-22.9433	118.766	12/11/2005
S83324	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Southern Flank to Jinidi, 68.8km NW of Newman	-22.9627	119.204	4/02/2012
S84085	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Juna Downs	-22.9405	118.776	12/11/2005
S81019	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna	-23.1502	119.009	23/05/2011
S66683	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 80 kms East of Tom Price	-22.8523	118.568	23/07/2010
S81018	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna	-23.1632	118.99	23/05/2011
S66682	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Roy Hill Station; EE09:1952	-22.6593	119.92	29/10/2009
S84089	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Pebble Mouse Creek	-23.023	119.02	13/11/2005
S81016	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna	-23.1349	119.051	23/05/2011
S84086	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Juna Downs	-22.9405	118.776	12/11/2005
S66671	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	NW of Newman; Hope Downs	-23.0925	119.206	21/09/2008
S84092	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Pebble Mouse Creek	-23.0261	119.022	13/11/2005
S67155	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.3637	119.116	20/02/2007
S67161	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.3637	119.116	20/02/2007
S66649	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Juna Downs Station; 75 kms ESE of Tom Price	-22.9211	118.494	27/07/2010
S12120	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range; 25km E of Mt Bruce; `Slumpy Mountain` (map ref 6425E 74990S)	-22.6097	118.386	29/04/1995
S67160	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.3637	119.116	20/02/2007
S66641	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/05/2010
S67157	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.3637	119.116	20/02/2007
S66642	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/05/2010
S12121	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Hamersley Range; stony colluvial slope; near small clay creek (GR 6338E 75028S)	-22.5761	118.301	27/12/1997

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S83299	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 22km E of Mt Meharry	-22.9405	118.776	12/11/2005
S66648	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Juna Downs Station; 75 kms ESE of Tom Price	-22.9211	118.494	27/07/2010
S67151	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2768	119.116	20/02/2007
S67156	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.3637	119.116	20/02/2007
S66645	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/05/2010
S66647	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Juna Downs Station; 75 kms ESE of Tom Price	-22.9211	118.494	27/07/2010
S12118	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	10km E of Coppin Pool; enroute to Juna Downs (Map Ref 62650E74675S)	-22.8955	118.233	20/06/1991
S81024	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna	-23.1349	119.051	23/05/2011
S67158	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.3637	119.116	20/02/2007
S66646	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/05/2010
S67154	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.3637	119.116	20/02/2007
S67166	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.6289	118.616	22/02/2007
S66657	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010
S66658	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010
S67153	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.3637	119.116	20/02/2007
S66659	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010
S66650	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Juna Downs Station; 75 kms ESE of Tom Price	-22.9211	118.494	27/07/2010
S66655	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Juna Downs Station; 75 kms ESE of Tom Price	-22.9211	118.494	27/07/2010
S66656	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	24/07/2010
S66654	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Juna Downs Station; 75 kms ESE of Tom Price	-22.9211	118.494	27/07/2010
S67165	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.6289	118.616	22/02/2007
S66640	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/05/2010
S67167	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.6289	118.616	22/02/2007
S66651	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Juna Downs Station; 75 kms ESE of Tom Price	-22.9211	118.494	27/07/2010
S66653	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Juna Downs Station; 75 kms ESE of Tom Price	-22.9211	118.494	27/07/2010
S67171	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.5598	118.455	22/02/2007
S67163	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.3637	119.116	20/02/2007
S66652	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Juna Downs Station; 75 kms ESE of Tom Price	-22.9211	118.494	27/07/2010
S67164	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.6289	118.616	22/02/2007
S67162	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.3637	119.116	20/02/2007
S67103	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2618	119.006	19/02/2007
S65311	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Juna Downs Station; 74 kms East of Tom Price	-22.915	118.485	27/07/2010
S67105	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2618	119.006	19/02/2007

S65312	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; Dales Gorge; 82 kms ENE of Tom Price	-22.4777	118.563	30/07/2010
S67107	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S67106	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S67104	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2618	119.006	19/02/2007
S67102	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2618	119.006	19/02/2007
S65308	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; Mt Meharry; 87 kms ESE of Tom Price	-22.9797	118.589	26/07/2010
S67100	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2618	119.006	19/02/2007
S67098	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2618	119.006	19/02/2007
S65305	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; Dales Gorge; 82 kms ENE of Tom Price	-22.4782	118.56	30/07/2010
S67097	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2618	119.006	19/02/2007
S65315	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8446	118.54	1/08/2010
S65326	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Juna Downs Station; 73 kms ESE of Tom Price	-22.9234	118.474	26/04/2010
S67096	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2618	119.006	19/02/2007
S65303	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 80 kms East of Tom Price	-22.8523	118.568	23/07/2010
S67099	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2618	119.006	19/02/2007
S67115	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S34352	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Mt. Bruce; 3.5 klm SSE of summit. 4.5 klm east of Marandoo	-22.6	118.133	27/07/1989
S34353	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park	-22.6166	118.383	29/04/1995
S67094	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2618	119.006	19/02/2007
S67120	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S65327	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/08/2010
S9519	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karajini National Park :	-22.5	118.6	8/12/1994
S67119	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S9518	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Roy Hill; near Marina Bore along road to Marillana; ca. 3 miles West from Great Northern Highway	-22.6605	119.901	3/05/1970
S67117	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S67118	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S65323	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 75 kms East of Tom Price	-22.8424	118.52	24/04/2010
S67108	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S67114	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S67113	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S67112	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S65319	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	28/04/2010
S67111	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007

S65318	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	28/04/2010
S67110	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S65317	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; Mt Meharry; 87 kms ESE of Tom Price	-22.9797	118.589	26/07/2010
S67109	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S67116	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2579	118.951	19/02/2007
S67077	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S67093	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.2618	119.006	19/02/2007
S87817	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini NP; Near turn-off to Kalamina Gorge	-22.4305	118.357	15/03/2015
S67079	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S87816	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini NP; Near turn-off to Kalamina Gorge	-22.4305	118.357	15/03/2015
S67336	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Manrando MAR02	-22.6488	118.182	6/03/2007
S67080	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S87815	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini NP; Near turn-off to Kalamina Gorge	-22.4305	118.357	15/03/2015
S87814	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini NP; Near turn-off to Kalamina Gorge	-22.4305	118.357	15/03/2015
S67338	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Manrando MAR02	-22.6488	118.182	6/03/2007
S87813	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini NP; Near turn-off to Kalamina Gorge	-22.4305	118.357	15/03/2015
S67082	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S67076	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S87811	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini NP; Near turn-off to Kalamina Gorge	-22.4305	118.357	15/03/2015
S67075	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S87810	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini NP; Near turn-off to Kalamina Gorge	-22.4305	118.357	15/03/2015
S67074	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S67073	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S67072	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-22.8868	118.712	18/02/2007
S65329	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/05/2010
S67078	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S67087	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S81172	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S67092	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S67091	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S67090	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S67089	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S67088	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007

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S67081	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S87823	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini NP;Road to Visitors Center	-22.7283	118.456	18/03/2015
S87818	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini NP; Near turn-off to Kalamina Gorge	-22.4305	118.357	15/03/2015
S67342	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Manrando MAR02	-22.6488	118.182	6/03/2007
S67086	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S67341	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Manrando MAR02	-22.6488	118.182	6/03/2007
S67085	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S87820	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini NP;Track to Juna Downs from Rangers HQ	-22.823	118.439	17/03/2015
S67340	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Manrando MAR02	-22.6488	118.182	6/03/2007
S67084	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S87819	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Karijini NP;Track to Juna Downs from Rangers HQ	-22.823	118.439	17/03/2015
S67339	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara; Manrando MAR02	-22.6488	118.182	6/03/2007
S67083	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	Pilbara area	-23.284	119.086	19/02/2007
S59407	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon 'Pilbara'	epigean	potential SRE: DD	taxon contains multiple species, Alacran unpublished data	120km NNW of Newman; BHP `Mining Area C`	-22.9189	118.889	1/05/2009
S74198	Gastropoda	Gastropoda (Snails)	Indet	Bothriembryont	Bothriembryon sp.	epigean	potential SRE: DD	Alacran, unpublished data	Mt Meharry; 150m E of summit	-22.9794	118.589	1/06/2021
S70254	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Camaenidae 'Mount Robinson'	epigean	Potential SRE: DD	W.A. Museum assessment	Mount Robinson; 94km E of Newman	-23.0475	118.885	13/02/2012
S70253	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Camaenidae 'Mount Robinson'	epigean	Potential SRE: DD	W.A. Museum assessment	Mount Robinson; 94km E of Newman	-23.0475	118.885	13/02/2012
S83368	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Camaenidae 'Mount Robinson'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 92km NW of Newman	-23.0475	118.885	6/02/2012
S83367	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Camaenidae 'Mount Robinson'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 93.6km NW of Newman	-23.0476	118.885	6/02/2012
S83366	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Camaenidae 'Mount Robinson'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 91.6km NW of Newman	-23.0477	118.885	6/02/2012
S83363	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Camaenidae 'Mount Robinson'	epigean	Potential SRE: DD	W.A. Museum assessment	Mudlark, 93.6km NW of Newman	-23.0476	118.885	6/02/2012
S70255	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Camaenidae 'Mount Robinson'	epigean	Potential SRE: DD	W.A. Museum assessment	Mount Robinson; 94km E of Newman	-23.0475	118.885	13/02/2012
S65328	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Camaenidae sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Karijini National Park; 77 kms East of Tom Price	-22.8437	118.533	1/08/2010
S65343	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Camaenidae 'Z'	epigean	widespread	W.A. Museum assessment	Karijini National Park; 75 kms East of Tom Price	-22.8415	118.521	28/07/2010
S83362	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Camaenidae 'Z'	epigean	widespread	W.A. Museum assessment	Mudlark, 102.4km NW of Newman	-23.0779	118.752	6/02/2012
S83364	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Camaenidae 'Z'	epigean	widespread	W.A. Museum assessment	Mudlark, 98 km WNW of Newman	-23.073	118.82	6/07/2011
S83365	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Camaenidae 'Z'	epigean	widespread	W.A. Museum assessment	Mudlark, 101.1km NW of Newman	-23.077	118.787	6/02/2012
S83325	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	cf. Quistrachia sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	N of Newman; Cloud Break	-22.265	119.317	4/07/2006
S64580	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	cf. Quistrachia sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	N of Newman; Cloud Break area; base of cliff	-22.2688	119.315	4/07/2006
S64582	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	cf. Quistrachia sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	N of Newman; Cloud Break area	-22.2688	119.315	4/07/2006
S59256	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	cf. Quistrachia sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	N of Newman; Cloud Break	-22.2688	119.315	4/07/2006
S92029	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	cf. Quistrachia sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	N of Newman; Cloud Break	-22.265	119.317	4/07/2006
S92030	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	cf. Quistrachia sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	N of Newman; Cloud Break	-22.265	119.317	4/07/2006
S92031	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	cf. Quistrachia sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	N of Newman; Cloud Break	-22.265	119.317	4/07/2006
S67472	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	cf. Quistrachia sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	N of Newman; Cloud Break area; base of cliff	-22.2688	119.315	4/07/2006
S59245	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	cf. Quistrachia sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	N of Newman; Cloud Break	-22.265	119.317	4/07/2006
S34786	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Quistrachia cf. turneri	epigean	Potential SRE: DD	W.A. Museum assessment	N of Newman; Cloud Break	-22.2688	119.315	4/07/2006
S60272	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Quistrachia 'Marandoo'	epigean	Potential SRE: DD	W.A. Museum assessment	Hamersley Range; Marandoo	-22.6166	118.117	19/01/1992
S5776	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Quistrachia 'Marandoo'	epigean	Potential SRE: DD	W.A. Museum assessment	Hamersley Range NP; Mount Bruce; Marandoo Minesite	-22.5833	118.45	24/04/1976
S83466	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada cf. richardsonii	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1554	119.022	23/04/2012

S74628	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada globosa	epigean	widespread	W.A. Museum assessment	Coral Bay	-22.5476	119.716	1/12/2005
S74567	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada globosa	epigean	widespread	W.A. Museum assessment	Coral Bay; #13	-23.1134	119.874	23/01/2009
S74569	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada globosa	epigean	widespread	W.A. Museum assessment	Coral Bay; #14	-23.1412	119.776	23/01/2006
S60381	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada richardsonii	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1955	-22.6593	119.92	29/10/2009
S59257	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada richardsonii	epigean	widespread	W.A. Museum assessment	Roy Hill near Marine Bore; about 3miles W from Gt Nth Hwy; along road to Marillana; ~150yards N of road	-22.6166	119.95	3/05/1970
S28100	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada richardsonii	epigean	widespread	W.A. Museum assessment	Near Marina Bore, c 3 miles W from Grt Nth Hway, along rd to Marillano, Roy Hill	-22.6	119.95	3/05/1970
S60383	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada richardsonii	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1943	-22.6593	119.92	29/10/2009
S60384	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada richardsonii	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1942	-22.6593	119.92	29/10/2009
S60391	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada richardsonii	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1951	-22.6593	119.92	29/10/2009
S82807	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada 'small banded'	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Juna Downs	-22.8855	118.485	10/05/2008
S82808	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada 'small banded'	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Juna Downs	-22.8855	118.485	10/05/2008
S74556	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada 'small banded'	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Karijini area; PIJSN02	-22.6967	118.239	10/05/2008
S74555	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada 'small banded'	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Karijini area; PIJSN01	-22.7113	118.258	10/05/2008
S92068	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S67383	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Pilbara area; Fortescue Marshes	-22.5178	119.451	1/08/2011
S92069	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S92066	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S92073	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S92065	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S92064	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S92067	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S92070	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S59283	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	4.5km E of Marandoo; 3.5km SSE of summit of Mt Bruce	-22.6	118.133	27/07/1989
S92072	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S92074	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S92075	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S92076	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S92077	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S92078	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S84181	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S92071	Gastropoda	Gastropoda (Snails)	Indet	Camaenidae	Rhagada sp.	epigean	Potential SRE: DD	genus contains SREs and potential SREs	Fortescue Marsh; S side of Marillana Stn; N of Paroo Wells	-22.4546	119.434	2/06/2003
S58108	Gastropoda	Gastropoda (Snails)	Indet	Charopidae	Discocharopa sp.	epigean	Potential SRE: DD	W.A. Museum assessment	North of Newman; upstream of Kalgan Pool; SSE facing slope of gorge base	-23.1874	119.696	24/06/2009
S58076	Gastropoda	Gastropoda (Snails)	Indet	Charopidae	Discocharopa sp.	epigean	Potential SRE: DD	W.A. Museum assessment	North of Newman; upstream of Kalgan Pool; E facing side of gorge	-23.1877	119.697	24/06/2009
S64466	Gastropoda	Gastropoda (Snails)	Indet	Helicodiscidae	Stenopylis coarctata	epigean	widespread	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-22.8586	119.673	20/04/2010
S60371	Gastropoda	Gastropoda (Snails)	Indet	Helicodiscidae	Stenopylis coarctata	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0683	-22.4943	119.922	26/05/2009

S83488	Gastropoda	Gastropoda (Snails)	Indet	Helicodiscidae	Stenopylis coarctata	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1554	119.022	23/04/2012
S65159	Gastropoda	Gastropoda (Snails)	Indet	Helicodiscidae	Stenopylis coarctata	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3949	119.502	26/10/2010
S83514	Gastropoda	Gastropoda (Snails)	Indet	Helicodiscidae	Stenopylis coarctata	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.2035	119.023	23/04/2012
S83473	Gastropoda	Gastropoda (Snails)	Indet	Helicodiscidae	Stenopylis coarctata	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.2334	119.022	23/04/2012
S64456	Gastropoda	Gastropoda (Snails)	Indet	Helicodiscidae	Stenopylis coarctata	epigean	widespread	W.A. Museum assessment	E Pilbara; Marble Bar Rd; Roy Hill	-22.505	119.914	11/03/2010
S60360	Gastropoda	Gastropoda (Snails)	Indet	Helicodiscidae	Stenopylis sp.	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0678	-22.4943	119.922	26/05/2009
S60369	Gastropoda	Gastropoda (Snails)	Indet	Helicodiscidae	Stenopylis sp.	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0688	-22.4943	119.922	26/05/2009
S81610	Gastropoda	Gastropoda (Snails)	Indet	Lymnaeidae	Bullastra cf. lessoni	epigean	widespread	W.A. Museum assessment	ca. 56 km NE of Auski Roadhouse	-21.9235	118.933	13/04/2013
S65428	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Bayardella sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Koodaideri; 84km ESE of Wittenoom	-22.5505	119.076	12/08/2010
S42715	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	cf. Gyraulus sp.	epigean	widespread	W.A. Museum assessment	Pilbara; Chichester Range; spinifex dominated rocky slopes	-22.0516	118.988	7/07/2008
S65427	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus cf. hesperus	epigean	widespread	W.A. Museum assessment	Koodaideri; 81km ESE of Wittenoom	-22.5391	119.057	12/08/2010
S59581	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.8752	119.245	20/06/2009
S64679	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.2184	119.059	12/05/2010
S59390	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7412	119.196	3/04/2009
S81608	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	ca. 56 km NE of Auski Roadhouse	-21.9235	118.933	13/04/2013
S83409	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	50km NNE of Great Northern Hwy and Port Hedland-Wittenoom Rd junction, 6km SW of Redmont Airport	-22.0178	118.982	15/04/2012
S88054	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3307	119.76	5/08/2013
S65531	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S65533	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	108km N of Newman	-22.3132	119.86	24/03/2011
S64659	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Fortescue Marsh east	-22.4252	119.724	2/06/2010
S64660	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Fortescue Marsh east	-22.4252	119.724	2/06/2010
S64672	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.0191	119.034	12/05/2010
S65934	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Angelo River	-23.3171	118.812	20/06/2011
S64675	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.1322	119.198	12/05/2010
S81796	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.291	119.794	29/04/2013
S64465	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-22.8586	119.673	20/04/2010
S64467	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-22.8586	119.673	20/04/2010
S64673	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.0187	119.034	12/05/2010
S81434	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.4285	119.204	20/05/2011
S81686	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7321	119.05	14/05/2013
S81673	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7398	119.004	14/05/2013
S65689	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	108km N of Newman	-22.3132	119.86	24/03/2011
S65282	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Cloudbreak	-22.3988	119.445	26/10/2010
S80921	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.1269	119.212	19/07/2011
S81443	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.4295	119.192	20/05/2011
S65600	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Christmas Creek	-22.4314	119.915	8/04/2011
S83531	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4294	119.628	10/05/2012
S83533	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4659	119.72	10/05/2012
S83538	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4656	119.719	10/05/2012
S83540	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4174	119.557	10/05/2012
S83543	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4295	119.627	10/05/2012
S83547	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4417	119.649	10/05/2012
S65131	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Cloudbreak	-22.3652	119.341	26/10/2010
S65132	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Cloudbreak	-22.3652	119.341	26/10/2010
S65613	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Christmas Creek	-22.4314	119.915	8/04/2011
S65149	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Gyraulus sp.	epigean	potential SRE: DD	W.A. Museum assessment	Cloudbreak	-22.3652	119.341	26/10/2010
S88415	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Isidorella sp.	epigean	widespread	W.A. Museum assessment	Newman; Fortecue River	-23.4005	119.795	8/12/2014
S83532	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Isidorella cf. egregia	epigean	widespread	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4294	119.628	10/05/2012
S83537	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Isidorella cf. egregia	epigean	widespread	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4656	119.719	10/05/2012
S83544	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Isidorella cf. egregia	epigean	widespread	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4644	119.711	10/05/2012
S83545	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Isidorella cf. egregia	epigean	widespread	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4417	119.649	10/05/2012

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S81787	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Isidorella cf. egregia	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2852	119.743	29/04/2013
S83397	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Isidorella cf. egregia	epigean	widespread	W.A. Museum assessment	50km NNE of Great Northern Hwy and Port Hedland-Wittenoom Rd junction, 6km SW of Redmont Airport	-22.0178	118.982	15/04/2012
S83521	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Isidorella cf. egregia	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1683	119.021	23/04/2012
S80922	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Isidorella cf. egregia	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.1269	119.212	19/07/2011
S65279	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Isidorella cf. newcombi	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.4011	119.476	26/10/2010
S81609	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Isidorella egregia	epigean	widespread	W.A. Museum assessment	ca. 51 km NE of Auski Roadhouse	-21.9747	118.943	13/04/2013
S65209	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Isidorella newcombi	epigean	widespread	W.A. Museum assessment	Fortescue River; Redmont Camp	-22.0286	119.021	25/08/1980
S64674	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Isidorella sp.	epigean	widespread	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.1322	119.198	12/05/2010
S64685	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Isidorella sp.	epigean	widespread	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.0191	119.034	12/05/2010
S83508	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Leichhardtia cf. sisurnius	epigean	Potential SRE: DD	W.A. Museum assessment	190 km SSE of Port Hedland	-21.9586	118.992	23/04/2012
S81068	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Leichhardtia sisurnius	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S65973	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Leichhardtia sisurnius	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.122	119.061	20/05/2011
S81088	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Leichhardtia sisurnius	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.121	119.063	20/05/2011
S65987	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Leichhardtia sisurnius	epigean	Potential SRE: DD	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S59304	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Leichhardtia cf. sisurnius	epigean	Potential SRE: DD	W.A. Museum assessment	NW of Newman; Hope Downs	-23.103	119.582	18/09/2008
S42760	Gastropoda	Gastropoda (Snails)	Indet	Planorbidae	Leichhardtia sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Pilbara; Chichester Range; spinifex dominated rocky slopes	-22.0503	118.993	7/07/2008
S59270	Gastropoda	Gastropoda (Snails)	Indet	Punctidae	Paralaoma sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7316	119.193	4/04/2009
S64662	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	cf. Pupisoma sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Fortescue Marsh east	-22.4646	119.773	3/06/2010
S64661	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	cf. Pupisoma sp.	epigean	Potential SRE: DD	W.A. Museum assessment	Fortescue Marsh west	-22.3125	119.235	14/07/2010
S65536	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	cf. Pupisoma sp.	epigean	Potential SRE: DD	W.A. Museum assessment	110km N of Newman	-22.3827	119.973	23/03/2011
S65538	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	cf. Pupisoma sp.	epigean	Potential SRE: DD	W.A. Museum assessment	112km N of Newman	-22.3871	119.966	26/03/2011
S65978	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~79 km heading 286° from Newman	-23.1592	118.993	17/05/2011
S80941	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.122	119.061	20/05/2011
S83321	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	129.2km NW of Newman	-22.8316	118.603	30/03/2012
S81025	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~79 km heading 286° from Newman	-23.1592	118.993	17/05/2011
S81052	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~81 km; heading 286° from Newman	-23.1596	118.97	18/05/2011
S81059	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1283	119.074	19/05/2011
S59555	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Hammersley Range; 60km WNW Newman; Hope Downs	-23.103	119.292	27/04/2009
S42661	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Pilbara; Hope Downs (~100km NW of Newman)	-23.0865	119.318	13/05/2008
S81064	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1268	119.067	19/05/2011
S81122	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~79 km heading 286° from Newman	-23.1546	118.993	18/05/2011
S88043	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3258	119.768	5/08/2013
S81074	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 289° from Newman	-23.1348	119.034	19/05/2011
S64741	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4137	119.583	16/08/2010
S81073	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 288° from Newman	-23.1436	119.006	18/05/2011
S83932	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	RIOTIO Greater West Angelas; Juna Downs Station	-23.1229	118.862	25/09/2012
S81105	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 286° from Newman	-23.1615	119.002	18/05/2011

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S65992	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 290° from Newman	-23.1266	119.047	20/05/2011
S81085	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 290° from Newman	-23.1266	119.047	20/05/2011
S65976	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 288° from Newman	-23.1428	119.01	18/05/2011
S64745	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4003	119.572	16/08/2010
S80914	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. larapinta	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.408	119.007	8/08/2011
S60234	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0634	-22.4898	119.895	27/05/2009
S64639	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. larapinta	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2822	119.128	15/07/2010
S64642	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. larapinta	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2875	119.17	15/07/2010
S80956	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. larapinta	epigean	widespread	W.A. Museum assessment	Cloud Break area (N of Newman)	-22.3207	119.444	6/07/2006
S83527	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. mussoni	epigean	widespread	W.A. Museum assessment	Lamb Creek, ca. 120 km NW of Newman	-22.8333	118.831	7/04/2012
S84075	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. mussoni	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.584	119.311	5/09/2008
S64751	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. mussoni	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3819	119.613	14/08/2010
S83526	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. mussoni	epigean	widespread	W.A. Museum assessment	Lamb Creek, ca. 120 km NW of Newman	-22.8706	118.805	4/04/2012
S80911	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. mussoni	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.1269	119.212	19/07/2011
S81116	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta cf. mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 291° from Newman	-23.1255	119.08	21/05/2011
S81106	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 286° from Newman	-23.1615	119.002	18/05/2011
S64735	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4045	119.625	15/03/2010
S58079	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	North of Newman; upstream of Kalgan Pool; W facing side of gorge	-23.1872	119.696	24/06/2009
S64734	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3943	119.632	15/03/2010
S88029	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2844	119.74	5/08/2013
S64732	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4049	119.605	14/03/2010
S88027	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2825	119.75	5/08/2013
S64730	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4182	119.585	14/03/2010
S88025	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3013	119.757	5/08/2013
S64726	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4045	119.621	15/03/2010
S64722	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3994	119.584	15/03/2010
S88033	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3239	119.79	5/08/2013
S64720	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4108	119.572	15/03/2010
S88015	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3217	119.786	5/08/2013
S81103	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~77 km heading 289° from Newman	-23.1331	119.015	23/05/2011
S64718	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3943	119.632	15/03/2010
S64716	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3943	119.632	15/03/2010
S64715	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3943	119.632	15/03/2010

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S88011	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2834	119.75	5/08/2013
S88021	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.288	119.729	5/08/2013
S64744	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4182	119.585	14/08/2010
S64713	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4047	119.605	15/03/2010
S88060	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2885	119.738	5/08/2013
S88053	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3307	119.76	5/08/2013
S88063	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3133	119.76	5/08/2013
S59376	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7319	119.194	4/04/2009
S64750	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3947	119.591	15/08/2010
S88046	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2853	119.773	5/08/2013
S58093	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Between Newman and Nullagine on W side of road; top of S facing slope	-22.3848	119.97	25/06/2009
S81120	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S58091	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	North of Newman; upstream of Kalgan Pool; E facing side of gorge	-23.1877	119.697	24/06/2009
S88032	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3239	119.79	5/08/2013
S88039	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3315	119.777	5/08/2013
S64742	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4029	119.602	18/08/2010
S64740	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4003	119.652	14/08/2010
S88036	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3232	119.79	5/08/2013
S88035	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3232	119.79	5/08/2013
S88034	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.323	119.79	5/08/2013
S64737	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4049	119.605	15/08/2010
S64753	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3943	119.632	15/08/2010
S64747	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4049	119.605	14/08/2010
S65314	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Karijini National Park; 77 kms East of Tom Price	-22.8446	118.54	1/08/2010
S81785	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.323	119.79	29/04/2013
S81781	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.325	119.769	29/04/2013
S81780	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2853	119.773	29/04/2013
S81004	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.1185	119.065	20/05/2011
S81001	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 288° from Newman	-23.1436	119.006	18/05/2011
S88127	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.334	120.024	27/08/2013
S65336	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Karijini National Park; Knox Gorge; 63 kms NE of Tom Price	-22.3714	118.299	30/07/2010
S80939	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~77 km heading 288° from Newman	-23.1393	119.018	19/05/2011
S81786	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3315	119.777	29/04/2013

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S80937	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 291° from Newman	-23.1255	119.08	21/05/2011
S65310	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Karijini National Park; Mt Meharry; 87 kms ESE of Tom Price	-22.9797	118.589	26/07/2010
S81440	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.4285	119.204	20/05/2011
S65307	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Karijini National Park; Dales Gorge; 82 kms ENE of Tom Price	-22.4782	118.56	30/07/2010
S81174	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~71 km heading 290° from Newman	-23.1314	119.077	19/05/2011
S88083	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3303	120.009	27/08/2013
S81168	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~80 km heading 285° from Newman	-23.1632	118.977	17/05/2011
S60416	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	N of Newman; Cloudbreak	-22.2997	119.374	3/07/2006
S88055	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.286	119.727	5/08/2013
S88008	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3106	119.731	5/08/2013
S80938	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~70 km heading 291° from Newman	-23.1287	119.09	19/05/2011
S59553	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Hammersley Range; 60km WNW Newman; Hope Downs	-23.0952	119.202	25/04/2009
S65971	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 290° from Newman	-23.1216	119.05	20/05/2011
S81091	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.1185	119.065	20/05/2011
S81176	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~80 km heading 285° from Newman	-23.1632	118.977	17/05/2011
S81789	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3232	119.79	29/04/2013
S42663	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Pilbara; Hope Downs (~100km NW of Newman)	-23.0379	119.212	11/05/2008
S81062	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~79 km heading 286° from Newman	-23.1592	118.993	17/05/2011
S81054	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~80 km heading 285° from Newman	-23.1632	118.977	17/05/2011
S81819	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3315	119.777	29/04/2013
S81818	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3258	119.768	29/04/2013
S88202	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.322	119.777	5/08/2013
S81033	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~80 km heading 285° from Newman	-23.1632	118.977	17/05/2011
S81830	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2834	119.75	5/04/2013
S81048	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 286° from Newman	-23.1615	119.002	18/05/2011
S81027	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 290° from Newman	-23.1266	119.047	20/05/2011
S81800	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2825	119.75	29/04/2013
S88201	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.293	119.757	5/08/2013
S88189	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2834	119.75	5/08/2013
S81803	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2872	119.724	5/04/2013
S88203	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3133	119.76	5/08/2013
S81812	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta hedleyi	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3013	119.757	29/04/2013
S42925	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0758	-22.4793	119.942	26/05/2009

S59550	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Hammersley Range; 60km WNW Newman; Hope Downs	-23.0919	119.188	27/04/2009
S81822	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3115	119.766	29/04/2013
S34472	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.584	119.311	5/09/2008
S59298	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	NW of Newman; Hope Downs	-23.103	119.582	18/09/2008
S34474	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.5739	119.256	5/09/2008
S42924	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0651	-22.4547	119.871	27/05/2009
S81840	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3106	119.731	5/04/2013
S88219	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3207	119.754	5/08/2013
S64654	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Fortescue Marsh east	-22.4646	119.773	3/06/2010
S60853	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0767	-22.4793	119.942	26/05/2009
S60854	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0804	-22.5769	119.995	25/05/2009
S42923	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2822	119.128	15/07/2010
S88209	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3115	119.766	5/08/2013
S81125	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S60855	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0798	-22.5769	119.995	25/05/2009
S64651	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Fortescue Marsh east	-22.4646	119.773	3/06/2010
S64652	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2822	119.128	15/07/2010
S61069	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1744	-22.6642	119.946	20/10/2009
S61072	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1749	-22.6225	119.963	20/10/2009
S34703	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0603	-22.4898	119.895	27/05/2009
S88216	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3207	119.754	5/08/2013
S61073	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1752	-22.6225	119.963	20/10/2009
S65682	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S61075	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1720	-22.6431	119.964	20/10/2009
S34453	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Cloud Break area (N of Newman)	-22.321	119.444	4/07/2006
S58005	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	North of Newman; upstream of Kalgan Pool; E facing side of gorge	-23.1877	119.697	24/06/2009
S61077	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1754	-22.6431	119.964	20/10/2009
S88206	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3307	119.76	5/08/2013
S60397	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1950	-22.6593	119.92	29/10/2009
S83423	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	50km NNE of Great Northern Hwy and Port Hedland-Wittenoom Rd junction, 6km SW of Redmont Airport	-22.0195	118.982	15/04/2012
S60378	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0670	-22.4943	119.922	26/05/2009
S64650	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2875	119.17	15/07/2010
S60388	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1946	-22.6076	119.983	29/10/2009

S34634	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.5739	119.256	5/09/2008
S60373	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0683	-22.4943	119.922	26/05/2009
S60396	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1938	-22.643	119.96	29/10/2009
S81107	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S59374	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.732	119.184	2/04/2009
S60398	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1935	-22.6394	119.964	29/10/2009
S88050	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3329	119.764	5/08/2013
S88056	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.3103	119.726	5/08/2013
S59388	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7412	119.196	3/04/2009
S65530	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S60392	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1933	-22.7058	119.708	29/10/2009
S64455	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	E Pilbara; Marble Bar Rd; Roy Hill	-22.505	119.914	11/03/2010
S60857	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0706	-22.5383	119.942	26/05/2009
S60859	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0799	-22.5769	119.995	25/05/2009
S60860	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0758	-22.4793	119.942	26/05/2009
S60861	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0693	-22.5383	119.942	26/05/2009
S81087	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.121	119.063	20/05/2011
S64469	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-23.1164	119.886	20/04/2010
S60359	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0678	-22.4943	119.922	26/05/2009
S83384	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	East of Woodstock Aboriginal Reserve, 50km NNE of Great Northern Hwy and Port Hedland-Wittenoom Rd junction, 6km SW of Redmont Airport	-22.0172	118.982	15/04/2012
S61128	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Cloud Break area N of Newman	-22.2688	119.315	4/07/2006
S60363	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0763	-22.4793	119.942	26/05/2009
S60366	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0794	-22.5769	119.995	25/05/2009
S60367	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0794	-22.5769	119.995	25/05/2009
S64463	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-22.8586	119.673	20/04/2010
S60368	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0688	-22.4943	119.922	26/05/2009
S81602	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	ca. 56 km NE of Auski Roadhouse	-21.9235	118.933	13/04/2013
S60429	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0646	-22.4547	119.871	27/05/2009
S34637	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.5666	119.233	10/10/2008
S81439	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.4285	119.204	20/05/2011
S83486	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1554	119.022	23/04/2012
S81182	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.122	119.061	20/05/2011

S81693	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7396	119	14/05/2013
S81692	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7392	118.995	14/05/2013
S80924	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.6013	119.291	8/08/2011
S81691	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7348	118.995	14/05/2013
S83481	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	222 km SSE of Port Hedland	-22.2799	119.019	23/04/2012
S81433	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.3476	119.152	20/05/2011
S83479	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	222 km SSE of Port Hedland	-22.2866	119.03	23/04/2012
S81687	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7259	118.984	14/05/2013
S81685	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7629	119.128	14/05/2013
S80934	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7412	119.196	3/04/2009
S83467	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	222 km SSE of Port Hedland	-22.4082	119.006	23/04/2012
S65534	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	108km N of Newman	-22.3132	119.86	24/03/2011
S88068	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.2928	119.858	5/08/2013
S88069	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.2968	119.727	5/08/2013
S88070	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3055	119.748	5/08/2013
S60422	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0810	-22.5771	120.025	25/05/2009
S83475	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.2334	119.022	23/04/2012
S60426	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0770	-22.4793	119.942	26/05/2009
S81678	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7398	119.004	14/05/2013
S80908	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.5625	119.231	8/08/2011
S81164	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S81676	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7138	119.01	14/05/2013
S83468	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	222 km SSE of Port Hedland	-22.345	119.01	23/04/2012
S60428	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0653	-22.4547	119.871	27/05/2009
S81446	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.4295	119.192	20/05/2011
S80904	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 290° from Newman	-23.1201	119.048	20/05/2011
S65389	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0651	-22.4547	119.871	27/05/2009
S65161	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3949	119.502	26/10/2010
S64649	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Fortescue Marsh east	-22.443	119.779	3/06/2010
S65673	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	108km N of Newman	-22.3132	119.86	24/03/2011
S65156	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3985	119.475	26/10/2010
S64644	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2822	119.128	15/07/2010
S88195	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3307	119.76	5/08/2013

S65150	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3652	119.341	26/10/2010
S64637	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.3125	119.235	14/07/2010
S64636	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Fortescue Marsh east	-22.4252	119.724	2/06/2010
S64635	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Fortescue Marsh east	-22.4252	119.724	2/06/2010
S64634	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.3125	119.235	14/07/2010
S65657	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	115km N of Newman	-22.3134	119.789	24/03/2011
S65652	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2954	119.811	24/03/2011
S81696	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7386	118.996	14/05/2013
S34633	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.5663	119.231	30/06/2008
S80935	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.121	119.063	20/05/2011
S80940	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.5739	119.256	5/09/2008
S61996	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.293	119.061	22/04/2010
S61997	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.293	119.061	22/04/2010
S65604	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.3985	119.793	9/04/2011
S65135	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3527	119.419	26/10/2010
S60232	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0702	-22.5383	119.942	26/05/2009
S65646	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	115km N of Newman	-22.3134	119.789	24/03/2011
S60233	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-22.9632	119.228	29/08/2008
S65612	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.4061	119.738	8/04/2011
S34638	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.626	119.283	10/10/2008
S42831	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0706	-22.5383	119.942	26/05/2009
S42833	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0706	-22.5383	119.942	26/05/2009
S61066	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1231	-22.6642	119.946	20/10/2009
S34632	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.584	119.311	5/09/2008
S88057	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta larapinta	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.3103	119.726	5/08/2013
S59576	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9058	119.2	21/06/2009
S65985	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~80 km heading 285° from Newman	-23.1632	118.977	17/05/2011
S81763	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3228	120.01	19/03/2013
S60864	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1149	-22.5039	120.021	24/05/2009
S65213	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3949	119.502	26/10/2010
S81851	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	ca.15 kms NE Roy Hill	-22.4932	120.019	18/04/2013
S65979	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~81 km; heading 286° from Newman	-23.1596	118.97	18/05/2011
S81808	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2826	119.739	5/04/2013

S65977	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 288° from Newman	-23.1436	119.006	18/05/2011
S60865	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0739	-22.5566	119.97	26/05/2009
S65975	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1268	119.067	19/05/2011
S64694	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2822	119.128	15/07/2010
S81846	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	ca.15 kms NE Roy Hill	-22.4932	120.019	18/04/2013
S71347	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Chichester Range; N slopes	-22.0984	119.027	22/08/2008
S42929	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9219	119.204	19/06/2009
S42928	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-22.9632	119.228	29/08/2008
S81081	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 289° from Newman	-23.1355	119.038	19/05/2011
S88005	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3127	119.746	5/08/2013
S81099	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~76 km heading 290° from Newman	-23.1169	119.04	20/05/2011
S65993	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 290° from Newman	-23.1201	119.048	20/05/2011
S81096	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 290° from Newman	-23.1216	119.05	20/05/2011
S59591	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9219	119.204	19/06/2009
S88007	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3062	119.724	5/08/2013
S81094	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 291° from Newman	-23.1255	119.08	21/05/2011
S88001	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.293	119.757	5/08/2013
S64453	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	E Pilbara; Marble Bar Rd; Roy Hill	-22.5843	120.017	11/03/2010
S59585	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9275	119.128	18/06/2009
S88004	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3127	119.746	5/08/2013
S61123	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Cloud Break area N of Newman	-22.2997	119.374	3/07/2006
S59587	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9169	119.213	19/06/2009
S88003	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3022	119.725	5/08/2013
S61122	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Cloud Break area N of Newman	-22.2935	119.387	7/07/2006
S60866	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1424	-22.5771	120.025	25/05/2009
S42926	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2822	119.128	15/07/2010
S65990	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 286° from Newman	-23.1615	119.002	18/05/2011
S65683	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S59549	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; 60km WNW Newman; Hope Downs	-23.0878	119.161	27/04/2009
S81821	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3115	119.766	29/04/2013
S81053	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 288° from Newman	-23.1428	119.01	18/05/2011
S59548	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; 60km WNW Newman; Hope Downs	-23.103	119.292	24/04/2009
S65688	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	115km N of Newman	-22.3134	119.789	24/03/2011

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S58007	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	North of Newman; upstream of Kalgan Pool; SSE facing slope of gorge base	-23.1874	119.696	24/06/2009
S64687	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.2924	119.028	12/05/2010
S81811	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3291	119.769	5/04/2013
S59551	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; 60km WNW Newman; Hope Downs	-23.0925	119.206	27/04/2009
S61074	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1720	-22.6431	119.964	20/10/2009
S81810	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3094	119.743	29/04/2013
S81042	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.1185	119.065	20/05/2011
S81809	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2922	119.8	29/04/2013
S65681	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S64656	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2872	119.03	15/07/2010
S61076	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1754	-22.6431	119.964	20/10/2009
S34473	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.5663	119.231	30/06/2008
S64460	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-23.1164	119.886	20/04/2010
S34478	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.5851	119.314	5/09/2008
S81838	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2827	119.74	29/04/2013
S64684	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.1322	119.198	12/05/2010
S34476	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.5497	119.215	7/08/2008
S81835	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3062	119.724	5/04/2013
S65694	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	112km NNE of Newman	-22.3871	119.966	24/03/2011
S42921	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-22.8586	119.673	20/04/2010
S81823	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2909	119.861	5/04/2013
S81831	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2834	119.75	5/04/2013
S42662	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Pilbara; Hope Downs (~100km NW of Newman)	-23.1474	119.519	13/05/2008
S59554	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; 60km WNW Newman; Hope Downs	-23.103	119.292	27/04/2009
S81570	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	119km NW of Newman; Area C West -Yandi	-22.6336	118.871	30/05/2011
S65697	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S59552	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; 60km WNW Newman; Hope Downs	-23.0878	119.161	27/04/2009
S42927	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0702	-22.5383	119.942	26/05/2009
S81834	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3054	119.77	29/04/2013
S60395	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1921	-22.8174	119.947	29/10/2009
S88048	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.3054	119.77	5/08/2013
S60399	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1715	-22.8174	119.947	29/10/2009
S59375	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7316	119.193	4/04/2009

S88047	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.3054	119.77	5/08/2013
S64749	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3712	119.613	14/08/2010
S59373	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7351	119.186	2/04/2009
S65996	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~70 km heading 291° from Newman	-23.1287	119.09	19/05/2011
S59372	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.732	119.184	2/04/2009
S59377	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7384	119.192	3/04/2009
S59371	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7316	119.193	4/04/2009
S60394	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1929	-22.6347	119.97	29/10/2009
S60393	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1944	-22.7058	119.708	29/10/2009
S88041	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3322	119.78	5/08/2013
S88040	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3322	119.78	5/08/2013
S81127	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S64748	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3837	119.648	14/08/2010
S59381	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7366	119.181	4/04/2009
S88061	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.29	119.816	5/08/2013
S60411	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-23.0504	119.273	27/08/2008
S88059	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2885	119.738	5/08/2013
S60407	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Chichester Ranges	-22.0525	118.988	1/05/2003
S59383	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7316	119.193	4/04/2009
S60406	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-23.0504	119.273	27/08/2008
S64752	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.397	119.614	17/08/2010
S60405	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-23.053	119.27	27/08/2008
S88049	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3115	119.766	5/08/2013
S60404	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-23.0504	119.273	27/08/2008
S59380	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7412	119.196	3/04/2009
S88052	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3307	119.76	5/08/2013
S60403	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	N of Newman; Cloudbreak	-22.321	119.444	6/07/2006
S59379	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7448	119.193	4/04/2009
S59378	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7412	119.196	3/04/2009
S81121	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 290° from Newman	-23.1266	119.047	20/05/2011
S59382	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7316	119.18	2/04/2009
S88016	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.3003	119.862	5/08/2013
S88038	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3288	119.782	5/08/2013

S81109	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.121	119.063	20/05/2011
S65749	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	115km N of Newman	-22.3134	119.789	25/03/2011
S88020	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3274	119.764	5/08/2013
S65748	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	110km NNE of Newman	-22.3827	119.973	23/03/2011
S88019	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3291	119.769	5/08/2013
S81110	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S88017	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.3003	119.862	5/08/2013
S88022	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2899	119.736	5/08/2013
S81104	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~77 km heading 288° from Newman	-23.1393	119.018	19/05/2011
S43983	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	North of Newman; upstream of Kalgan Pool; E facing side of gorge	-23.1877	119.697	24/06/2009
S43982	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	North of Newman; upstream of Kalgan Pool; E facing side of gorge	-23.1877	119.697	24/06/2009
S88014	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.322	119.777	5/08/2013
S65998	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1283	119.074	19/05/2011
S88013	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2834	119.75	5/08/2013
S65983	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 289° from Newman	-23.1355	119.038	19/05/2011
S88018	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2909	119.861	5/08/2013
S42713	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Pilbara; Chichester Range; spinifex dominated rocky slopes	-22.0516	118.988	7/07/2008
S59596	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9058	119.2	21/06/2009
S88031	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2922	119.8	5/08/2013
S81119	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 290° from Newman	-23.1201	119.048	20/05/2011
S83422	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	50km NNE of Great Northern Hwy and Port Hedland-Wittenoom Rd junction, 6km SW of Redmont Airport	-22.0195	118.982	15/04/2012
S64733	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4108	119.572	15/03/2010
S42717	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Pilbara; Chichester Range; spinifex dominated rocky slopes	-22.0503	118.993	7/07/2008
S42709	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Pilbara; Chichester Range; spinifex dominated rocky slopes	-22.1508	119.018	7/07/2008
S81114	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.1185	119.065	20/05/2011
S88037	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3288	119.782	5/08/2013
S83929	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	RIOTIO Greater West Angelas; Juna Downs Station	-23.148	118.691	25/09/2012
S60376	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0670	-22.4943	119.922	26/05/2009
S88024	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2879	119.736	5/08/2013
S42711	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Pilbara; Chichester Range; spinifex dominated rocky slopes	-22.0516	118.988	7/07/2008
S88023	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2879	119.736	5/08/2013
S64470	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-22.6335	119.329	20/04/2010
S60374	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0683	-22.4943	119.922	26/05/2009

S83930	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	RIOTIO Greater West Angelas; Juna Downs Station	-23.1936	118.645	25/09/2012
S83490	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	198 km SSE of Port Hedland	-22.0905	118.994	23/04/2012
S61995	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.5098	119.127	22/04/2010
S34588	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1744	-22.6642	119.946	20/10/2009
S81437	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.4285	119.204	20/05/2011
S88093	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3231	119.995	27/08/2013
S88094	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3228	120.01	27/08/2013
S83487	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1554	119.022	23/04/2012
S81180	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.122	119.061	20/05/2011
S81442	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.3182	119.118	20/05/2011
S83483	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1839	119.033	23/04/2012
S81444	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.4295	119.192	20/05/2011
S83492	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	222 km SSE of Port Hedland	-22.3145	119.015	23/04/2012
S83494	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	222 km SSE of Port Hedland	-22.4082	119.006	23/04/2012
S83495	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1943	118.987	23/04/2012
S61991	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.2938	119.073	22/04/2010
S61993	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.5098	119.127	22/04/2010
S60427	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0770	-22.4793	119.942	26/05/2009
S81697	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7386	118.996	14/05/2013
S80916	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.408	119.007	8/08/2011
S81677	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7253	119.064	14/05/2013
S80910	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.1269	119.212	19/07/2011
S81167	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1309	119.069	19/05/2011
S80913	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.5625	119.231	8/08/2011
S81169	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.122	119.061	20/05/2011
S81170	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~77 km heading 289° from Newman	-23.1331	119.015	23/05/2011
S88092	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3246	120.012	27/08/2013
S81683	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7156	118.981	14/05/2013
S83500	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	235 km SSE of Port Hedland	-22.4368	119.018	23/04/2012
S81684	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7596	119.123	14/05/2013
S83476	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.2334	119.022	23/04/2012
S88084	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3325	120.013	27/08/2013
S80917	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.6376	119.374	8/08/2011

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S83478	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	190 km SSE of Port Hedland	-22.0146	119.006	23/04/2012
S81178	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 290° from Newman	-23.1216	119.05	20/05/2011
S81690	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7321	119.05	14/05/2013
S81171	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 290° from Newman	-23.1216	119.05	20/05/2011
S34386	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Chichester Range, 14 miles north from Roy Hill Homestead along Great Nthn Hway	-22.6166	119.95	26/06/1967
S83499	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	190 km SSE of Port Hedland	-22.0597	118.974	23/04/2012
S60231	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Weeli Wolli Creek; 26 miles from Marillana homestead; S side of creek	-22.6166	119.4	29/05/1966
S65611	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.4061	119.738	8/04/2011
S34635	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.5538	119.228	6/09/2008
S60235	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-23.053	119.27	27/08/2008
S42828	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0688	-22.4943	119.922	26/05/2009
S88134	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Mesa Gap, ca. 33km ENE of Newman	-23.355	120.029	27/08/2013
S34639	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.626	119.283	10/10/2008
S88133	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Mesa Gap, ca. 33km ENE of Newman	-23.3502	120.03	27/08/2013
S81748	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3315	119.982	19/03/2013
S42837	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0786	-22.4396	119.945	23/05/2009
S81751	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3231	119.995	19/03/2013
S59996	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Pilbara; Mulga Downs Station; Murray Hills	-22.1147	118.522	20/04/2009
S65633	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S65634	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	110km NNE of Newman	-22.3827	119.973	24/03/2011
S81762	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3213	120.008	19/03/2013
S61774	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	23km SW of Marillana; Yandi mine	-22.82	119.25	30/08/2004
S83516	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	190 km SSE of Port Hedland	-22.0264	119.003	23/04/2012
S83506	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1885	119.031	23/04/2012
S83509	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	198 km SSE of Port Hedland	-22.1182	119.005	23/04/2012
S88118	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3315	119.982	27/08/2013
S88119	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3315	119.982	27/08/2013
S83512	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.2035	119.023	23/04/2012
S88121	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.319	120.026	27/08/2013
S88135	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Mesa Gap, ca. 33km ENE of Newman	-23.355	120.029	27/08/2013
S88123	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3238	120.026	27/08/2013
S83519	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	222 km SSE of Port Hedland	-22.3007	119.015	23/04/2012
S88124	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3252	120.024	27/08/2013

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S83517	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1606	119.016	23/04/2012
S64655	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2872	119.03	15/07/2010
S88130	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3202	120.033	27/08/2013
S64448	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	E Pilbara; Marble Bar Rd; Roy Hill	-22.505	119.904	11/03/2010
S88132	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Mesa Gap, ca. 33km ENE of Newman	-23.3502	120.03	27/08/2013
S65605	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.4078	119.877	11/04/2011
S88122	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.319	120.026	27/08/2013
S65603	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.417	119.894	8/04/2011
S81797	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2825	119.75	29/04/2013
S81028	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~76 km heading 290° from Newman	-23.1169	119.04	20/05/2011
S65155	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3894	119.438	26/10/2010
S81795	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2827	119.74	29/04/2013
S81026	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 288° from Newman	-23.1436	119.006	18/05/2011
S65153	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.2881	119.236	26/10/2010
S81784	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2879	119.736	29/04/2013
S88193	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3232	119.79	5/08/2013
S65672	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	108km N of Newman	-22.3132	119.86	24/03/2011
S64640	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2872	119.03	15/07/2010
S65662	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	110km NNE of Newman	-22.3827	119.973	24/03/2011
S65148	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3652	119.341	26/10/2010
S42876	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Cloud Break area (N of Newman)	-22.3207	119.444	6/07/2006
S42875	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0600	-22.4898	119.895	27/05/2009
S65144	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3527	119.419	26/10/2010
S64641	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2872	119.03	15/07/2010
S65677	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	115km N of Newman	-22.3134	119.789	24/03/2011
S81675	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7138	119.01	14/05/2013
S81807	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3127	119.746	5/04/2013
S65935	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Angelo River	-23.4331	118.733	20/06/2011
S61070	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1741	-22.6365	119.964	20/10/2009
S81038	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~81 km; heading 286° from Newman	-23.1596	118.97	18/05/2011
S65678	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	110km NNE of Newman	-22.3827	119.973	24/03/2011
S65157	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3985	119.475	26/10/2010
S81805	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.3067	119.858	29/04/2013

S81798	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2899	119.736	29/04/2013
S61068	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1736	-22.7195	119.939	20/10/2009
S81036	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1309	119.069	19/05/2011
S61067	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1727	-22.7489	119.922	20/10/2009
S81802	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2872	119.724	5/04/2013
S81034	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~80 km heading 285° from Newman	-23.1632	118.977	17/05/2011
S81032	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1268	119.067	19/05/2011
S42878	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.732	119.184	2/04/2009
S64653	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2822	119.128	15/07/2010
S60417	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	120km NNW of Newman; Area C	-22.9104	118.966	13/06/2008
S59240	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.0129	119.237	1/09/2008
S59239	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.053	119.27	27/08/2008
S65638	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2954	119.811	24/03/2011
S81764	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3226	119.982	19/03/2013
S65143	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.2881	119.236	26/10/2010
S83811	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	69km E Paraburdoo	-23.2555	118.262	18/06/2012
S59241	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.053	119.27	27/08/2008
S88065	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3207	119.754	5/08/2013
S61071	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1233	-22.7195	119.939	20/10/2009
S88066	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3207	119.754	5/08/2013
S88067	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.3039	119.854	5/08/2013
S60421	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0810	-22.5771	120.025	25/05/2009
S42759	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Pilbara; Chichester Range; spinifex dominated rocky slopes	-22.0516	118.988	7/07/2008
S88072	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3255	119.748	5/08/2013
S80905	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.1269	119.212	19/07/2011
S80907	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.5625	119.231	8/08/2011
S81793	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3288	119.782	29/04/2013
S65139	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3251	119.446	26/10/2010
S81782	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3322	119.78	29/04/2013
S88064	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3133	119.76	5/08/2013
S65653	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	112km NNE of Newman	-22.3621	119.969	24/03/2011
S81002	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 288° from Newman	-23.1436	119.006	18/05/2011
S81779	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3054	119.77	29/04/2013

S81778	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3115	119.766	29/04/2013
S65650	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	112km NNE of Newman	-22.3621	119.969	24/03/2011
S65137	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.2881	119.236	26/10/2010
S65136	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3949	119.502	26/10/2010
S59242	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.053	119.27	27/08/2008
S59244	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.053	119.27	27/08/2008
S60267	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Cloud break area N of Newman	-22.3181	119.379	4/07/2006
S59243	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.0504	119.273	27/08/2008
S65643	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S60266	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-23.053	119.27	27/08/2008
S65649	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta mussoni	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S111508	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 81.8 km NW of Newman	-23.0434	119.117	22/05/2018
S64631	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta sp.	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2872	119.03	15/07/2010
S64629	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta sp.	epigean	widespread	W.A. Museum assessment	Fortescue Marsh east	-22.443	119.779	3/06/2010
S29647	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta sp.	epigean	widespread	W.A. Museum assessment	82.5 km NW of Newman	-23.045	118.999	14/03/2019
S29646	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta sp.	epigean	widespread	W.A. Museum assessment	79.9 km NW of Newman	-23.0777	119.011	16/03/2019
S29645	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta sp.	epigean	widespread	W.A. Museum assessment	78.5 km NW of Newman	-23.0838	119.023	17/03/2019
S29644	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta sp.	epigean	widespread	W.A. Museum assessment	88.2 km NW of Newman	-23.06	118.932	9/03/2019
S111512	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 70 km NW of Newman	-23.0383	119.141	24/05/2018
S111511	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 81.4 km NW of Newman	-23.0782	118.995	25/05/2018
S71770	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta sp.	epigean	widespread	W.A. Museum assessment	Chichester Range; N slopes	-22.1873	119.026	22/08/2008
S111509	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 80.9 km NW of Newman	-23.0779	119.001	25/05/2018
S111507	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 80.3 km NW of Newman	-23.0483	119.021	25/05/2018
S111506	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 81.8 km NW of Newman	-23.0434	119.117	22/05/2018
S64632	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta sp.	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2872	119.03	15/07/2010
S111510	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Gastrocopta sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 85.9 km NW of Newman	-23.083	118.947	23/05/2018
S61129	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Cloud Break area N of Newman	-22.2688	119.315	4/07/2006
S61113	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Cloud Break area N of Newman	-22.2978	119.392	5/07/2006
S61114	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Cloud Break area N of Newman	-22.3207	119.444	6/07/2006
S64647	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Fortescue Marsh east	-22.443	119.779	3/06/2010
S64638	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Fortescue Marsh east	-22.4419	119.724	2/06/2010
S65663	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	110km NNE of Newman	-22.3827	119.973	24/03/2011
S65151	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3146	119.302	26/10/2010
S65154	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3713	119.552	26/10/2010
S65667	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S64645	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2822	119.128	15/07/2010
S65670	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	108km N of Newman	-22.3132	119.86	24/03/2011
S61062	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1733	-22.7489	119.922	20/10/2009
S61063	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1729	-22.6365	119.964	20/10/2009
S65145	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3527	119.419	26/10/2010
S61064	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1735	-22.7195	119.939	20/10/2009
S61065	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill; EE09:1742	-22.6365	119.964	20/10/2009
S65162	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3949	119.502	26/10/2010
S64657	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2822	119.128	15/07/2010
S64658	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2822	119.128	15/07/2010
S65684	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2954	119.811	24/03/2011

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S58004	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	North of Newman; upstream of Kalgan Pool; E facing side of gorge	-23.1877	119.697	24/06/2009
S65158	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3985	119.475	26/10/2010
S59997	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Pilbara; Mulga Downs Station; Murray Hills	-22.1188	118.512	21/04/2009
S65535	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	108km N of Newman	-22.3132	119.86	24/03/2011
S65337	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Karijini National Park; Knox Gorge; 63 kms NE of Tom Price	-22.3714	118.299	30/07/2010
S65598	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.3932	119.78	11/04/2011
S65601	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.3932	119.78	11/04/2011
S65602	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.3706	119.746	9/04/2011
S83525	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Lamb Creek, ca. 120 km NW of Newman	-22.8814	118.804	7/04/2012
S65349	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Juna Downs Station; 75 kms ESE of Tom Price	-22.9211	118.494	27/07/2010
S65606	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.3932	119.78	11/04/2011
S65659	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S65614	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.4314	119.915	8/04/2011
S65146	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3652	119.341	26/10/2010
S65133	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3527	119.419	26/10/2010
S65134	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3527	119.419	26/10/2010
S65138	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.2881	119.236	26/10/2010
S81523	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	OB35, ca. 8km WSW of Newman	-23.388	119.654	13/09/2011
S64628	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Fortescue Marsh east	-22.443	119.779	3/06/2010
S65140	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3251	119.446	26/10/2010
S65142	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.2881	119.236	26/10/2010
S65655	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	115km N of Newman	-22.3134	119.789	24/03/2011
S64683	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.2924	119.028	12/05/2010
S83529	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Xmas Creek, ca. 100km N of Newman	-22.4595	119.773	10/05/2012
S58080	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	North of Newman; upstream of Kalgan Pool; W facing side of gorge	-23.1872	119.696	24/06/2009
S65686	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	115km NNW of Newman	-22.3178	119.748	24/03/2011
S60370	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0688	-22.4943	119.922	26/05/2009
S65747	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S64723	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4045	119.625	15/03/2010
S64468	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-23.1164	119.886	20/04/2010
S64471	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-22.6335	119.329	20/04/2010
S60377	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0670	-22.4943	119.922	26/05/2009
S64729	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4206	119.567	15/03/2010
S83408	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Mulga Downs Station, Cowra, 32km NE of Great Northern Hwy and Port Hedland-Wittenoom Rd junction	-22.2825	119.023	16/04/2012
S60382	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1922	-22.8554	119.887	29/10/2009
S64717	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3994	119.584	15/03/2010
S60385	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1919	-22.8554	119.887	29/10/2009
S60386	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1946	-22.6076	119.983	29/10/2009
S64738	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3712	119.613	14/08/2010
S59366	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7412	119.196	3/04/2009
S59367	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7316	119.193	4/04/2009
S64754	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3712	119.613	14/08/2010
S64756	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3819	119.613	14/08/2010
S60425	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0770	-22.4793	119.942	26/05/2009
S60379	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0674	-22.4943	119.922	26/05/2009
S64450	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	E Pilbara; Marble Bar Rd; Roy Hill	-22.4827	119.881	11/03/2010
S59308	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	NW of Newman; Hope Downs	-23.1014	119.292	24/09/2008
S64688	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.0191	119.034	12/05/2010
S59570	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9177	119.204	19/06/2009
S81591	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	SW Jimblebar, ca. 35km E of Newman	-23.4049	120.027	15/02/2013
S59575	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9058	119.2	21/06/2009
S60862	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0760	-22.4793	119.942	26/05/2009
S60863	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1149	-22.5039	120.021	24/05/2009
S64447	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	E Pilbara; Marble Bar Rd; Roy Hill	-22.4843	119.87	11/03/2010
S64464	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-22.8586	119.673	20/04/2010
S64449	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	E Pilbara; Marble Bar Rd; Roy Hill	-22.441	119.979	11/03/2010
S59557	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Hammersley Range; 60km WNW Newman; Hope Downs	-23.0561	119.151	24/04/2009
S64452	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	E Pilbara; Marble Bar Rd; Roy Hill	-22.5843	120.017	11/03/2010

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S64454	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	E Pilbara; Marble Bar Rd; Roy Hill	-22.505	119.914	11/03/2010
S59592	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.6475	119.392	20/06/2009
S64457	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-22.6687	119.419	20/04/2010
S64458	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-22.8586	119.673	20/04/2010
S64714	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4047	119.605	15/03/2010
S64459	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-22.6687	119.419	20/04/2010
S64461	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-22.6687	119.419	20/04/2010
S59584	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9275	119.128	18/06/2009
S83489	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	198 km SSE of Port Hedland	-22.0905	118.994	23/04/2012
S81427	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.429	119.21	20/05/2011
S81428	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman; near WT20	-22.4308	119.212	20/05/2011
S81432	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.3476	119.152	20/05/2011
S83480	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	222 km SSE of Port Hedland	-22.2866	119.03	23/04/2012
S83482	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1839	119.033	23/04/2012
S81436	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.4285	119.204	20/05/2011
S83474	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.2334	119.022	23/04/2012
S81441	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.3182	119.118	20/05/2011
S61994	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.5098	119.127	22/04/2010
S83491	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	222 km SSE of Port Hedland	-22.3145	119.015	23/04/2012
S81445	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.4295	119.192	20/05/2011
S83496	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1943	118.987	23/04/2012
S61992	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.3157	119.241	22/04/2010
S83497	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	222 km SSE of Port Hedland	-22.3681	119.006	23/04/2012
S83502	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	222 km SSE of Port Hedland	-22.345	119.01	23/04/2012
S83511	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.2035	119.023	23/04/2012
S83484	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1554	119.022	23/04/2012
S81426	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.429	119.21	20/05/2011
S60430	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0806	-22.5771	120.025	25/05/2009
S83469	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	222 km SSE of Port Hedland	-22.345	119.01	23/04/2012
S42763	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	ca. 60km NW of Newman	-22.9632	119.228	29/08/2008
S60423	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0786	-22.4396	119.945	23/05/2009
S60420	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0810	-22.5771	120.025	25/05/2009
S61998	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides beltianus	epigean	widespread	W.A. Museum assessment	Fortescue Marsh	-22.293	119.061	22/04/2010
S42823	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. adelaidae	epigean	widespread	W.A. Museum assessment	Pilbara; Hope Downs area; ER Falls; cliff with small scree slope near pool	-23.103	119.582	18/09/2008
S65679	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S65932	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Angelo River	-23.3171	118.812	20/06/2011
S88199	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2834	119.75	5/08/2013
S72328	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S81801	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2825	119.75	29/04/2013
S65675	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	115km N of Newman	-22.3134	119.789	24/03/2011
S81035	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~71 km heading 290° from Newman	-23.1314	119.077	19/05/2011
S58498	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Angelo River	-23.3171	118.812	20/06/2011
S88196	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3288	119.782	5/08/2013
S88204	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3133	119.76	5/08/2013
S88194	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.286	119.727	5/08/2013
S81806	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2836	119.805	5/04/2013
S59594	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9058	119.2	21/06/2009
S81039	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011

S88208	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.3003	119.862	5/08/2013
S88210	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3115	119.766	5/08/2013
S88211	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2853	119.773	5/08/2013
S81813	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3013	119.757	29/04/2013
S88213	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3315	119.777	5/08/2013
S65687	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	115km NNW of Newman	-22.3178	119.748	24/03/2011
S88205	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3232	119.79	5/08/2013
S59369	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7412	119.196	3/04/2009
S64728	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3712	119.613	15/03/2010
S81113	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S81115	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.1185	119.065	20/05/2011
S81117	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 291° from Newman	-23.1255	119.08	21/05/2011
S64736	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4182	119.585	14/08/2010
S81123	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~70 km heading 291° from Newman	-23.1287	119.09	19/05/2011
S64739	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3712	119.613	14/08/2010
S81126	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S60361	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0678	-22.4943	119.922	26/05/2009
S64677	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.1322	119.198	12/05/2010
S81794	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2827	119.74	29/04/2013
S88217	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3207	119.754	5/08/2013
S42710	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Pilbara; Chichester Range; spinifex dominated rocky slopes	-22.0516	118.988	7/07/2008
S60372	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0683	-22.4943	119.922	26/05/2009
S42708	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Pilbara; Chichester Range; spinifex dominated rocky slopes	-22.0516	118.988	7/07/2008
S60364	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0763	-22.4793	119.942	26/05/2009
S88012	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2834	119.75	5/08/2013
S88010	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2826	119.739	5/08/2013
S88192	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.3103	119.726	5/08/2013
S59368	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.732	119.184	2/04/2009
S65986	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 289° from Newman	-23.1355	119.038	19/05/2011
S59556	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Hammersley Range; 60km WNW Newman; Hope Downs	-23.0925	119.206	27/04/2009
S81841	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3106	119.731	5/04/2013
S81076	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~71 km heading 290° from Newman	-23.1314	119.077	19/05/2011
S59574	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9102	119.208	19/06/2009

S81848	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	ca.15 kms NE Roy Hill	-22.5394	120.029	18/04/2013
S81850	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	ca.15 kms NE Roy Hill	-22.5217	120.038	18/04/2013
S59579	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9316	119.187	19/06/2009
S88000	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.3031	119.86	5/08/2013
S81837	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2827	119.74	29/04/2013
S65304	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Karijini National Park; 80 kms East of Tom Price	-22.8523	118.568	23/07/2010
S59564	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9427	119.233	19/06/2009
S42757	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Pilbara; Chichester Range; spinifex dominated rocky slopes	-22.0503	118.993	7/07/2008
S42758	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Pilbara; Chichester Range; spinifex dominated rocky slopes	-22.0516	118.988	7/07/2008
S88071	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3255	119.748	5/08/2013
S80906	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.5625	119.231	8/08/2011
S80912	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.1269	119.212	19/07/2011
S88080	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3361	120.024	27/08/2013
S80915	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.408	119.007	8/08/2011
S83477	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	190 km SSE of Port Hedland	-22.0146	119.006	23/04/2012
S80919	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.1164	119.245	19/07/2011
S81601	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	ca. 56 km NE of Auski Roadhouse	-21.9235	118.933	13/04/2013
S88044	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2715	119.842	5/08/2013
S81820	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3315	119.777	29/04/2013
S65695	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S88224	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.319	120.026	27/08/2013
S81825	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2715	119.842	29/04/2013
S88225	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Mesa Gap, ca. 33km ENE of Newman	-23.355	120.029	27/08/2013
S81826	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3232	119.79	29/04/2013
S88226	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3315	119.982	27/08/2013
S81827	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2865	119.744	29/04/2013
S34477	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.5851	119.314	5/09/2008
S59300	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	NW of Newman; Hope Downs	-23.103	119.582	18/09/2008
S65690	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2954	119.811	24/03/2011
S64676	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.1322	119.198	12/05/2010
S64755	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3947	119.591	15/08/2010
S81063	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1268	119.067	19/05/2011
S34471	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.584	119.311	5/09/2008

S64680	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.2858	119.028	12/05/2010
S81833	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3054	119.77	29/04/2013
S64681	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.2924	119.028	12/05/2010
S64682	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.2858	119.028	12/05/2010
S81836	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2892	119.795	29/04/2013
S88009	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3106	119.731	5/08/2013
S80928	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.6376	119.374	8/08/2011
S65632	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S65630	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S65629	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	115km NNW of Newman	-22.3178	119.748	24/03/2011
S81747	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3315	119.982	19/03/2013
S65334	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Karijini National Park; 78 kms East of Tom Price	-22.8533	118.547	24/07/2010
S65325	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Karijini National Park; 83 kms ESE of Tom Price	-22.9412	118.567	25/07/2010
S65324	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Karijini National Park; 80 kms East of Tom Price	-22.8538	118.566	23/07/2010
S83813	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	69km E Paraburdoo	-23.2555	118.262	18/06/2012
S65320	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Karijini National Park; 78 kms East of Tom Price	-22.849	118.545	28/04/2010
S83520	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	222 km SSE of Port Hedland	-22.3007	119.015	23/04/2012
S80926	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.3667	119.005	8/08/2011
S80925	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.6013	119.291	8/08/2011
S80923	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.265	119.025	8/08/2011
S81177	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 286° from Newman	-23.1615	119.002	18/05/2011
S81792	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2852	119.743	29/04/2013
S88191	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2922	119.8	5/08/2013
S59370	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7316	119.193	4/04/2009
S81788	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3232	119.79	29/04/2013
S65322	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Karijini National Park; 83 kms ESE of Tom Price	-22.9416	118.568	25/07/2010
S83826	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	65km E Paraburdoo	-23.2109	118.305	18/06/2012
S81000	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.122	119.061	20/05/2011
S64633	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2872	119.03	15/07/2010
S83831	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	63km E Paraburdoo	-23.2355	118.288	18/06/2012
S65654	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	115km NNW of Newman	-22.3178	119.748	24/03/2011
S83510	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	198 km SSE of Port Hedland	-22.1182	119.005	23/04/2012
S83827	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	67.5km ESE Paraburdoo	-23.3242	118.317	18/06/2012

S88062	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.3005	119.849	5/08/2013
S83825	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	57km E Paraburdoo	-22.2301	118.228	18/06/2012
S88058	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2927	119.81	5/08/2013
S65647	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S65644	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	115km N of Newman	-22.3134	119.789	24/03/2011
S65641	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S81768	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Orebody 19, ca. 28km ENE of Newman	-23.3361	120.024	19/03/2013
S64627	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. beltianus	epigean	widespread	W.A. Museum assessment	Fortescue Marsh west	-22.2872	119.03	15/07/2010
S59573	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. eremicolus	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9102	119.208	19/06/2009
S80927	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. eremicolus	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.3667	119.005	8/08/2011
S64643	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. eremicolus	epigean	widespread	W.A. Museum assessment	Fortescue Marsh east	-22.4252	119.724	2/06/2010
S59571	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. eremicolus	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9102	119.208	19/06/2009
S59299	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. lepidulus	epigean	widespread	W.A. Museum assessment	NW of Newman; Hope Downs	-23.103	119.582	18/09/2008
S83935	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	RIOTIO Greater West Angelas; Juna Downs Station	-23.1464	118.638	25/09/2012
S88030	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.291	119.794	5/08/2013
S83934	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	RIOTIO Greater West Angelas; Juna Downs Station	-23.1723	118.624	25/09/2012
S42716	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Pilbara; Chichester Range; spinifex dominated rocky slopes	-22.0503	118.993	7/07/2008
S64731	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3947	119.591	15/03/2010
S42712	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Pilbara; Chichester Range; spinifex dominated rocky slopes	-22.0516	118.988	7/07/2008
S81112	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S64727	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3902	119.643	14/03/2010
S81086	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 290° from Newman	-23.1266	119.047	20/05/2011
S29641	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	78.5 km NW of Newman	-23.0838	119.023	17/03/2019
S81604	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	ca. 51 km NE of Auski Roadhouse	-21.9747	118.943	13/04/2013
S59586	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9427	119.233	19/06/2009
S83936	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	RIOTIO Greater West Angelas; Juna Downs Station	-23.1341	118.837	25/09/2012
S60521	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-22.9892	119.236	28/08/2008
S81098	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~76 km heading 290° from Newman	-23.1169	119.04	20/05/2011
S81044	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 286° from Newman	-23.1615	119.002	18/05/2011
S88200	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.3054	119.77	5/08/2013
S81799	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2853	119.773	29/04/2013
S88198	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.29	119.816	5/08/2013
S81030	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 289° from Newman	-23.1355	119.038	19/05/2011

S81791	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2741	119.74	29/04/2013
S88190	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2899	119.736	5/08/2013
S81790	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2844	119.74	29/04/2013
S81015	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1309	119.069	19/05/2011
S81525	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	OB35, ca. 8km WSW of Newman	-23.3875	119.656	13/09/2011
S81524	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	OB35, ca. 8km WSW of Newman	-23.3936	119.653	13/09/2011
S88214	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2885	119.738	5/08/2013
S81006	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.122	119.061	20/05/2011
S81815	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2892	119.795	29/04/2013
S60517	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-22.9632	119.228	29/08/2008
S14155	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Hamersley Range, Dales Gorge, N arm of Gorge below carpark, W side	-22.4666	118.617	31/08/1975
S14154	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Hamersley Range, Dales Gorge, N arm of Gorge below carpark	-22.4666	118.617	31/08/1975
S65610	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.3985	119.793	9/04/2011
S83518	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1606	119.016	23/04/2012
S83505	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1885	119.031	23/04/2012
S80920	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.5625	119.231	8/08/2011
S81175	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~80 km heading 285° from Newman	-23.1632	118.977	17/05/2011
S81430	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.3733	119.195	20/05/2011
S81173	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna	-23.1502	119.009	23/05/2011
S81681	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7253	119.064	14/05/2013
S81674	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.6991	118.997	14/05/2013
S81522	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	OB35, ca. 8km WSW of Newman	-23.3908	119.662	13/09/2011
S81828	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2758	119.807	29/04/2013
S81084	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 290° from Newman	-23.1201	119.048	20/05/2011
S81816	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2834	119.77	29/04/2013
S81817	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.323	119.79	29/04/2013
S64669	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.0883	119.017	12/05/2010
S81056	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~80 km heading 285° from Newman	-23.1632	118.977	17/05/2011
S81814	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3273	119.772	29/04/2013
S81058	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~79 km heading 286° from Newman	-23.1546	118.993	18/05/2011
S81829	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2834	119.75	5/04/2013
S81832	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3217	119.786	5/04/2013
S65970	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 289° from Newman	-23.1348	119.034	19/05/2011

S81075	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~71 km heading 290° from Newman	-23.1314	119.077	19/05/2011
S65974	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.122	119.061	20/05/2011
S81079	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.122	119.061	20/05/2011
S59297	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides cf. pacificus	epigean	widespread	W.A. Museum assessment	NW of Newman; Hope Downs	-23.0912	119.212	21/09/2008
S83498	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides eremicolus	epigean	widespread	W.A. Museum assessment	222 km SSE of Port Hedland	-22.3681	119.006	23/04/2012
S83471	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides eremicolus	epigean	widespread	W.A. Museum assessment	190 km SSE of Port Hedland	-22.0475	118.998	23/04/2012
S65160	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides ischnus	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3949	119.502	26/10/2010
S64686	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides ischnus	epigean	widespread	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.1322	119.198	12/05/2010
S41281	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides lepidulus	epigean	widespread	W.A. Museum assessment	Cloud Break area (N of Newman)	-22.3181	119.379	4/07/2006
S41282	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides lepidulus	epigean	widespread	W.A. Museum assessment	Cloud Break area (N of Newman)	-22.2997	119.374	3/07/2006
S41283	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides lepidulus	epigean	widespread	W.A. Museum assessment	Cloud Break area (N of Newman)	-22.321	119.444	4/07/2006
S34470	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides lepidulus	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.6663	119.232	30/06/2008
S34475	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides lepidulus	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.5739	119.256	5/09/2008
S60082	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides lepidulus	epigean	widespread	W.A. Museum assessment	120km NNW of Newman; Area C	-22.9313	119.038	13/06/2008
S60084	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides lepidulus	epigean	widespread	W.A. Museum assessment	26km from Marillana Homestead; Welli Wolli Creek; S side of creek	-22.5	119.217	29/05/1966
S41144	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides lepidulus	epigean	widespread	W.A. Museum assessment	Cloud Break area (N of Newman)	-22.2979	119.381	3/07/2006
S41169	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides lepidulus	epigean	widespread	W.A. Museum assessment	Cloud Break area (N of Newman)	-22.3188	119.377	4/07/2006
S41170	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides lepidulus	epigean	widespread	W.A. Museum assessment	Cloud Break area (N of Newman)	-22.265	119.317	4/07/2006
S41171	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides lepidulus	epigean	widespread	W.A. Museum assessment	Cloud Break area (N of Newman)	-23	119.217	5/07/2006
S65999	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~70 km heading 291° from Newman	-23.1287	119.09	19/05/2011
S59589	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9169	119.213	19/06/2009
S83323	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Southern Flank to Jinidi, 68.8km NW of Newman	-22.9627	119.204	4/02/2012
S59301	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	NW of Newman; Hope Downs	-23.103	119.582	18/09/2008
S81060	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1309	119.069	19/05/2011
S81571	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	119km NW of Newman; Area C West -Yandi	-22.6336	118.871	30/05/2011
S65696	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S64670	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.0191	119.034	12/05/2010
S64678	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	ca. 50 km NW of Fortescue Marsh	-22.2184	119.059	12/05/2010
S81041	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.121	119.063	20/05/2011
S81066	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S81037	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1309	119.069	19/05/2011
S65549	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	108km N of Newman	-22.3132	119.86	24/03/2011
S72330	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1309	119.069	19/05/2011
S81031	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.1185	119.065	20/05/2011
S65671	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	108km N of Newman	-22.3132	119.86	24/03/2011
S65669	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	115km N of Newman	-22.3134	119.789	24/03/2011
S65668	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S65693	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	112km NNE of Newman	-22.3871	119.966	24/03/2011
S65988	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S65338	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Karijini National Park; Knox Gorge; 63 kms NE of Tom Price	-22.3714	118.299	30/07/2010
S65532	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	113km N of Newman	-22.3351	119.653	22/03/2011
S65529	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2954	119.811	24/03/2011
S83928	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	RIOTIO Greater West Angelas; Juna Downs Station	-23.148	118.691	25/09/2012
S81111	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S65750	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	115km N of Newman	-22.3134	119.789	25/03/2011

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S59558	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Hammersley Range; 60km WNW Newman; Hope Downs	-23.0561	119.151	24/04/2009
S59590	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9219	119.204	19/06/2009
S65676	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	115km N of Newman	-22.3134	119.789	24/03/2011
S59583	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9275	119.128	18/06/2009
S83385	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	East of Woodstock Aboriginal Reserve, 50km NNE of Great Northern Hwy and Port Hedland-Wittenoom Rd junction, 6km SW of Redmont Airport	-22.0172	118.982	15/04/2012
S81849	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	ca.15 kms NE Roy Hill	-22.4932	120.019	18/04/2013
S81077	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1309	119.069	19/05/2011
S60083	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	26km from Marillana Homestead; Welli Wolli Creek; S side of creek	-22.5	119.217	29/05/1966
S60081	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	120km NNW of Newman; Area C	-22.9313	119.038	13/06/2008
S59569	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9177	119.204	19/06/2009
S81108	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.121	119.063	20/05/2011
S81695	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7386	118.996	14/05/2013
S65609	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.4078	119.877	11/04/2011
S65599	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.4061	119.738	8/04/2011
S83515	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	190 km SSE of Port Hedland	-22.0264	119.003	23/04/2012
S83504	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1493	119.025	23/04/2012
S83501	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	190 km SSE of Port Hedland	-22.0521	118.987	23/04/2012
S65656	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	115km N of Newman	-22.3134	119.789	24/03/2011
S65615	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.4314	119.915	8/04/2011
S65680	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S83493	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	190 km SSE of Port Hedland	-22.0427	119.007	23/04/2012
S81435	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.4285	119.204	20/05/2011
S81179	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.122	119.061	20/05/2011
S81688	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7259	118.984	14/05/2013
S80918	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.1164	119.245	19/07/2011
S83470	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	190 km SSE of Port Hedland	-22.0475	118.998	23/04/2012
S81166	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1309	119.069	19/05/2011
S81165	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S81700	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7386	118.996	14/05/2013
S65645	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	115km N of Newman	-22.3134	119.789	24/03/2011
S80930	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.1269	119.212	19/07/2011
S65648	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S65617	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.3932	119.78	11/04/2011
S65642	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S60520	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-23.053	119.27	27/08/2008
S60519	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-23.053	119.27	27/08/2008
S65639	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2954	119.811	24/03/2011
S60518	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-23.0504	119.273	27/08/2008
S65631	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S65651	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2954	119.811	24/03/2011
S65637	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2954	119.811	24/03/2011
S65628	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2954	119.811	24/03/2011
S83810	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	69km E Paraburdoo	-23.2555	118.262	18/06/2012
S60514	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-23.0504	119.273	27/08/2008
S65635	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	113km NNW of Newman	-22.3351	119.653	24/03/2011
S65636	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2972	119.863	24/03/2011
S60516	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-23.053	119.27	27/08/2008
S60501	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides pacificus	epigean	widespread	W.A. Museum assessment	60km NW of Newman	-23.053	119.27	27/08/2008
S58006	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides sp.	epigean	widespread	W.A. Museum assessment	North of Newman; upstream of Kalgan Pool; SSE facing slope of gorge base	-23.1874	119.696	24/06/2009
S29639	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides sp.	epigean	widespread	W.A. Museum assessment	88.2 km NW of Newman	-23.06	118.932	9/03/2019
S81118	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides sp.	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 290° from Newman	-23.1201	119.048	20/05/2011
S64758	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides sp.	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3837	119.648	14/08/2010
S29643	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides sp.	epigean	widespread	W.A. Museum assessment	82.5 km NW of Newman	-23.045	118.999	14/03/2019
S29642	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides sp.	epigean	widespread	W.A. Museum assessment	82.5 km NW of Newman	-23.045	118.999	14/03/2019
S29640	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides sp.	epigean	widespread	W.A. Museum assessment	81.6 km NW of Newman	-23.077	118.994	17/03/2019

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S59572	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides sp.	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9102	119.208	19/06/2009
S59306	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides sp.	epigean	widespread	W.A. Museum assessment	NW of Newman; Hope Downs	-23.0925	119.206	21/09/2008
S111516	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 80.9 km NW of Newman	-23.0779	119.001	25/05/2018
S111515	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 81.8 km NW of Newman	-23.0434	119.117	22/05/2018
S111513	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 80.3 km NW of Newman	-23.0483	119.021	25/05/2018
S65664	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides sp.	epigean	widespread	W.A. Museum assessment	118km N of Newman	-22.2954	119.811	24/03/2011
S111514	Gastropoda	Gastropoda (Snails)	Indet	Pupillidae	Pupoides sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 85.9 km NW of Newman	-23.083	118.947	23/05/2018
S88197	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.2928	119.858	5/08/2013
S65991	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~79 km heading 286° from Newman	-23.1592	118.993	17/05/2011
S65980	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S65212	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3395	119.277	26/10/2010
S65981	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S65982	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~77 km heading 288° from Newman	-23.1393	119.018	19/05/2011
S65984	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 290° from Newman	-23.1266	119.047	20/05/2011
S81089	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.121	119.063	20/05/2011
S83393	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	50km NNE of Great Northern Hwy and Port Hedland-Wittenoom Rd junction, 6km SW of Redmont Airport	-22.0195	118.982	15/04/2012
S81090	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.121	119.063	20/05/2011
S65989	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 286° from Newman	-23.1615	119.002	18/05/2011
S64719	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3945	119.639	15/03/2010
S83398	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Marillana Station, 62km E of Great Northern Hwy and Port Hedland Wittenoom Rd junction	-22.5746	119.256	16/04/2012
S83386	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	East of Woodstock Aboriginal Reserve, 50km NNE of Great Northern Hwy and Port Hedland-Wittenoom Rd junction, 6km SW of Redmont Airport	-22.0172	118.982	15/04/2012
S81095	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 291° from Newman	-23.1255	119.08	21/05/2011
S81097	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 290° from Newman	-23.1216	119.05	20/05/2011
S65994	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~77 km heading 288° from Newman	-23.1393	119.018	19/05/2011
S65995	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 290° from Newman	-23.1216	119.05	20/05/2011
S81100	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~77 km heading 289° from Newman	-23.1331	119.015	23/05/2011
S65997	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1309	119.069	19/05/2011
S81101	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~77 km heading 289° from Newman	-23.1331	119.015	23/05/2011
S81102	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~77 km heading 289° from Newman	-23.1331	119.015	23/05/2011
S81065	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S81093	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.1185	119.065	20/05/2011
S66228	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.4758	118.562	18/03/2015
S42665	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Pilbara; Hope Downs (~100km NW of Newman)	-23.0865	119.318	13/05/2008

S81067	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S81839	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.293	119.757	5/04/2013
S65968	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.1185	119.065	20/05/2011
S81072	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 288° from Newman	-23.1436	119.006	18/05/2011
S34480	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.584	119.311	5/09/2008
S65969	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.1185	119.065	20/05/2011
S66225	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.4758	118.562	18/03/2015
S66226	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.4758	118.562	18/03/2015
S81083	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 290° from Newman	-23.1201	119.048	20/05/2011
S65972	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.122	119.061	20/05/2011
S66235	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.4758	118.562	18/03/2015
S65537	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	112km N of Newman	-22.3871	119.966	26/03/2011
S66230	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.4758	118.562	18/03/2015
S65152	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3394	119.277	26/10/2010
S66231	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.4758	118.562	18/03/2015
S66232	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.4758	118.562	18/03/2015
S81080	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.122	119.061	20/05/2011
S66233	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.4758	118.562	18/03/2015
S66234	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.4758	118.562	18/03/2015
S81082	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 290° from Newman	-23.1201	119.048	20/05/2011
S29648	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	88.2 km NW of Newman	-23.06	118.932	9/03/2019
S66227	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.4758	118.562	18/03/2015
S61130	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Cloud Break area N of Newman	-22.2688	119.315	4/07/2006
S59475	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Pilbara; Mulga Downs Station; Murray Hills	-22.1123	118.521	19/04/2009
S59476	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Pilbara; Mulga Downs Station; Murray Hills	-22.1291	118.505	19/04/2009
S59545	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Hammersley Range; 60km WNW Newman; Hope Downs	-23.0878	119.161	27/04/2009
S59546	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Hammersley Range; 60km WNW Newman; Hope Downs	-23.0913	119.209	22/04/2009
S59547	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Hammersley Range; 60km WNW Newman; Hope Downs	-23.0919	119.188	27/04/2009
S59577	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9058	119.2	21/06/2009
S59578	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9247	119.199	21/06/2009
S59580	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9272	119.235	22/06/2009
S59582	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9275	119.128	18/06/2009
S58062	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	North of Newman; upstream of Kalgan Pool; NNW facing slope of gorge base	-23.1862	119.695	24/06/2009

S60362	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0678	-22.4943	119.922	26/05/2009
S59392	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7351	119.186	2/04/2009
S59597	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9058	119.2	21/06/2009
S64462	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Around the East Hamerlsey Range and Fortescue Marsh junction	-22.9841	119.771	20/04/2010
S60375	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0670	-22.4943	119.922	26/05/2009
S60380	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1937	-22.6076	119.983	29/10/2009
S60387	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1946	-22.6076	119.983	29/10/2009
S60389	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:1947	-22.6076	119.983	29/10/2009
S59386	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7412	119.196	3/04/2009
S59387	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7316	119.193	4/04/2009
S59391	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7316	119.193	4/04/2009
S59588	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	65km NW of Newman; Jinayri	-22.9169	119.213	19/06/2009
S83431	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Area C West to Yandi, 110km NW of Newman	-22.7425	118.88	5/02/2012
S29649	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	70.8 km NW of Newman	-23.0416	119.129	11/03/2019
S64721	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4108	119.572	15/03/2010
S29650	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	88.2 km NW of Newman	-23.06	118.932	9/03/2019
S29651	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	81.6 km NW of Newman	-23.077	118.994	17/03/2019
S29652	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	78.5 km NW of Newman	-23.0838	119.023	17/03/2019
S64724	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4108	119.572	15/03/2010
S29653	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	84.2 km NW of Newman	-23.0606	118.974	12/03/2019
S64725	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3943	119.632	15/03/2010
S83931	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	RIOTIO Greater West Angelas; Juna Downs Station	-23.1229	118.862	25/09/2012
S60424	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0770	-22.4793	119.942	26/05/2009
S58081	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	North of Newman; upstream of Kalgan Pool; W facing side of gorge	-23.1872	119.696	24/06/2009
S59393	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7412	119.196	3/04/2009
S64743	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.4108	119.572	14/08/2010
S64746	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3723	119.64	15/08/2010
S58094	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Between Newman and Nullagine on W side of road; top of S facing slope	-22.3848	119.97	25/06/2009
S83441	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	South Parmelia, 52.1km NW of Newman	-23.0336	119.176	3/02/2012
S88051	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3307	119.76	5/08/2013
S64757	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	ca. 8 km W of Newman; Ore Body 35	-23.3943	119.632	15/08/2010
S59384	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.732	119.184	2/04/2009
S59385	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.7412	119.196	3/04/2009

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S59389	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Hammersley Range; Phils Creek	-22.732	119.184	2/04/2009
S66229	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park, Dales Gorge, Circular Pool	-22.4758	118.562	18/03/2015
S83933	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	RIOTIO Greater West Angelas; Juna Downs Station	-23.123	118.874	25/09/2012
S83812	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	69km E Paraburdoo	-23.2555	118.262	18/06/2012
S61772	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	ca. 60km NW of Newman	-23.0504	119.273	27/08/2008
S65616	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.3932	119.78	11/04/2011
S34640	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.626	119.283	10/10/2008
S59228	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.0248	119.244	30/08/2008
S59229	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.053	119.27	27/08/2008
S59230	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.053	119.27	27/08/2008
S81078	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 290° from Newman	-23.1309	119.069	19/05/2011
S59232	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.053	119.27	27/08/2008
S81061	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~79 km heading 286° from Newman	-23.1592	118.993	17/05/2011
S81521	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	OB35, ca. 8km WSW of Newman	-23.3908	119.664	13/09/2011
S59235	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.0504	119.273	27/08/2008
S65607	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.4314	119.915	8/04/2011
S59236	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.053	119.27	27/08/2008
S59237	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.0504	119.273	27/08/2008
S59238	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.0504	119.273	27/08/2008
S65129	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3652	119.341	26/10/2010
S65130	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3652	119.341	26/10/2010
S81003	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.121	119.063	20/05/2011
S65390	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Roy Hill Station; EE09:0651	-22.4547	119.871	27/05/2009
S81007	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.1185	119.065	20/05/2011
S81008	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 288° from Newman	-23.1436	119.006	18/05/2011
S59234	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.0129	119.237	1/09/2008
S81694	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7396	119	14/05/2013
S80909	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Marillana, 100 Km N of Newman	-22.5625	119.231	8/08/2011
S81680	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7253	119.064	14/05/2013
S83472	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.2334	119.022	23/04/2012
S81682	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7138	119.01	14/05/2013
S81429	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.3733	119.195	20/05/2011
S81431	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.3476	119.152	20/05/2011

S65306	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park; Dales Gorge; 82 kms ENE of Tom Price	-22.4782	118.56	30/07/2010
S81181	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.122	119.061	20/05/2011
S83485	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.1554	119.022	23/04/2012
S34636	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	East Pilbara; Maralina Station; about 60km ESE of Auski Roadhouse	-22.5552	119.23	6/09/2008
S81438	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Marillana; 100 km NW Newman	-22.4285	119.204	20/05/2011
S65608	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Christmas Creek	-22.3515	119.771	10/04/2011
S65313	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park; Dales Gorge; 82 kms ENE of Tom Price	-22.4777	118.563	30/07/2010
S81698	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7386	118.996	14/05/2013
S81699	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Yandi (Marillana Ck) ca. 98km NW Newman	-22.7386	118.996	14/05/2013
S65316	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park; Mt Meharry; 86 kms ESE of Tom Price	-22.9819	118.588	26/07/2010
S65321	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park; 83 kms ESE of Tom Price	-22.9416	118.568	25/07/2010
S83513	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	208 km SSE of Port Hedland	-22.2035	119.023	23/04/2012
S65346	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Juna Downs Station; 75 kms ESE of Tom Price	-22.9211	118.494	27/04/2010
S65347	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park; Knox Gorge; 63 kms NE of Tom Price	-22.3714	118.299	30/07/2010
S65348	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park; Dales Gorge; 82 kms ENE of Tom Price	-22.4778	118.559	30/07/2010
S59233	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Jinayri area	-23.025	119.243	30/08/2008
S65309	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Karijini National Park; Mt Meharry; 87 kms ESE of Tom Price	-22.9797	118.589	26/07/2010
S81010	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.1185	119.065	20/05/2011
S88215	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.2968	119.727	5/08/2013
S83352	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Mudlark, 101.2km NW of Newman	-23.077	118.787	6/02/2012
S58008	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	North of Newman; upstream of Kalgan Pool; SSE facing slope of gorge base	-23.1874	119.696	24/06/2009
S81049	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 286° from Newman	-23.1615	119.002	18/05/2011
S83353	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Mudlark, 101.1km NW of Newman	-23.077	118.787	6/02/2012
S81050	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 289° from Newman	-23.1355	119.038	19/05/2011
S83354	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Mudlark, 95km NW of Newman; narrow gorge several hundred metres up from entrance of mt robinson.	-23.0393	118.853	6/02/2012
S88218	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3207	119.754	5/08/2013
S65692	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	112km NNE of Newman	-22.3871	119.966	24/03/2011
S83351	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Mudlark, 91.6km NW of Newman	-23.0477	118.885	6/02/2012
S88220	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3329	119.764	5/08/2013
S59292	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	NW of Newman; Hope Downs	-23.103	119.582	18/09/2008
S59293	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	NW of Newman; Hope Downs	-23.0918	119.188	20/09/2008
S59231	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Jinayri area	-22.9842	119.268	1/09/2008
S81055	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~80 km heading 285° from Newman	-23.1632	118.977	17/05/2011

S83359	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Mudlark, 102.4km NW of Newman	-23.0779	118.752	6/02/2012
S59295	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	NW of Newman; Hope Downs	-23.0912	119.212	21/09/2008
S81824	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2909	119.861	5/04/2013
S81057	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~80 km heading 285° from Newman	-23.1632	118.977	17/05/2011
S81569	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	119km NW of Newman; Area C West -Yandi	-22.6336	118.871	30/05/2011
S83361	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Mudlark, 101.1km NW of Newman	-23.077	118.787	6/02/2012
S83356	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Mudlark, 93.6km NW of Newman	-23.0476	118.885	6/02/2012
S81029	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~75 km heading 289° from Newman	-23.1355	119.038	19/05/2011
S81047	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 286° from Newman	-23.1615	119.002	18/05/2011
S81012	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 291° from Newman	-23.1255	119.08	21/05/2011
S81013	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~73 km heading 291° from Newman	-23.122	119.061	20/05/2011
S65141	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3251	119.446	26/10/2010
S81014	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~72 km heading 291° from Newman	-23.1255	119.08	21/05/2011
S81526	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	OB35, ca. 8km WSW of Newman	-23.3905	119.664	13/09/2011
S81527	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	OB35, ca. 8km WSW of Newman	-23.3908	119.663	13/09/2011
S81783	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3322	119.78	29/04/2013
S81017	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna	-23.1502	119.009	23/05/2011
S59294	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	NW of Newman; Hope Downs	-23.0925	119.206	21/09/2008
S65147	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Cloudbreak	-22.3652	119.341	26/10/2010
S59271	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Jinayri area	-22.9427	119.233	29/03/2009
S59272	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Jinayri area	-22.9263	119.204	27/03/2009
S81804	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Orebody 24 ca. 7km N of Newman	-23.2872	119.724	5/04/2013
S65933	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Angelo River	-23.3171	118.812	20/06/2011
S88207	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Orebody 25 ca. 5km N of Newman	-23.3307	119.76	5/08/2013
S65937	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Angelo River	-23.37	118.83	20/06/2011
S81043	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 286° from Newman	-23.1615	119.002	18/05/2011
S58003	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	North of Newman; upstream of Kalgan Pool; E facing side of gorge	-23.1877	119.697	24/06/2009
S88212	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	`Homestead` ca. 6km N of Newman	-23.3255	119.748	5/08/2013
S81045	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 286° from Newman	-23.1615	119.002	18/05/2011
S81046	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Wonmunna; ~78 km heading 286° from Newman	-23.1615	119.002	18/05/2011
S83322	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Eremopeas interioris	epigean	widespread	W.A. Museum assessment	Area C West, 120.1km NW of Newman	-22.8885	118.674	13/02/2012
S111518	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Subulinidae sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 81.8 km NW of Newman	-23.0434	119.117	22/05/2018
S111522	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Subulinidae sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 76.2 km NW of Newman	-23.0391	119.072	22/05/2018

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S111521	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Subulinidae sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 70.4 km NW of Newman	-23.0372	119.136	24/05/2018
S111517	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Subulinidae sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 80.3 km NW of Newman	-23.0483	119.021	25/05/2018
S111519	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Subulinidae sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 81.4 km NW of Newman	-23.0782	118.995	25/05/2018
S111520	Gastropoda	Gastropoda (Snails)	Indet	Subulinidae	Subulinidae sp.	epigean	widespread	W.A. Museum assessment	Greater Hope Downs, 81.8 km NW of Newman	-23.0434	119.117	22/05/2018
S65665	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	118km N of Newman	-22.2954	119.811	24/03/2011
S81124	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	Wonmunna	-23.1502	119.009	23/05/2011
S81884	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	ca. 18 km N. Wittenoom	-22.0679	118.303	20/05/2013
S64475	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	Fortescue Marsh	-22.3108	119.15	20/11/2009
S60365	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	Roy Hill Station; EE09:0794	-22.5769	119.995	25/05/2009
S59330	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	East Pilbara; Juna Downs Pastoral lease; ~55.5km S of Auski Roadhouse	-22.8697	118.674	17/06/2008
S61096	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	Pilbara; 40km S of Nullagine; Bonney Creek Station	-22.0209	119.931	11/10/2008
S65691	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	118km N of Newman	-22.2954	119.811	24/03/2011
S65685	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	118km N of Newman	-22.2954	119.811	24/03/2011
S81040	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	Wonmunna; ~74 km heading 289° from Newman	-23.1356	119.046	19/05/2011
S65674	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	118km N of Newman	-22.2954	119.811	24/03/2011
S65666	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	118km N of Newman	-22.2972	119.863	24/03/2011
S65661	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	118km N of Newman	-22.2954	119.811	24/03/2011
S81020	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	Wonmunna	-23.1502	119.009	23/05/2011
S65660	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	118km N of Newman	-22.2954	119.811	24/03/2011
S65658	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	115km N of Newman	-22.3134	119.789	24/03/2011
S83828	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	63.5km ESE Paraburdoo	-23.2884	118.285	18/06/2012
S65640	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	118km N of Newman	-22.2954	119.811	24/03/2011
S83507	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	190 km SSE of Port Hedland	-21.9586	118.992	23/04/2012
S83971	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	157 km SSE. Of Coongan HMSD	-22.1	119.867	22/12/2012
S64689	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	ca. 50 km NW of Fortescue Marsh	-22.0191	119.034	12/05/2010
S64646	Gastropoda	Gastropoda (Snails)	Indet	Succineidae	Succinea sp.	epigean	Potential SRE: DD	Genus contains SREs and Potential SREs	Fortescue Marsh east	-22.4252	119.724	2/06/2010
T135590	Symphyla	Symphyla	Cephalostigmat	Indet	Cephalostigmata sp.	epigean	Potential SRE: DD	Class contains numerous SREs. Epigean forms rarely collected in the Pilbara	Karijini National Park, c. 15 km SW. of Hancock Gorge	-22.46083	118.1947	15/03/2015
T135494	Symphyla	Symphyla	Cephalostigmat	Indet	Cephalostigmata sp.	epigean	Potential SRE: DD	Class contains numerous SREs. Epigean forms rarely collected in the Pilbara	Karijini National Park, Kalamina Gorge	-22.41556	118.4039	13/03/2015
T114447	Symphyla	Symphyla	Symphyla	Indet	Symphyla sp.	Epigean	Potential SRE: DD	Class contains numerous SREs. Epigean forms rarely collected in the Pilbara	Karijini National Park, Dales Gorge, Circular Pool	-22.47583	118.5619	18/03/2015

WAM Database Search Interpretation

At the time when the database searches were requested from the Western Australian Museum, there was limited taxonomic support provided for database searches with NO screening for SRE or subterranean fauna. Database search results for arachnids (pseudoscorpions, scorpions and spiders) and myriapods (centipedes and millipedes) consisted of ALL records from within the Search Area. Database search results were edited prior to screening for SREs to enforce consistency between the different departmental databases. The following edits and filters were applied to the combined data:

A new field "Binomial" was created, into which the Genus and Species field values were concatenated, e.g. Genus [Lychas] + Species [`gracilimanus`] --> Binomial [Lychas 'gracilimanus']

a. Where the genus field was empty or contained the values "Unknown" or "gen. nov.", the unitalicized family rank name was used instead of genus.
b. Where both family and genus fields were empty, unknown, the unitalicized order rank was used in place of the genus.
c. all unidentified 'species' in the 'Binomial' field (e.g. "sp. indet. (juvenile)", "sp?", "unknown") were renamed to "sp. indet."
d. All Binomial morphospecies names ending in "sp. n." were renamed without that suffix, e.g. "Rhagada 'pannawonica' sp. n." was renamed to Rhagada 'pannawonica'.

A field was created called "Ecotype", into which the ecotype of the species was manually recorded, based on taxon and/or sampling methods:

a. Epigean: all species obtained through terrestrial survey methods or belonging to taxa only known to be epigean in W.A., e.g. trapdoor spiders.

b. Troglobite: 'named' species or morphospecies obtained using subterranean sampling methods or from taxa known predominantly from subterranean habitats, e.g. schizomids.

c. ?Epigean: unidentified species from subterranean survey methods of groups known to contain epigean SREs in the Pilbara, e.g. Centipedes from the order Geophilomorpha or family Cryptopidae.

d. ?troglobite: Unidentified species obtained from subterranean fauna survey methods of orders or families rarely sampled in SRE surveys in the Pilbara, e.g. Millipede families Haplodesmidae and Dolodesmidae.

e. Marine and Aquatic: marine and freshwater species respectively.

The data were filtered to exclude records with ecotypes that were not "epigean" or "?epigean".

4 The SRE status of each species present in the filtered data was assessed according to the SRE categories previously used by the WAMTS (Western Australian Museum Taxonomic Services).

Search Location: 50K 714830.00 m E, 7482087.00 m S

Search Area: 200 x 200 km

Appendix II Field Data: Location and Habitat Data

Appendix II Habitat Data

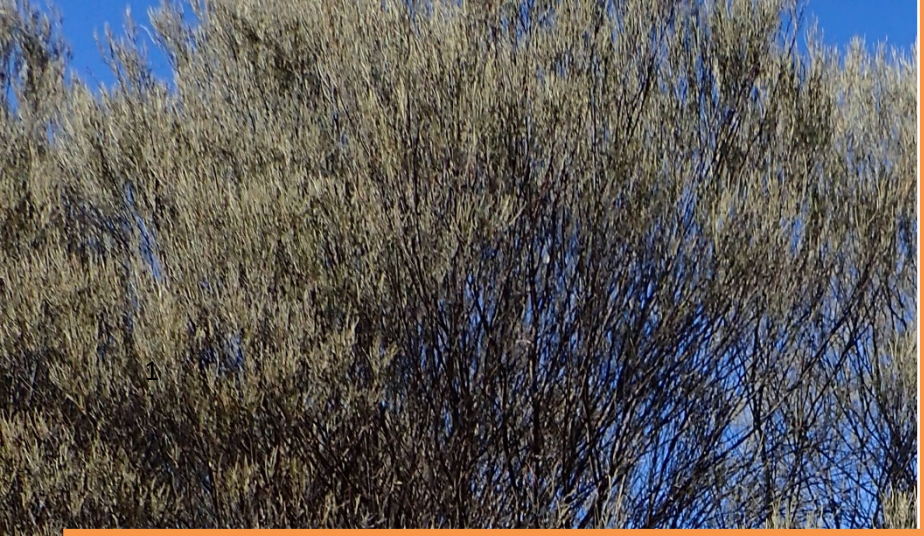
Date	Site Name	Habitat	Broad Habitat	Slope	Shading	Soil	Soil Colour	Soil Comments	Rocks	Litter Depth	Litter Distribution	Large Fallen Logs	Fire History	Disturbance	Drainage	Main_Veget Form	Easting	Northing	Zone
17/02/2021	LC01	Medium Drainage	Medium Drainage	Negligible	Minimal Shading from topography, Shade only under corymbias	Loam	Red Brown	Some piles of soil but not deep even under trees	Negligible	0-2cm	Patchy Under Trees	None	Within 5 years	Buffel grass	Creek Wide	Open Woodland	691730.6	7477159.8	50
17/02/2021	LC02	Medium Drainage	Medium Drainage	Negligible	Some shade from vegetation not heavy	Loam	Red Brown			2-5 cm	Patchy Under Trees		Long Unburnt	Buffel grass	Creek Wide	Open Woodland	691751.39	7477231.6	50
17/02/2021	LC03	Medium Drainage	Medium Drainage	Gentle	Some shading from vegetation	Loam	Red Brown			Gr20cm	Patchy Under Trees	Some	Long Unburnt	Creek choked with buffel grass	Creek Wide	Open Woodland	691483.75	7476658.5	50
17/02/2021	LC04	Mulga Shrubland Patches	Mulga/corymbia plain	Negligible	Some shading from patchy vegetation (mulgas)	Sandy Clay Loam	Red Brown	Mostly hard soil except right against trees	Small Rocks	2-5 cm	Patchy Under Trees	Some	Within 5 years	Buffel grass	Sheet flow		691578.66	7476651	50
18/02/2021	LC05	Mulga Shrubland Patches	Mulga/corymbia plain	Negligible	Some shading from patchy vegetation (mulgas)	Sandy Clay Loam	Red Brown	Patches of soil mostly shallow 0-5cm		2-5 cm	Patchy Under Trees		Within 10 years	Buffel grass	Sheet flow	Open Shrubland	691809.64	7475592	50
18/02/2021	LC06	Mulga Shrubland Patches	Mulga/corymbia plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown		Small Rocks	2-5 cm	Patchy Under Trees		Within 10 years	Buffel grass	Sheet flow	Open Shrubland	691874.62	7475537.1	50
19/02/2021	LC07	Mulga Shrubland Patches	Mulga/corymbia plain	Negligible	Average shading from vegetation	Sandy Clay Loam	Red Brown	Skeletal hard soil between mulga patches	Small Rocks	2-5 cm	Patchy Under Trees	Some	Within 5 years		Sheet flow	Open Shrubland	690726.58	7476079.3	50
19/02/2021	LC08	Mulga Shrubland Patches	Mulga/corymbia plain	Negligible	Some shading from patchy vegetation	Loam	Red Brown	Loamy. The mulga patch tending to sandy clay loam out of the patch	Pebbles	5-10 cm	Patchy Under Trees	Some	Within 10 years		Sheet flow	Open Shrubland	690772.62	7475978.9	50
19/02/2021	LC09	Mulga Shrubland Patches	Mulga/corymbia plain	Negligible	Some shading from patchy vegetation	Loam	Red Brown		Surface sprinkle	2-5 cm	Patchy Under Trees	Some	Within 10 years	Buffel grass	Sheet flow	Open Shrubland	692264.79	7477404.7	50
20/02/2021	LC10	Mulga Shrubland Patches	Mulga/corymbia plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown		Surface sprinkle	5-10 cm	Patchy Under Trees		Within 10 years	Buffel grass	Sheet flow	Open Shrubland	692336.31	7477314.8	50
20/02/2021	LC11	Hillcrest/ hillslope	Hillcrest/ hillslope	Gentle	Minimal Shading from topography	No Soil	Red Brown	Skeletal under rocks	Gravel	Negligible		None	Within 10 years		Negligible		694331.16	7476078.3	50
20/02/2021	LC12	Shallow Open Gully	Shallow Open Gully	Steep	Some shade from topography	Sandy Clay Loam	Dark Brown			Gr20cm	Patchy against rocks	None	Long Unburnt		gully	Spinifex Grassland	694379.69	7475884.1	50
20/02/2021	LC13	Deep Gully	Deep Gully	Steep	Some shade from topography	No Soil	Red Brown	Patches of soil (sandy clay loam) against rocks, not deep	Large Rocks	5-10 cm	Patches of litter under trees and against rocks	None	Long Unburnt		gully	Spinifex Grassland	694389.26	7475797.2	50
20/02/2021	LC14	Shallow Open Gully	Shallow Open Gully	Steep	Some shade from topography	No Soil	Red Brown	Patches of soil (sandy clay loam) against rocks, not deep	Large Rocks	5-10 cm	Patches of litter under trees and against rocks	None	Long Unburnt		gully	Spinifex Grassland	694288.2	7475719.9	50

Date	Site Name	Habitat	Broad Habitat	Slope	Shading	Soil	Soil Colour	Soil Comments	Rocks	Litter Depth	Litter Distribution	Large Fallen Logs	Fire History	Disturbance	Drainage	Main_Veget Form	Easting	Northing	Zone
21/02/2021	LC15	Mulga Shrubland Patches	Mulga/corymbia plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown	Some soil against trees but not deep	Small Rocks	2-5 cm	Patchy Under Trees	Some	Within 5 years		Sheet flow	Open Shrubland	690264.72	7476809.2	50
21/02/2021	LC16	Stony Plain	Stony Plain	Negligible	Minimal Shading from topography	Clay_loam	Red Brown	Skeletal under rocks	Small Rocks on surface	0-2cm	Patchy Under Trees	None	Within 5 years		Negligible	Spinifex Grassland	692741.5	7477004	50
21/02/2021	LC17	Hillcrest/ hillslope	Hillcrest/ hillslope	Gentle	Minimal Shading from topography	Clay_loam	Red Brown	Skeletal	Small Rocks	Negligible		None	Within 10 years		Negligible	Spinifex Grassland	693400.78	7476697.5	50
21/02/2021	LC18	Minor Drainage	Minor Drainage	Moderate	Minimal Shading from topography	No Soil	Red Brown	Very little soil mostly creek gravel	Gravel	0-2cm			Within 10 years		Creek Narrow	Open Shrubland	693385.61	7476629.3	50
21/02/2021	LC19	Hillcrest/ hillslope	Hillcrest/ hillslope	Gentle	Minimal Shading from topography	Clay_loam	Red Brown		Small Rocks, Soil is present under rocks but skeletal	Negligible			Within 5 years		Negligible	Spinifex Grassland	694647.79	7475985.4	50
21/02/2021	LC20	Shallow Open Gully	Shallow Open Gully	Moderate	Some shade from topography	Sandy Clay Loam	Dark Brown		Large Rocks	2-5 cm	Patches of litter under trees and against rocks	None	Long Unburnt		gully	Spinifex Grassland	694800.9	7475965.1	50
21/02/2021	LC 21	Deep Gully	Deep Gully	Moderate	Some shade from topography	Sandy Clay Loam	Dark Brown		Small Rocks	5-10 cm	Patches of litter in the twist and turns of gullies or gorges	None	Long Unburnt		gully		694883.35	7475947.5	50
22/02/2021	LC22	Stony Plain	Stony Plain	Gentle	Minimal Shading from topography	Sandy Clay Loam	Red Brown	Skeletal under rocks	Small Rocks	0-2cm	Patchy Under Trees	None	Within 5 years		Negligible	Spinifex Grassland	687114.4	7476173.8	50
22/02/2021	LC23	Minor Drainage	Minor Drainage	Gentle	Minimal Shading from topography and vegetation	Sandy Clay Loam	Red Brown	Little bit deeper under trees; patches of loamier soil in places	Gravel	0-2cm	Patchy Under Trees	None	Within 5 years		Creek Narrow	Other	687235.88	7476276.6	50
22/02/2021	LC24B	Stony Plain	Stony Plain	Negligible	Minimal Shading from topography and vegetation	Loam	Red Orange		Pebbles	5-10 cm	Patchy Under Trees	None	Within 5 years	Edge of laydown and road	Sheet flow	Open Woodland	692511.24	7476409.2	50
22/02/2021	LC24A	Stony Plain	Stony Plain	Negligible	Minimal Shading from topography and vegetation	Loam	Red Orange		Pebbles	5-10 cm	Patchy Under Trees	None	Within 5 years	Next to laydown and road	Sheet flow	Open Woodland	692218.17	7476788.5	50
22/02/2021	LC25	Minor Drainage	Minor Drainage	Gentle	Minimal Shading from topography and vegetation	No Soil	Red Brown	Skeletal Clay loam under rocks	Small Rocks	0-2cm	Patchy Under Trees	Some	Within 5 years	Exploration disturbance	Creek Narrow	Open Shrubland	692318.72	7476031.6	50
22/02/2021	LC26	Hillcrest/ hillslope	Hillcrest/ hillslope	Gentle	Minimal Shading from topography and vegetation	Loam	Red Brown	Skeletal under rocks	Small Rocks	Negligible		None	Within 5 years	Exploration	Negligible	Open Shrubland	692152.09	7475861.3	50
22/02/2021	LC27B	Stony Plain	Stony Plain	Gentle	Minimal Shading from topography and vegetation	Sandy Clay Loam	Red Brown	Soil under rocks	Small Rocks	0-2cm	Patchy Under Trees	None	Within 10 years		Negligible	Spinifex Grassland	684003.25	7473771.8	50
22/02/2021	LC27A	Minor Drainage	Minor Drainage	Gentle	Some shading from vegetation	Sandy Clay Loam	Red Brown	Patches of deeper soil in creekbed but still not that deep	Surface sprinkle	0-2cm	Patchy Under Trees	None	Within 10 years		Creek Narrow	Other	684032.84	7473928.5	50
23/02/2021	LC 28	Stony Plain	Stony Plain	Gentle	Minimal Shading from topography and vegetation	Sandy Clay Loam	Red Brown		Surface sprinkle	5-10 cm	Patchy Under Trees	Some	Within 10 years		Creek Narrow	Shrubland	683361.54	7473308.9	50
23/02/2021	LC 29A	Stony Plain	Stony Plain	Gentle	Minimal Shading from topography and vegetation	Sandy Clay Loam	Red Brown		Small Rocks	0-2cm	Patchy Under Trees	Some	Within 5 years		Negligible	Spinifex Grassland	683413.49	7473241	50

Date	Site Name	Habitat	Broad Habitat	Slope	Shading	Soil	Soil Colour	Soil Comments	Rocks	Litter Depth	Litter Distribution	Large Fallen Logs	Fire History	Disturbance	Drainage	Main_Veget Form	Easting	Northing	Zone
23/02/2021	LC29B	Minor Drainage	Minor Drainage	Gentle	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown		Surface sprinkle	2-5 cm	Patchy Under Trees	None	Within 10 years		Creek Narrow	Shrubland	683019.84	7472195.7	50
23/02/2021	LC30	Stony Plain	Stony Plain	Gentle	Minimal Shading from topography and vegetation	Sandy Clay Loam	Red Brown		Small Rocks	Negligible	Even	None	Long Unburnt		Negligible	Spinifex Grassland	682956.21	7472197.5	50
24/02/2021	LC31	Tussock grassland plain	Tussock grassland plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown	Quite dry	Surface sprinkle	2-5 cm	Patchy Under Trees	None	Within 10 years			Open Woodland/ grassland	684046.02	7469318.5	50
24/02/2021	LC32	Tussock grassland plain	Tussock grassland plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown	Quite dry	Surface sprinkle	2-5 cm	Patchy Under Trees	None	Within 10 years			Open Woodland/ grassland	684130.16	7469366	50
24/02/2021	LC33	Tussock grassland plain	Tussock grassland plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown			2-5 cm	Patchy Under Trees	Some	Within 10 years	Buffel grass	Creek Wide	Open Woodland/ grassland	685147.6	7468502.9	50
24/02/2021	LC34	Tussock grassland plain	Tussock grassland plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown			2-5 cm	Patchy Under Trees	None	Within 10 years	Buffel grass	Creek Wide	Open Woodland/ grassland	685073.66	7468505.3	50
24/02/2021	LC35	Tussock grassland plain	Tussock grassland plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown			2-5 cm	Patchy Under Trees	None	Within 10 years	Buffel grass	Creek Wide	Open Woodland/ grassland	685046.68	7468252.4	50
24/02/2021	LC36	Minor Drainage	Minor Drainage	Gentle	Minimal Shading from topography and vegetation	No Soil	Red Brown		Gravel	0-2cm	Patchy Under Trees	None	Within 5 years		Creek Narrow	Open Shrubland	683317.24	7470009.9	50
24/02/2021	LC37A	Stony Plain	Stony Plain	Gentle	Minimal Shading from topography and vegetation	Sandy Clay Loam	Red Brown		Small Rocks	0-2cm	Patchy Under Trees	None	Within 5 years				683263.51	7470052.9	50
25/02/2021	LC37	Minor Drainage	Minor Drainage	Gentle	Minimal Shading from topography and vegetation	No Soil	Red Brown		Gravel	Negligible		None	Within 5 years		Creek Wide	Open Shrubland	693722.6	7477914.9	50
25/02/2021	LC38	Hillcrest/ hillslope	Hillcrest/ hillslope	Negligible	Minimal Shading from topography and vegetation	Loam	Red Orange		Small Rocks	Negligible	Patchy Under Trees	None	Within 5 years			Spinifex Grassland	693720.91	7477981.9	50
25/02/2021	LC39A	Medium Drainage	Medium Drainage	Gentle	Some shading from patchy vegetation	Loam	Red Brown			Gr20cm	Patchy Under Trees	Some	Long Unburnt	Creek choked with buffel grass	Creek Wide	Open Woodland	692608.6	7477833.7	50
25/02/2021	LC39	Medium Drainage	Medium Drainage	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown		Surface sprinkle	5-10 cm	Patchy Under Trees		Within 10 years		Sheet flow	Open Woodland	692440.57	7477837.2	50
25/02/2021	LC40	Stony Plain	Stony Plain	Gentle	Minimal Shading from topography and vegetation	Loam	Red Brown	Skeletal under rocks	Small Rocks	Negligible		None	Within 5 years	Exploration rehab	Negligible	Spinifex Grassland	692479.53	7477649.2	50
25/02/2021	LC41	Tussock grassland plain	Tussock grassland plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown			2-5 cm	Patchy Under Trees	None	Within 10 years	Buffel grass	Sheet flow	Open Woodland/ grassland	684223.16	7468840.2	50
25/02/2021	LC42	Tussock grassland plain	Tussock grassland plain	Negligible	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown			2-5 cm	Patchy Under Trees	None	Within 10 years	Buffel grass	Creek Wide	Open Woodland/ grassland	684045.25	7468807.2	50
22/02/2021	LC42A	Minor Drainage	Minor Drainage	Gentle	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown	Patches of deeper soil in creekbed but still not that deep	Surface sprinkle	0-2cm	Patchy Under Trees	None	Within 10 years		Creek Narrow	Other	684659.52	7474554.3	50
23/02/2021	LC44	Minor Drainage	Minor Drainage	Gentle	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown		Surface sprinkle	2-5 cm	Patchy Under Trees	None	Within 10 years		Creek Narrow	Shrubland	685150.51	7474776.6	50
22/02/2021	LC43	Minor Drainage	Minor Drainage	Gentle	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown	Patches of deeper soil in creekbed but still not that deep	Surface sprinkle	0-2cm	Patchy Under Trees	None	Within 10 years		Creek Narrow	Other	684796.95	7474492.7	50

Date	Site Name	Habitat	Broad Habitat	Slope	Shading	Soil	Soil Colour	Soil Comments	Rocks	Litter Depth	Litter Distribution	Large Fallen Logs	Fire History	Disturbance	Drainage	Main_Veget Form	Easting	Northing	Zone
23/02/2021	LC45	Minor Drainage	Minor Drainage	Gentle	Some shading from patchy vegetation	Sandy Clay Loam	Red Brown		Surface sprinkle	2-5 cm	Patchy Under Trees	None	Within 10 years		Creek Narrow	Shrubland	685087.82	7474822.8	50

Appendix III Lamb Creek SRE Barcoding Report



Alacran Environmental Science

Report No. 2116

DNA Barcoding Report for Samples From Lamb Creek

Prepared for

Rapallo

6/12/2021

ABN 33577027061

www.alacranenvironmental.com

Title	DNA Barcoding Report for Samples From Lamb Creek
Report No.	2116
Version	Final
Prepared by	Dr Erich S. Volschenk
Submitted to	Marieke Weerheim and Kate George (Rapallo)
Date submitted	6/12/2021

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Limitation: This report was prepared for Rapallo to inform their invertebrate survey identifications. *Alacran* Environmental Science accepts no liability or responsibility for any use or reliance on this report beyond its purpose. The accuracy and completeness of the information supplied by Rapallo, Genbank or the W.A. Museum have not been verified.

EXECUTIVE SUMMARY

During short-range endemic (SRE) surveys at Lamb Creek (W.A.), Rapallo sampled a collection of potential SRE invertebrates. A subset of 58 specimens representing unidentifiable and or ambiguously identified taxa was sequenced for the gene Cytochrome C Oxidase subunit I (COI) for the purpose of species delimitation (DNA barcoding). A total of 56 samples yielded DNA sequences from eight (8) groups (Orders) of invertebrates, and 26 putative species. Of the 26 distinct species recognised in this collection, one is a described species, 13 belong to known morphospecies and 12 could not be matched with reference sequences. Four of these taxa are known to be widespread, 10 are potential short-range endemics owing to geographical data deficiency (DDG) and two are potential SRE owing to taxonomic data deficiency (DDT):

- Mygalomorphae (trapdoor spiders)
    - Family Anamidae (open hole trapdoor spiders)
        1. *Aname mellosa*, widespread
        2. *Kwonkan* 'MYG324', potential SRE:DDG
    - Family Barychelidae (brush footed trapdoor spiders)
        3. *Synothele* 'MYG311', widespread
- Pseudoscorpiones (pseudoscorpions)
    - Family Atemnidae
        4. *Oratemnus* 'WA1', widespread
    - Family Chthoniidae
        5. *Austrochthonius* 'LCr01', potential SRE:DDT
    - Family Olpiidae
        6. *Euryolpium* 'LCr01', potential SRE:DDG
        7. *Indolpium* 'LCr03', potential SRE:DDG
        8. *Indolpium* 'LCr04', potential SRE:DDG
        9. *Indolpium* 'LCr05', potential SRE:DDG
        10. Olpiidae 'LCr02', potential SRE:DDG
- Scorpiones (scorpions)
    - Family Buthidae (narrow handed scorpions)
        11. *Lychas* 'hairy tail complex', potential SRE:DDG
        12. *Lychas* 'bituberculatus complex', potential SRE:DDG
        13. *Lychas* 'SCO046 (multipunctatus complex)', potential SRE:DDG
- Geophilomorpha (soil centipedes)
    - Family Chilenophilidae
        14. *Sepedonophilus*, 'LCr01', potential SRE:DDG
    - Family Mecistocephalidae
        15. *Mecistocephalus* 'LCr01', potential SRE:DDG
        16. *Mecistocephalus* 'LCr02', potential SRE:DDG
    - Family Oryidae
        17. *Orphnaeus* 'LCr01', potential SRE:DDG
- Scolopendromorpha (centipedes)
    - Family Cryptopidae
        18. *Cryptops* 'LCr01', potential SRE:DDG

19 *Cryptops* 'LCr02', potential SRE:DDG

- Spirobolida (millipedes)
  - Family Trigoniulidae
    - 20 *Austrostrophus* 'clade A', potential SRE:DDG
    - 21 *Austrostrophus* 'clade M', potential SRE:DDG
- Isopoda (slaters)
  - Family Armadillidae
    - 22 *Buddelundia* 'SJ10ma', potential SRE:DDG
    - 23 *Buddelundia* 'SJ13', potential SRE:DDG
    - 24 *Buddelundia* 'SJ15', widespread
    - 25 Buddelundiinae (Armadillidae) 'ISOP009', potential SRE:DDG
- Eupulmonata
  - Family Bothriembryontidae
    - 26 *Bothriembryon* 'BOT065', potential SRE:DDG

Sequences comparisons were made with with those lodged in Genbank as well as unpublished sequences from, Western Australian Museum Molecular Systematics Unit and Alacran Environmental Science.

1 AIMS

During short-range endemic (SRE) surveys at Lamb Creek (W.A.), Rapallo sampled a collection of potential SRE invertebrates. A subset of 58 specimens representing unidentifiable and or ambiguously identified taxa was sequenced for the gene Cytochrome C Oxidase subunit I (COI) for the purpose of species delimitation (DNA barcoding). A total of 56 samples yielded DNA sequences from nine groups (Orders) of invertebrates. This report presents the results of barcoding analyses undertaken for these sequences as well as comparisons with reference sequences sourced from Genbank, the WA Museum MSU and Alacran's database of unpublished sequences.

2 METHODS

2.1 GENOMIC IDENTIFICATION (DNA BARCODING)

Species and morphospecies were initially determined using morphological characteristics. With the exception of slaters (Isopoda) all specimens were identified by Dr Erich Volschenk from Alacran Environmental Science (Alacran). Morphological identification of slaters was undertaken by Dr Simon Judd.

Sequence fragments of the COI gene were amplified from muscle tissues obtained from specimens fixed and preserved in >95% ethanol or from samples fixed in Propylene glycol and later preserved in >95% ethanol. Sequence generation from tissues was undertaken by Genotyping Australia Pty Ltd and AGRF Perth (http://www.agrf.org.au).

Sequence contigs were assembled from forward and reverse amplicons using Geneious R7 version 7.1.9 and were subsequently edited and pruned by eye, prior to consensus sequences being created. Consensus sequences were then assessed for contamination using NCBI Nucleotide BLAST (Basic Local Alignment Search Tool) (https://blast.ncbi.nlm.nih.gov/Blast.cgi).

Sequences sourced from samples previously studied by Alacran (unpublished) but subsequently lodged at the W.A. Museum are identified with the W.A. Museum registration codes:

- Arachnology dept. beginning with "T" and followed by a string of numbers;
- Crustaceans dept beginning with "C" and followed by a string of numbers;
- Molluscs dept beginning with "S" and followed by a string of numbers.

Alacran sequence registration codes use the format of "AES" or "ESV" followed by a string of six numbers. Sequences sourced from GenBank are identified with the Genbank accession code (comprised of two letters followed by a string of six numbers).

Sequence editing, alignment and phylogenetic analysis were performed with Geneious R7. For each analysis sequences were assembled and aligned using ClausalW or the Geneious alignment tool, implementing the following variable settings: Global alignment with free ends; Cost matrix, 70% similarity (IUB); Open gap penalty, 70; Gap extension penalty, 10; refinement iterations, 4.

Phylogenetic analyses were implemented using Geneious R7 and MrBayes (Huelsenbeck et al. 2001; Ronquist et al. 2012). Outgroups were selected from (in order of preference): sister -genus, -family or -order, to the group under investigation, where systematic relationships were known. Species delimitation was based on an 8% sequence divergence threshold for most taxa (Hebert et al. 2003a; Hebert et al. 2003b; Barrett et al. 2005; Robinson et al. 2009). For trapdoor spiders, the delimiting threshold of 9.5 % was used (Castalanelli et al. 2014;

Huey et al. 2019) and 5% was used for scorpions (Volschenk unpublished data). For *Austrostrophus* millipedes, the W.A. Museum clade identification system was used to identify specific clades; however, the divergence between these clades is often very low suggesting strong sexual selection may be present.

Reference taxa were selected from Genbank in two ways, depending on the number of sequences available for each group. For small groups, all reference COI sequences were sourced from Genbank and a subset of two or three samples were selected to represent each species or morphospecies identified. For groups with many reference COI sequences on Genbank, reference sequences were selected from BLAST results undertaken for each query sequence. Sequence BLAST was undertaken using the Nucleotide BLAST tool. Two or three reference sequences were selected from the 50 most similar sequences (using percentage identity) resulting from a BLAST of each query sequence.

2.2 STUDY GROUPS

Taxon composition of the study groups are detailed in the following tables:

- Table 2.1 Sequences of species and morphospecies included in the assessment of *Aname* species.
- Table 2.2 Sequences of species and morphospecies included in the assessment of *Kwonkan* species.
- Table 2.3 Sequences of species and morphospecies included in the assessment of *Synothele* species.
- Table 2.4 Sequences of species and morphospecies included in the assessment of *Oratemnus* species.
- Table 2.5 Sequences of species and morphospecies included in the assessment of *Austrochthonius* species.
- Table 2.6 Sequences of species and morphospecies included in the assessment of Olpiidae species.
- Table 2.7 Sequences of species and morphospecies included in the assessment of *Lychas* species.
- Table 2.8 Sequences of species and morphospecies included in the assessment of Geophilomorpha species.
- Table 2.9 Sequences of species and morphospecies included in the assessment of *Cryptops* species.
- Table 2.10 Sequences of species and morphospecies included in the assessment of *Austrostrophus* species.
- Table 2.11 Sequences of species and morphospecies included in the assessment of Armadillidae species.

The COI DNA sequences for all of the species examined from this survey are listed in Appendix 1.

2.2.1 Mygalomorphae (Trapdoor spiders)

2.2.1.1 Family Anamidae (Open hole trapdoor spiders)

***Aname* sp.**

This analysis aimed to determine the identity of three samples that were loosely assigned to one morphospecies of *Aname* on the basis of morphology. Sequences included in this analysis are listed in Table 2.1.

Table 2.1 Sequences of species and morphospecies included in the assessment of *Aname* species.

	Species and morphospecies with accession codes
Query taxa	***Aname* sp.:** AES210144, AES210147, AES210163
Reference sequences	*Aname aragog*, KJ745403 *Aname exulans*, MT611173; *Aname* 'FR01', AES200137; *Aname* 'HBI N18137-1', MW621010; *Aname* 'HBI-5378': AES200129, AES200130, AES200131, AES200139, AES200141; *Aname* 'HBI-5379', AES200140; *Aname* 'HBI-5380': AES200136, AES200138; *Aname mainae*, MN635081; *Aname marae*, KJ745450; *Aname mccleeryorum*: MT611168, MT611170, MT611172; *Aname mellosa*: KJ744394, KJ744401, KJ744491, KJ744505, KJ744540, KJ744611, KJ745440; *Aname* 'MR2': T153288, T153289, T153292, T153293 *Aname* 'MYG034', KJ745494; *Aname* 'MYG067', MG800165; *Aname* 'MYG098', KJ745441; *Aname* 'MYG102', MG800161; *Aname* 'MYG176', MG800162; *Aname* 'MYG185', KJ745465; *Aname* 'MYG212', MW518657; *Aname* 'MYG215', KJ744689; *Aname* 'MYG251': T153294, T153295; *Aname* 'MYG339': KJ744625, KJ744638; *Aname* 'MYG350', KJ745224; *Aname* 'MYG364': KJ745296, T153296; *Aname* 'MYG380', KJ744849; *Aname* 'MYG391', MG800174; *Aname* 'MYG411', MG800157; *Aname* 'MYG448', MG800143; *Aname* 'MYG462', MG800140; *Aname* 'MYG463', MG800142; *Aname* 'MYG479', MG800146; *Aname* 'MYG514': AES190814, ESV18:0657, ESV18:0832; *Aname phillipae*, MT611177; *Aname simoneae*: MT611174, MT611175, MT611176; *Aname sinuate*: MN635072, MN635073, MN635074, MW558021; *Aname* 'WM1 (A)': AES190351, ESV18:0106, ESV18:0604; *Aname* 'WM4': AES190816, AES190819, AES190821, ESV18:0667, ESV18:0935; *Aname* 'WM5': ESV18:0542; *Aname* 'WM6': AES190820, ESV18:0103; *Aname* 'WM7', ESV18:0025; *Chenistonia* MYG348: KJ745221, MG800151, MG800152
Outgroup sequence	*Liphistius laoticus*: KP229896

***Kwonkan* sp.**

This analysis aimed to determine the identity of one female sample that was identified on the basis of morphology. Sequences included in this analysis are listed in Table 2.2.

Table 2.2 Sequences of species and morphospecies included in the assessment of *Kwonkan* species.

	Species and morphospecies with accession codes
Query taxa	***Kwonkan* sp.:** AES210197
Reference sequences	*Aname mellosa*, JQ772128, KJ745440; *Kwonkan* 'HBI, 5384': AES200142, AES200143; *Kwonkan* 'MR3': T153297, T153298, T153299, T153300, T153301, T153302; *Kwonkan* 'MR8': T153303, T153304, T153305; *Kwonkan* 'MYG006': KJ744607, KJ744608, KJ744734, KJ744833, KJ745186, KJ745187, KJ745401, KJ745402, KJ745416; *Kwonkan* 'MYG088', KJ745206; *Kwonkan* 'MYG164', KJ745511; *Kwonkan* 'MYG165', KJ745512; *Kwonkan* 'MYG172', KJ744388; *Kwonkan* 'MYG175', KJ744403; *Kwonkan* 'MYG195', MG800177; *Kwonkan* 'MYG325': KJ744665, KJ744834, KJ744835, KJ744916, KJ744919; *Kwonkan* 'MYG327', KJ745013; *Kwonkan* 'MYG337': KJ744964, KJ744967, KJ744968; *Kwonkan* 'MYG338': KJ744666, KJ744840, KJ744842, KJ744912; *Kwonkan* 'MYG341': KJ745188, KJ745190, KJ745193; *Kwonkan* 'MYG343', KJ745210; *Kwonkan* 'MYG352', KJ745238, KJ745255; *Kwonkan* 'MYG361', KJ745281; *Kwonkan* 'MYG378', KJ744782; *Kwonkan* 'MYG379': KJ744831, KJ744832, KJ744838; *Kwonkan* 'MYG380', MN436729; *Kwonkan* 'MYG390', MG800173; *Kwonkan* 'MYG392', MG800175; *Kwonkan* 'MYG394', MG800176; *Kwonkan* 'MYG599': MH932614, MW039184; *Kwonkan*

	'MYG702', MW039183; *Kwonkan* 'MYG703', MW039185; *Kwonkan* 'WM3': AES190815, AES190822, AES190823, AES190824, ESV18:0326, ESV18:0666, ESV18:0668, T150147, T150148, T150150, T150151, AES190817; *Kwonkan* 'WM9', T150152; *Liphistius laoticus*, KP229896; *Merredinia damsonoides*, MG800187; *Merredinia* 'MYG354', KJ745273; *Merredinia* 'MYG356', KJ745275; *Merredinia* 'MYG454', MG800149; *Merredinia* 'MYG480', MG800179; *Namea flavomaculata*, KY241282; *Proshermacha* 'MR1': T153309, T153310; *Teyl* 'MR9', T153311; *Yilgarnia* 'MYG197', AES190050 *Yilgarnia* 'MYG375', KJ744709; *Yilgarnia* 'MYG376', KJ744725
Outgroup	*Liphistius laoticus*: KP229896

2.2.1.2 Family Barychelidae (brush footed trapdoor spiders)

***Synothele* sp.**

This analysis aimed to determine the identity of one female sample that was loosely assigned to the genus of *Synothele* on the basis of morphology. Sequences included in this analysis are listed in Table 2.3.

Table 2.3 Sequences of species and morphospecies included in the assessment of *Synothele* species.

	Species and morphospecies with accession codes
Query taxa	***Synothele* sp.:** AES210149
Reference sequences	*Aurecocrypta* 'HD1', AES190082; *Aurecocrypta* 'MYG246', KJ744784, KJ744805; *Aurecocrypta* 'MYG314', KJ744682; *Aurecocrypta* 'MYG315': AES190347, KJ744636, KJ744870, KJ745353; *Aurecocrypta* 'MYG316': KJ744667, KJ745033; *Aurecocrypta* 'MYG317', KJ744547; *Aurecocrypta* 'MYG318', KJ744660; *Aurecocrypta* 'MYG319', KJ745481; Barychelidae 'WM1', AES190826; *Idiommata blackwalli*, KJ745197; *Idiommata* 'kalgoorlie', MW621134; *Idiommata* 'MYG247': KJ745122, KJ745505, MW621011; *Idiommata* 'MYG254', KJ745103; *Idiommata* 'MYG320': KJ745100, KJ745205; *Synothele* 'MYG127': KJ745105, KJ745113, KJ745118; *Synothele* 'MYG309': AES190063, KJ744800, KJ745080, KJ745344; *Synothele* 'MYG311': AES190039, KJ744654, KJ744891, KJ745445; *Synothele* 'MYG312', T153312; *Synothele* 'MYG335', MW558024; *Synothele* 'OV03', MN433222; *Synothele* 'OV07', MN433225; *Synothele* 'OV09', MN433226; *Synothele* 'OV11', MN433227; *Synothele* 'OV12', MN433228; *Synothele* 'OV13', MN433229; *Synothele* 'OV14', MN433230; *Synothele* 'OV15', MN433231; *Synothele* 'OV16', MN433232; *Synothele* 'OV44', MN433246; *Synothele* 'OV74', MN433259; *Synothele* 'OV75', MN433260; *Synothele* 'xkarara': KJ744470, KJ745213, KJ745343
Outgroup	*Liphistius laoticus*: KP229896

2.2.2 Pseudoscorpiones (pseudoscorpions)

2.2.2.1 Family Atemnidae

***Oratemnus* sp.**

This analysis aimed to determine the identity of six samples that were loosely assigned to the genus *Oratemnus* on the basis of morphology. Sequences included in this analysis are listed in Table 2.4.

Table 2.4 Sequences of species and morphospecies included in the assessment of *Oratemnus* species.

	Species and morphospecies with accession codes
Query taxa	***Oratemnus* sp.**: AES210189, AES210172, AES210211, AES210186, AES210203, AES210187
Reference sequences	*Atemnidae* 'MR3', T153366; *Caecatemnus* 'JM2008', EU559534; *Conicochernes* 'LL1', AES210065; *Cyclatemnus* 'JM2008', EU559528; *Garypinus* 'JA2011', JN018179; *Miratemnus* 'JM2008', EU559535; *Nesidiochernes* 'G1', T149060; *Oratemnus curtus*, EU559531; *Oratemnus* 'MR2', T153370; *Oratemnus* 'WA1; AES180320, T149473, T153367, T153368, T153369; *Oratemnus* 'WM1': T150157, T150175;

	Paratemnoides pallidus, KU755529; *Paratemnoides sumatranus*, JN018204; *Stenatemnus* 'JM2008', EU559529; *Titanatemnus* 'JM2008', EU559530
Outgroup	*Siro exilis*, AY639579; *Buthus occitanus,* GQ168524

2.2.2.2 Family Chthoniidae

***Austrochthonius* sp.**

This analysis aimed to determine the identity of a single sample that were assigned to the genus *Austrochthonius* on the basis of its morphology. Sequences included in this analysis are listed in Table 2.5.

Table 2.5 Sequences of species and morphospecies included in the assessment of *Austrochthonius* species.

	Species and morphospecies with accession codes
Query taxa	***Austrochthonius* sp.**, AES210202
Additional sequences	*Austrochthonius* 'Australia', EU559513; *Austrochthonius* sp., EU559512; Chthoniidae 'BMR00021', MN436723; *Lagynochthonius* australicus: KJ659945, KJ659951; KJ659952; *Lechytia* 'DNA01': MW621028, MW621029; *Lechytia* 'WAMLECYT001', MW021289; *Tyrannochthonius* 'BMR00024', MW012762; *Tyrannochthonius* 'BMR00025', MW012763; *Tyrannochthonius* 'BMR00026', MW012764; *Tyrannochthonius* 'BMR00022', MW012761; *Tyrannochthonius* 'BMR00020', MW012760; *Tyrannochthonius* sp.: AES190330; *Tyrannochthonius* sp.: AES146555; *Tyrannochthonius aridus*: KJ659960, KJ659959; *Tyrannochthonius* 'PU89', MW309113; *Tyrannochthonius* 'PU96', MW309117; *Tyrannochthonius* 'DNA04': MW621103, MW621105, MW621101; *Tyrannochthonius* 'DNA06', MW621107; *Tyrannochthonius* 'PU137', MW309125; *Tyrannochthonius* 'DNA07', MW621108' *Tyrannochthonius* 'DNA08', MW621088; *Tyrannochthonius* 'PU153', MW309137; *Tyrannochthonius* 'PSEU001', MT316797; *Tyrannochthonius* 'WAMCHTH001', MW021287; *Tyrannochthonius* 'DNA05', MW621106; *Tyrannochthonius* 'DNA01', MW621060; *Tyrannochthonius* 'DNA02', MW621027; *Tyrannochthonius garthhumphreysi*: KJ659948
Outgroup	*Siro exilis*, AY639579; *Buthus occitanus,* GQ168524

2.2.2.3 Family Olpiidae

Olpiidae spp.

This analysis aimed to determine the identity of 12 samples that were loosely assigned to five morphospecies of in the genera *Indolpium* (three morphospecies), *Euryolpium* (one morphospecies) and one morphospecies from an unknown genus. Sequences included in this analysis are listed in Table 2.6.

Table 2.6 Sequences of species and morphospecies included in the assessment of Olpiidae species.

	Species and morphospecies with accession codes
Query taxa	***Euryolpium* sp. 01**: AES210141, AES210145, AES210173, AES210175, AES210184, AES210194; ***Indolpium* sp. 02**, AES210210; *Indolpium* **sp. 03**, AES210265; ***Indolpium* sp. 04**: AES210153, AES210174, AES210183; **Olpiidae sp. 05**, AES210267
Reference sequences	*Antillolpium* '783047', KX263396; *Antillolpium* sp.: KX263395, KX263396; *Aphelolpium* sp., KX263397; *Apolpium parvum*, EU559541; *Austrohorus* 'BMR00028', MW012766; *Austrohorus* 'HD5', T146556; *Austrohorus* 'LL1': AES210066, AES210071; *Austrohorus* 'LL2': AES210062, AES210064; *Austrohorus* 'MR1:, T153394, T153395; *Austrohorus* 'MR2': T153396, T153397, T153398; *Austrohorus* 'MR3': T153399, T153400; *Austrohorus* 'PSE119': T139670, T139676, T139680, T139687, T139697, T139700, T139702, T139703, T140270; *Austrohorus* 'PSE120': T140271; *Austrohorus* 'PSE121': T139681; *Austrohorus* 'PSE122': T139706, T139707; *Austrohorus* sp.: T135388, MN058681; *Austrohorus* 'WM1': ESV18:0353, ESV18:0999; *Austrohorus* 'WM3': AES190783, AES190848, T150203; *Beierolpium* '8/2 (WM)': ESV18:0364, ESV18:0485; *Beierolpium* '8/2': AES190546, T150216, AES190546; *Beierolpium* '8/4': MN058684; *Beierolpium bornemisszai*, EU559545; *Beierolpium* 'HD1', T149478; *Beierolpium* 'HD2':

	Species and morphospecies with accession codes
	AES190341, T149479; *Beierolpium* 'HD3', AES190012; *Beierolpium* 'LL3': AES210060, AES210061; *Beierolpium* 'LL4': AES210058, AES210076 LL4, AES210077, AES210078; *Beierolpium* 'LL5': AES210063, AES210070; *Beierolpium* 'LL6', AES210069; *Beierolpium* 'MR1': T153401, T153402; *Beierolpium* 'PSE126', T139688; *Chthoniidae* 'BMR00021', MN436723; *Euryolpium* 'BMR00041', MN436737; *Euryolpium* 'HD6', AES146557; *Euryolpium* 'HD7', T146564; *Euryolpium* sp.:, EU559546, MN058685; *Indolpium* '8/4 (HD4)', T149480; *Indolpium* 'BMR00029', MW012767; *Indolpium* 'BMR00030', MW012768; *Indolpium* 'BMR00032', MW012770; *Indolpium* 'BMR00034', MN436733; *Indolpium* 'BMR00036', MW012771; *Indolpium* 'LL7', AES210067; *Indolpium* 'MR1': T153406, T153407; *Indolpium* 'PSE123': T139675, T139678, T139683, T139696, T139701, T139705 ; *Indolpium* 'PSE124', T136334; *Indolpium* 'PSE125', T105066; *Indolpium* 'PSE174', MW078438; *Indolpium* 'PSE175', MW078439; *Indolpium* 'PSEU018', MW010354; *Indolpium* 'PSEU019', MW010358; *Indolpium* sp.: MN058683, MT052860, MT044589; *Indolpium* 'toothy', AES190672; *Indolpium* 'WM1': T150235, T150236, T150237, T150238; *Indolpium* 'WM2', T150242; *Indolpium* 'WM3', T150243; *Nanolpium* sp., EU559543; Olpiidae '02343', KX054242; Olpiidae 'PSE118': AES190079, MN436734, MN436735, MN436736, T139690, T146559, T146561, T146562, T149483; Olpiidae 'PSEAAA HD4', T149410; Olpiidae 'PSEU002', MT902545; Olpiidae 'PU150', MW309134; Olpiidae 'PU151', MW309135; Olpiidae 'PU154', MW309138; Olpiidae sp., T146564; *Pachyolpium* '783044', KX263402; *Pachyolpium* '783048', KX263403; *Pachyolpium* '783059', KX263404; *Pachyolpium* sp., EU559542; *Xenolpium* sp., EU559539
Outgroup	*Siro exilis*, AY639579; *Buthus occitanus*, GQ168524

2.2.3 Scorpiones (Scorpions)

2.2.3.1 Family Buthidae (narrow handed scorpions)

***Lychas* species**

This analysis aimed to determine the identity of seven samples that were loosely assigned to three species complexes on the basis of morphology. Sequences included in this analysis are listed in Table 2.7.

Table 2.7 Sequences of species and morphospecies included in the assessment of *Lychas* species.

	Species and morphospecies with accession codes
Query taxa	***Lychas* 'hairytail cmplx'**, AES210146; ***Lychas* 'bituberculatus cmplx'**: AES210168, AES210219, AES210268, AES210269, AES210270 ***Lychas* 'multipunctatus cmplx'**: AES210266
Reference sequences	*Isometroides* 'SCO051', MW558023; *Isometrus* 'BNHSSC142', MF422312; *Isometrus* 'BNHSSC143', MF422313; *Isometrus maculatus*, EU252414, KY982207; *Lychas* 'annulatus cmplx (FR)': AES200143, AES200144, AES210042, AES210044; *Lychas* 'annulatus cmplx (LC01)', ESV18:0359; *Lychas* 'annulatus cmplx (LC02)': ESV17:0722, ESV17:1253; *Lychas* 'annulatus cmplx (LW)': AES190506, AES190508, AES190509; *Lychas* 'annulatus cmplx (WM)': AES190828, ESV18:0888; *Lychas* 'annulatus cmplx': T114330, T124554, T99992; *Lychas* 'bituberculatus cmplx': MN436717 (*Lychas* BMR00044), MN436718 (*Lychas* (BMR00045)), AES190065, T101960, T91706; *Lychas* 'hairytail cmplx': MN436716 (*Lychas* (BMR00043)), MN436719 (*Lychas* (BMR00046)), MN436720 (*Lychas* (BMR00047)), MN436721 (*Lychas* (BMR00048)), MN436722 (*Lychas* (BMR00049)); *Lychas* 'jonesae cmplx (FR)': AES200328, AES210003, AES210009; *Lychas* 'jonesae cmplx (Lav)': AES200629, AES200633; *Lychas* 'jonesae cmplx (LB)': AES200602, AES200603; *Lychas* 'jonesae cmplx (LN), AES200807; *Lychas mucronatus*, JN018153; *Lychas* 'multipunctatus cmplx', EVR7952; *Lychas* 'SCO039 (bituberculatus cmplx)': MW078435, WAMT97380, MW558022; *Lychas* 'SCO046 (multipunctatus cmplx)': AES190080, AES190544, MW078434; *Lychas tricarinatus*: KT716037, MF422319, MF422321, MF422326; *Lychas* 'WILD17ARA4004', MF422316.
Outgroup	*Limulus polyphemus*-AF218278; *Siro exilis*-AY639579

2.2.4 Geophilomorpha (soil centipedes)

2.2.4.1 Families Chilenophilidae, Mecistocephalidae and Oryidae

Mecistocephalus, Orphnaeus* and *Sepedenophilus

This analysis aimed to determine the identity of 10 samples that were loosely assigned to three morphospecies in the genera *Mecistocephalus, Orphnaeus* and *Sepedenophilus* on the basis of morphology. Sequences included in this analysis are listed in Table 2.8.

Table 2.8 Sequences of species and morphospecies included in the assessment of Geophilomorpha species.

	Species and morphospecies with accession codes
Query taxa	***Orphnaeus* sp.**, AES210206; ***Mecistocephalus* sp.**: AES210150, AES210169, AES210176, AES210177, AES210178, AES210182, AES210196; ***Sepedonophilus* sp.**: AES210143, AES210156.
Reference sequences	*Geophilus alpinus*: KM999118, KM999124; *Geophilus flavus*: JN306683, JN306684, JN306685; *Mecistocephalus* 'CHI011', MW039175; *Mecistocephalus* 'DNA01', MW621040; *Mecistocephalus* 'DNA02', MW621041; *Mecistocephalus* 'DNA03': MW621042, MW621070; *Mecistocephalus* 'DNA04', MW621082; *Mecistocephalus* 'DNA05', MW621085; *Mecistocephalus* 'DNA06': MW621044, MW621071; *Mecistocephalus* 'DNA07', MW621043; *Mecistocephalus* 'DNA08': MW621077, MW621079; *Mecistocephalus* 'DNA09': MW621072, MW621074, MW621075, MW621076, MW621122, MW621123, MW621124, MW621125, MW621126, MW621127, MW621128; *Mecistocephalus* 'DNA10': MW621073, MW621080; *Mecistocephalus* 'DNA11', MW621052; *Mecistocephalus* 'DNA12', MW621129; *Mecistocephalus guildingii*: AY288747; *Mecistocephalus* 'HD1': T149507, T149508, T149509, T149510; *Mecistocephalus* 'HD2', AES190337; *Mecistocephalus* 'HD3': AES190313, AES190322, T149512, T149513; *Mecistocephalus japonicus*: AB610479, AB610480; *Mecistocephalus marmoratus*: AB610772, AB610773, AB672611, AB672644; *Mecistocephalus* 'MR1': AES200934, T153423, T153426, T153430, T153433, T153439, T153440, T153463, T153465, T153466; *Mecistocephalus multidentatus*: AB610774, AB610775, AB672610; *Orphnaeus brevilabiatus*: AB608780, HM453316, MW621083, MW621084; *Orphnaeus* 'HD1', T149514; *Orphnaeus* 'MR1', T153469; *Orphnaeus* 'WM1', ESV18:0997; *Orya almohadensis*: HM453315; *Schendyla nemorensis*: JQ350469, KM491599, KM491675, KT614370; *Sepedonophilus* 'HD1': T149498, T149500, T149502; *Sepedonophilus* 'HD2': T149504; *Sepedonophilus* 'DNA01': MW621034, MW621036, MW621038, MW621045; *Sepedonophilus* 'DNA02': MW621035, MW621037, MW621046; *Sepedonophilus* 'DNA03': MW621047, MW621049; *Sepedonophilus* 'DNA04': MW621078, MW621081; *Sepedonophilus* 'DNA05', MW621121; *Sepedonophilus* 'G1': T149078, T149085; *Sepedonophilus* 'G2', T149091; *Sepedonophilus* 'G3', T149092; *Sepedonophilus* 'MR1': T153416, T153417, T153418; *Sepedonophilus* 'MR2', T153420; *Sepedonophilus* 'MR3', T153421; *Stigmatogaster subterranea*: JN306672, KF569302
Outgroup	*Lamyctes africanus*, KC688312; *Lithobius agilis*, JN306649; *Lithobius bicolor*, AB672744

2.2.5 Scolopendromorpha (centipedes)

2.2.5.1 Family Cryptopidae (cryptic centipedes)

***Cryptops* sp.**

This analysis aimed to determine the identity of two samples that were identified as morphospecies of *Cryptops* on the basis of morphology. Sequences included in this analysis are listed in Table 2.9.

Table 2.9 Sequences of species and morphospecies included in the assessment of *Cryptops* species.

	Species and morphospecies with accession codes
Query taxa	*Cryptops* sp.: AES210155, AES210179
Reference sequences	Cryptopidae 'CHIL001', MT316783; *Cryptops* 'BOLD:ACX8641', KU497153; *Cryptops* 'CHI009': MW621050, MW621051; *Cryptops* 'CHI012: MW039179, MW039180; *Cryptops* 'CHIL009: MW010346; *Cryptops doriae*: KF676500; *Cryptops* 'G1': ESV18:0047; *Cryptops* 'HD1': AES190315, AES190318;

	Species and morphospecies with accession codes
	Cryptops 'HD1': AES190319; *Cryptops japonicus*: AB610777; *Cryptops niuensis*: JF273299, JF273301, JF273303; *Cryptops pictus*: JF273267, JF273271, JF273279, JF273291; *Cryptops* sp., MN551633; *Cryptops typhloporus*, KF676504; *Cryptops weberi*, HQ402551; *Cryptops* 'ZFMK-TIS-1434, KU342042; *Cryptops* 'Ku01', AES210230; *Eupolybothrus tridentinus*: JN269950, KX458706, KX458725, KX458778; *Newportia adisi*, KF676506; *Scolopendra morsitans*: KR705660, KR705664, MT093845, MT093846; *Scolopendromorpha* 'CHIL004', MT902464; *Scolopendromorpha* 'CHIL005', MT902735; *Scolopendromorpha* 'CHIL006': MT902584, MT902585, MT902586; *Scolopocryptops capillipedatus*, AB617530; *Scolopocryptops mexicanus*, JX422679; *Scolopocryptops nigridius*, JX422680; *Scolopocryptops sexspinosus*, MH680595.
Outgroup	*Lithobius microps*-KM491680, KX458699, KX458770

2.2.6 Spirobolida (millipedes)

2.2.6.1 Family Trigoniulidae

***Austrostrophus* sp.**

This analysis aimed to determine the identity of four samples that were assigned to the genus *Austrostrophus* on the basis of morphology. Sequences included in this analysis are listed in Table 2.10.

Table 2.10 Sequences of species and morphospecies included in the assessment of *Austrostrophus* species.

	Species and morphospecies with accession codes
Query taxa	*Austrostrophus* sp.: AES210162, AES210216, AES210164, AES210185
Reference sequences	*Trigoniulus corallinus*: MF187446, MF187447; *Austrostrophus* 'BMR00050', MN436739 *Austrostrophus* 'BMR00053', MN436742, *Austrostrophus* 'BMR00062', MN436749; *Austrostrophus* 'BMR00057', MN436746; *Austrostrophus* 'BMR00067', MN436753; *Austrostrophus* 'BMR00068', MN436754; *Austrostrophus* 'BMR00056', MN436745; *Austrostrophus* 'clade A': MW012772 (*Austrostrophus* BMR00060), MW012773 (*Austrostrophus* BMR00061), MN436741, MN436748, MN436751, MN436752, MN436740, T149522 *Austrostrophus* 'clade E': T149462, T149524, T149463, T149523, MN436750 *Austrostrophus* 'clade F': MN436744, MN436747, MN436743; *Austrostrophus* sp.: MZ325294, MZ325295, MN551635, MN551636, MN551634.
Outgroup	*Antichiropus* 'wonmunna', AES190040

2.2.7 Isopoda (Slaters)

2.2.7.1 Family Armadillidae

***Buddelundia* and Buddelundiinae**

This analysis aimed to determine the identity of four samples that were identified to two genera (*Buddelundia* sp. and Buddelundiinae sp.) on the basis of morphology. Additional representatives of *Buddelundia* were also sequenced as additional reference taxa for comparison with the unidentified taxa. Sequences included in this analysis are listed in Table 2.11.

Table 2.11 Sequences of species and morphospecies included in the assessment of Armadillidae species.

	Species and morphospecies with accession codes
Query taxa	***Buddelundia* sp.**: AES210205, AES210221, AES210142; **Buddelundiinae sp.**, AES210213
Reference sequences	*Acanthodillo* sp., ESV18:0909; *Acanthodillo* 'WM1': AES190802, AES190811, ESV18:0911, ESV18:0921 *Acanthodillo* 'WM3', AES190809; Armadillidae 'ISOP009', MT902625; Armadillidae 'ARMD001', MW021255; Armadillidae 'ISOP004', MT902781; Armadillidae 'ISOP008', MT902710; *Buddelundia* 'ISOP005', MT902654; *Buddelundia* 'ISOP006', MT902725; *Buddelundia* 'MR1', C77027; *Buddelundia* 'SJ39', C77015; Buddelundiinae sp.: ESV18:0919; *Cubaris* 'MR1', C77029; Isopoda 'ISOP001', MT902650;

	Species and morphospecies with accession codes
	Isopoda 'ISOP002': MT902593, MT902601; Isopoda 'ISOP007': MT902727; Isopoda 'ISOP011': MT902711, MT902753; *Spherillo* 'MR1': C77032, C77036, C77038; *Spherillo* 'MR2': C77014, C77042, C77044, C77047, C77050, C77051, C77052; *Troglarmadillo* 'B66', MT782158; *Troglarmadillo* 'DNA03', MW621020; *Troglarmadillo* 'TRGL001', MW021261
New reference sequences	***Buddelundia* 'SJ10ma',** AES210193, ***Buddelundia* 'SJ13'**, AES210215; ***Buddelundia*** 'SJ15': AES210157, AES210190;
Outgroup	*Pygolabis humphreysi*, EU107548, EU107556

3 RESULTS

Comparisons of the edited COI DNA sequence with Genbank and Alacran reference sequences are summarised in Table 3.1. Relevant parts of the phylogenetic trees are provided in the Figures Section (Section 5) for visualisation of species' relationships. The raw sequence data is supplied for reference in Appendix 1.

Table 3.1 Summary of species delimitation of query samples with supporting COI DNA divergence (%) results. Short-range endemic groups in Bold with SRE status in superscript: DDG, potential SRE owing to geographical data deficiency; DDT, potential SRE owing to taxonomic data deficiency.

Accession Code	Taxon	Within Taxon Divergence	Divergence Between Taxon Samples and Others Analysed
AES210147 AES210163 AES210144	Anamidae: *Aname mellosa*	0.15 - 4.56	≥ 12.98
AES210197	**Anamidae: *Kwonkan* 'LCr01' DDG**	**NA**	**≥ 14.16**
AES210149	Barychelidae: *Synothele* 'MYG311'	1.38 - 8.52	≥ 11.87
AES210189 AES210172 AES210211 AES210186 AES210203	Atemnidae: *Oratemnus* 'WA1'	0 - 3.68	≥ 12.44
AES210184 AES210175 AES210145 AES210173 AES210194 AES210141	**Olpiidae: *Euryolpium* 'LCr01' DDG**	**0- 0.46**	**≥ 15.64**
AES210265	**Olpiidae: *Indolpium* 'LCr03' DDG**	**NA**	**≥ 10.24**
AES210174 AES210183 AES210153	**Olpiidae: *Indolpium* 'LCr04' DDG**	**1.99- 3.37**	**≥ 11.2**
AES210210	**Olpiidae: *Indolpium* 'LCr05' DDG**	**NA**	**≥ 9.51**
AES210267	**Olpiidae: Olpiidae 'LCr02' DDG**	**1.84 - 7.36**	**≥ 16.25**
AES210202	**Chthoniidae: *Austrochthonius* 'LCr01' DDT**	**NA**	**≥ 17.07**
AES210146	**Buthidae: *Lychas* 'hairy tail complex' DDG**	**0 - 4.38**	**≥ 10.18**
AES210219 AES210269 AES210168 AES210268 AES210270	**Buthidae: *Lychas* 'bituberculatus complex' DDG**	**0 - 2.06**	**≥ 9.42**

Accession Code	Taxon	Within Taxon Divergence	Divergence Between Taxon Samples and Others Analysed
AES210266	**Buthidae: *Lychas* 'SCO046 (multipunctatus complex)' DDG**	**1.98 - 6.69**	**≥ 9.27**
AES210143 AES210156	**Chilenophilidae: *Sepedonophilus* 'LCr01' DDG**	**2.65**	**≥ 11.23**
AES210176 AES210196 AES210150 AES210182 AES210177 AES210178	**Mecistocephalidae: *Mecistocephalus* 'LCr01' DDG**	**0 - 1.36**	**≥ 11.42**
AES210169	**Mecistocephalidae: *Mecistocephalus* 'LCr02' DDG**	**NA**	**≥ 13.09**
AES210206	**Oryidae: *Orphnaeus* 'LCr01' DDG**	**NA**	**≥ 10.11**
AES210155	**Cryptopidae: *Cryptops* 'LCr01' DDG**	**NA**	**≥ 16**
AES210179	**Cryptopidae: *Cryptops* 'LCr02' DDG**	**NA**	**≥ 16.11**
AES210164 AES210185	**Trigoniulidae: *Austrostrophus* 'clade A' DDG**	**0 - 2.63**	**≥ 0 - 2.63**
AES210162 AES210216	**Trigoniulidae: *Austrostrophus* 'clade Lc01' DDG**	**1.98**	**≥ 5.93**
AES210193	**Armadillidae: *Buddelundia* 'SJ10ma' DDG**	**NA**	**≥ 17.05**
AES210142 AES210215	**Armadillidae: *Buddelundia* 'SJ13' DDG**	**0**	**≥ 17.66**
AES210190 AES210205 AES210221 AES210157	Armadillidae: *Buddelundia* 'SJ15'	0 - 0.3	≥ 17.05
AES210213	**Armadillidae: Buddelundiinae (Armadillidae) 'ISOP009' DDG**	**2.13**	**≥ 18.54**

4 DISCUSSION

Representative sequences from taxa unmatched with Genbank references, were submitted to W.A. Museum Molecular Systematics Unit (MSU) for comparison within their unpublished research sequences. The results of this comparison are detailed in Appendix 2 and are summarised in Table 4.1. Of the 14 different sequences provided to WAM MSU, three were matched with unpublished morphospecies and 11 were unmatched.

Table 4.1 Summary of species delimitation from WA Museum MSU, matched morphospecies names in bold.

Accession Code	Taxon name used in the analyses of this report	Western Australian Museum species match
AES210197	*Kwonkan* 'LCr01'	***Kwonkan* 'MYG324'**
AES210213	Buddelundiinae (Armadillidae) 'ISOP009'	Unmatched Armadillidae
AES210080	Bothriembryon 'Pilbara'	***Bothriembryon* 'BOT065'**
AES210202	*Austrochthonius* 'LCr01'	Unmatched *Austrochthonius* species
AES210155	*Cryptops* 'LCr01'	Unmatched *Cryptops* species
AES210179	*Cryptops* 'LCr02'	Unmatched *Cryptops* species
AES210169	*Mecistocephalus* 'LCr02'	Unmatched *Mecistocephalus* species
AES210150	*Mecistocephalus* 'LCr01'	Unmatched *Mecistocephalus* species
AES210141	*Euryolpium* 'LCr01'	Unmatched *Euryolpium* species
AES210267	Olpiidae 'LCr02'	Unmatched Olpiidae '7/4' species
AES210265	*Indolpium* 'LCr03'	Unmatched *Indolpium* species
AES210153	*Indolpium* 'LCr04'	Unmatched *Indolpium* species
AES210210	*Indolpium* 'LCr05'	Unmatched *Indolpium* species
AES210162	*Austrostrophus* 'clade Lc01'	***Austrostrophus* 'clade M'**

5 FIGURES

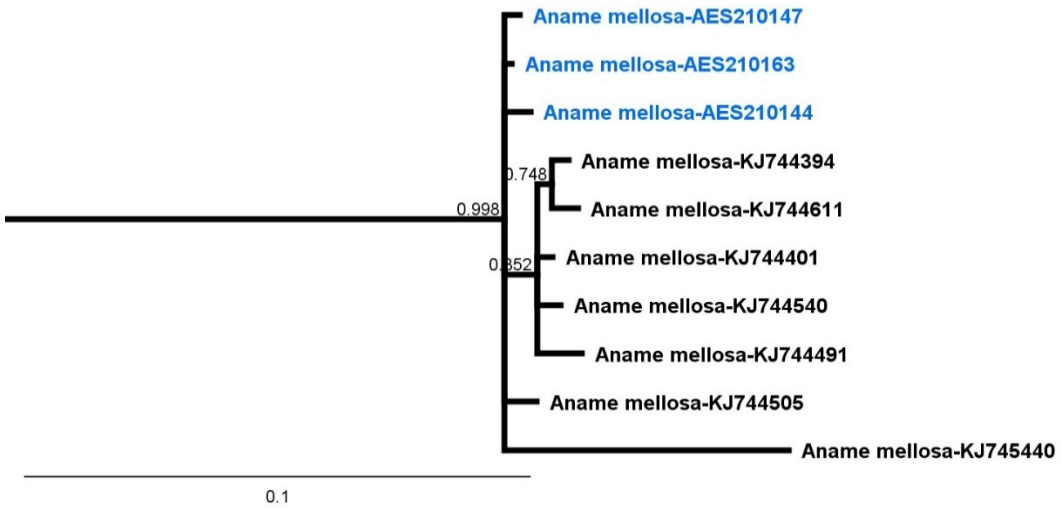

Figure 5.1. Subclade of Bayesian phylogeny of *Aname* analysis (Table 2.1) with query taxa highlighted in blue text and conspecific species 'groups' in bold text. Branch labels represent posterior probabilities and scale bar represents substitutions per site.

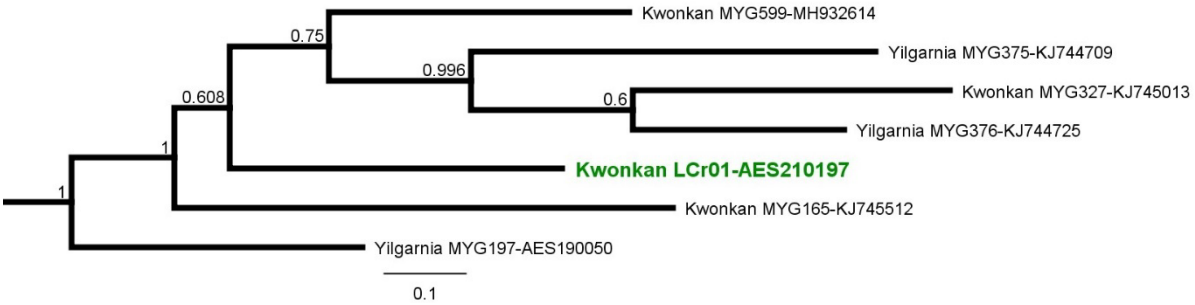

Figure 5.2. Subclade of Bayesian phylogeny of *Kwonkan* analysis (Table 2.2) with query taxon highlighted in green text and conspecific species 'groups' in bold text. Branch labels represent posterior probabilities and scale bar represents substitutions per site.

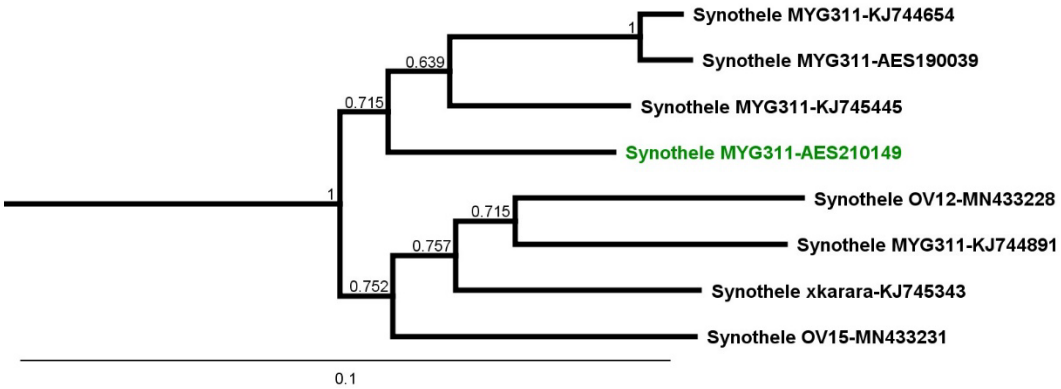

Figure 5.3. Subclade of Bayesian phylogeny of Barychelidae (Synothele) analysis (Table 2.3) with query taxon highlighted in green text and conspecific species 'groups' in bold text. Branch labels represent posterior probabilities and scale bar represents substitutions per site.

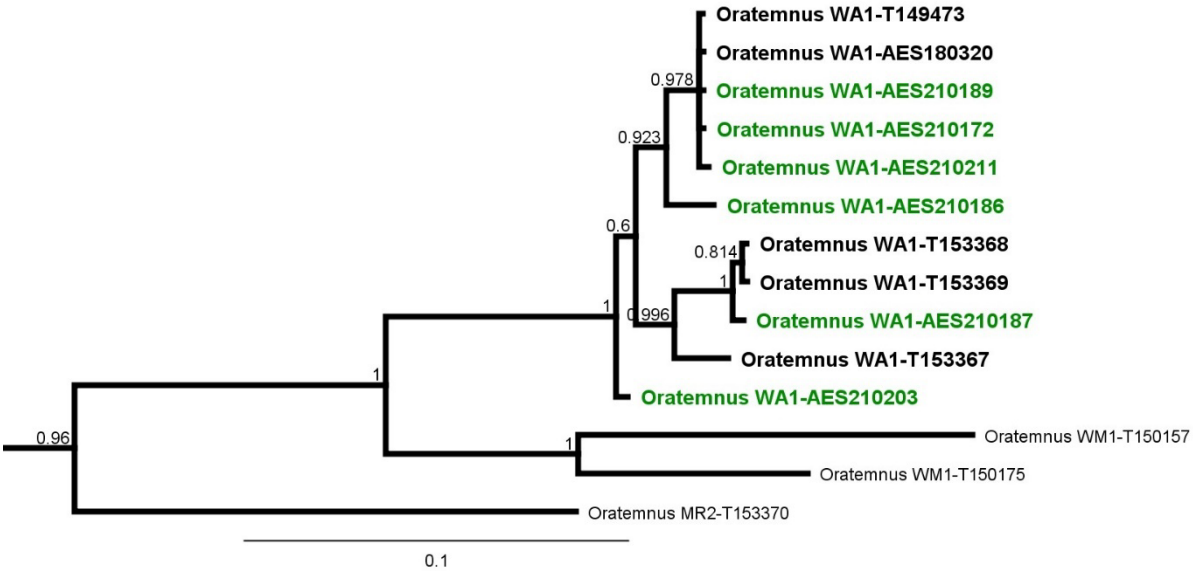

Figure 5.4. Subclade (*Oratemnus*) of Bayesian phylogeny of Atemnidae analysis (Table 2.4) with query taxa highlighted in green text and conspecific species 'groups' in bold text. Branch labels represent posterior probabilities and scale bar represents substitutions per site.

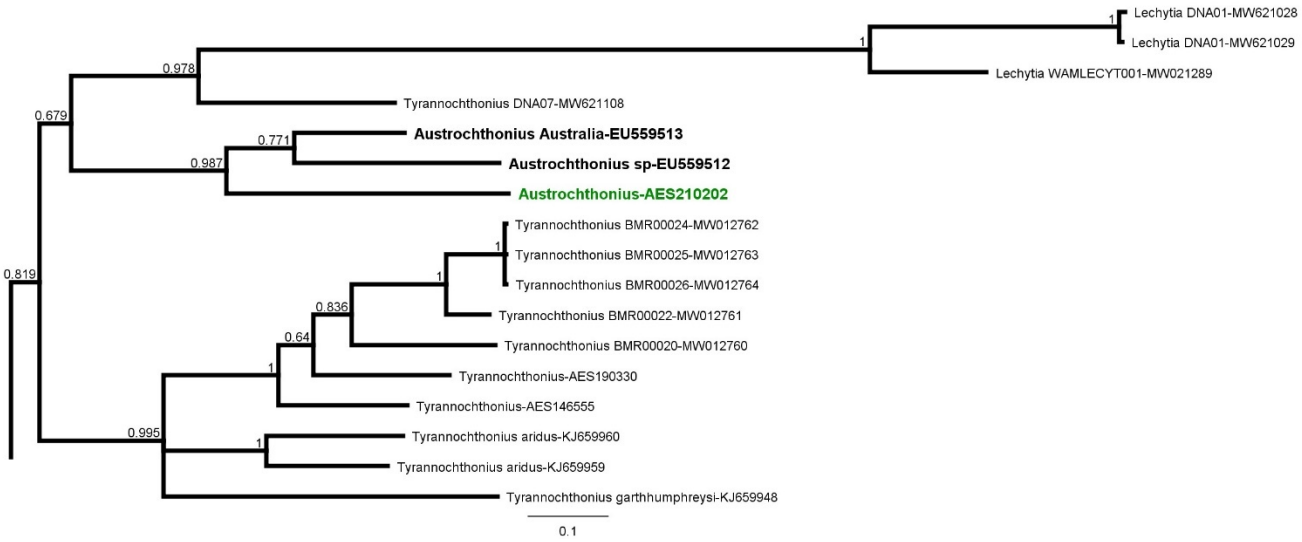

Figure 5.5. Subclade of Bayesian phylogeny of Chthoniidae analysis (Table 2.5) with query taxon highlighted in green text and congeneric species 'groups' in bold text. Branch labels represent posterior probabilities and scale bar represents substitutions per site.

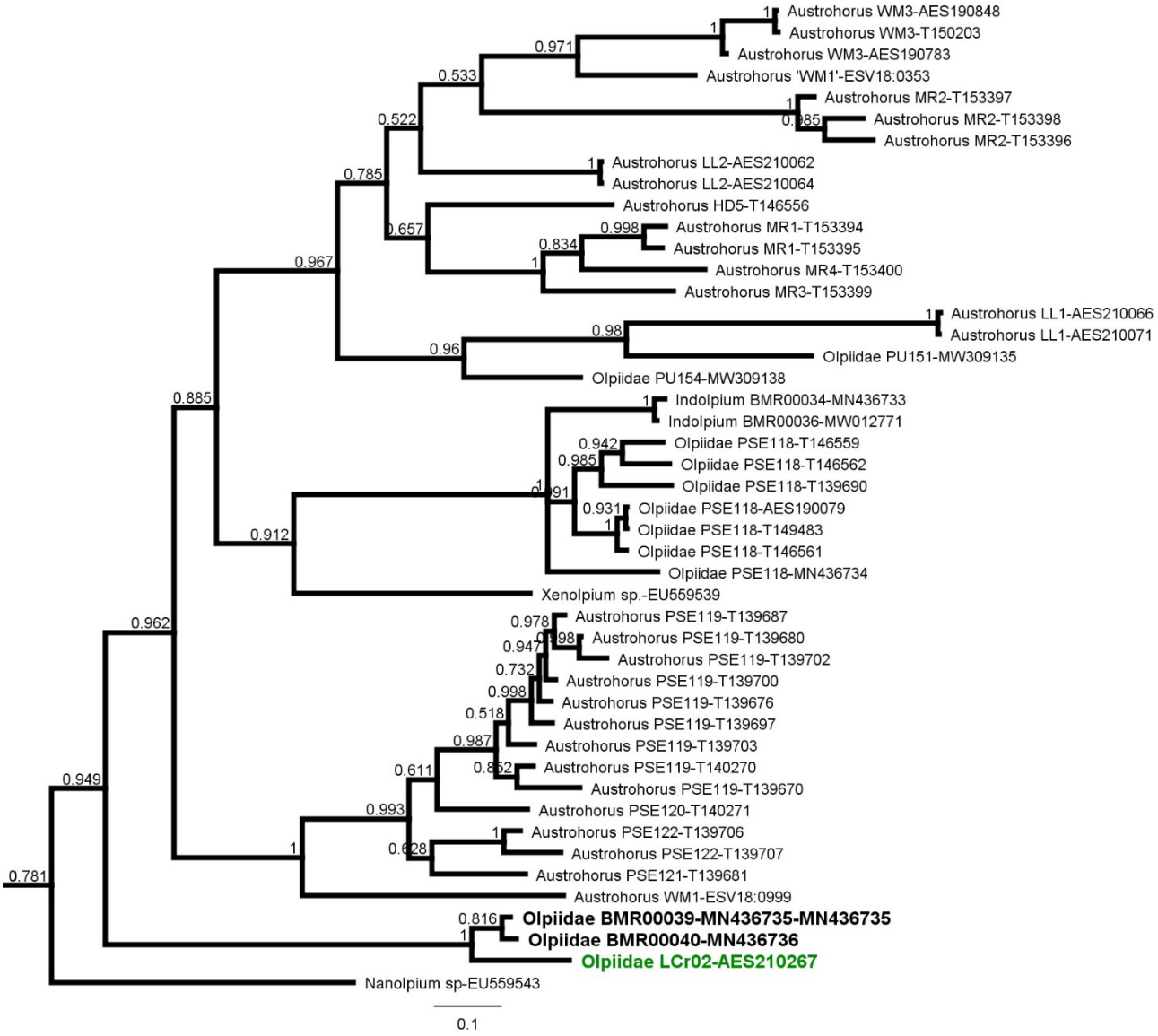

Figure 5.6. Subclade of Bayesian phylogeny of Olpiidae analysis (Table 2.6) with query taxa highlighted in green text and conspecific species 'groups' in bold text. Branch labels represent posterior probabilities and scale bar represents substitutions per site.

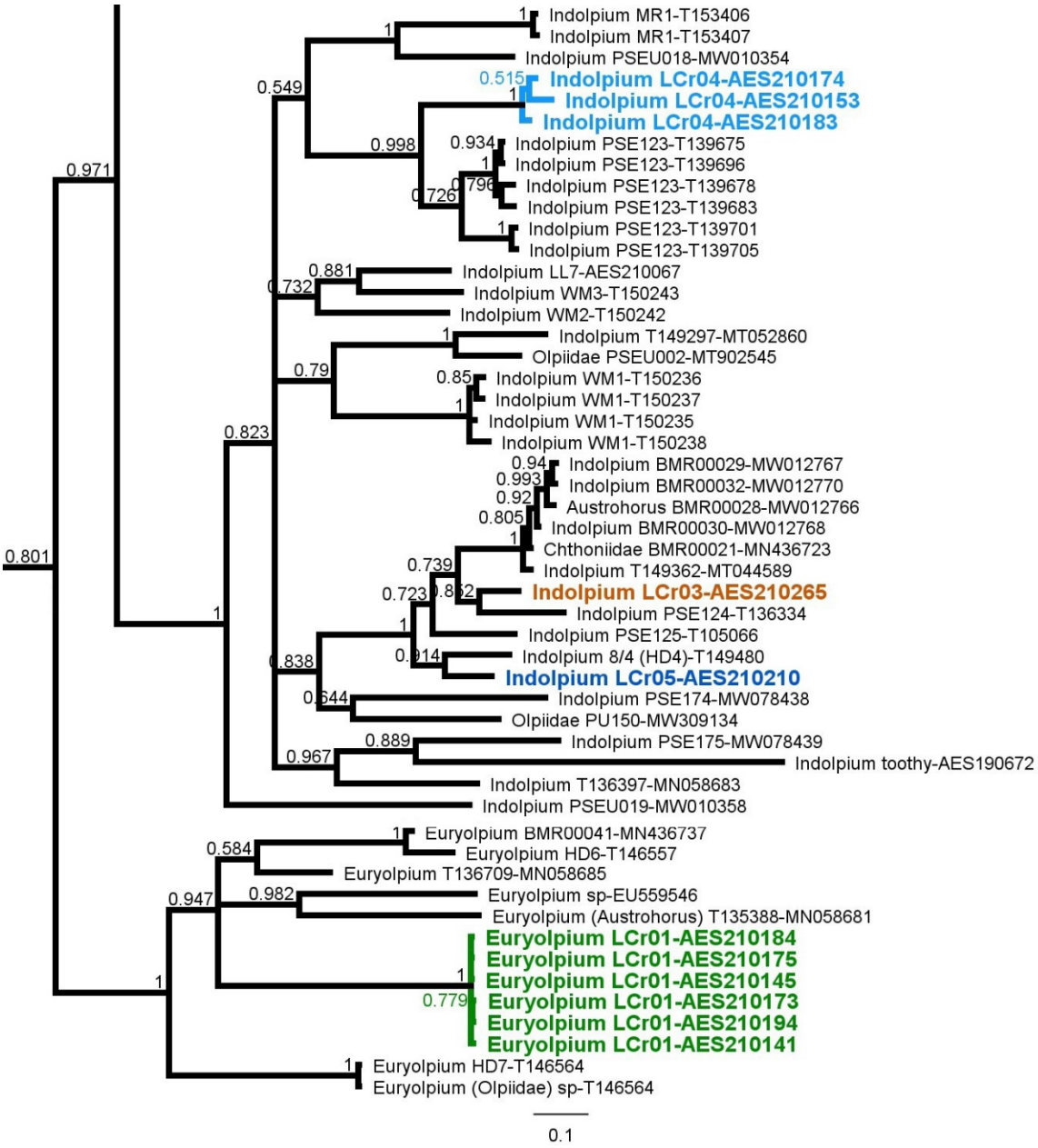

Figure 5.7. Subclades of Bayesian analysis of Olpiidae (*Indolpium* and *Euryolpium*) (Table 2.6) with query taxa highlighted in coloured text. Branch labels represent posterior probabilities and scale bar represents substitutions per site.

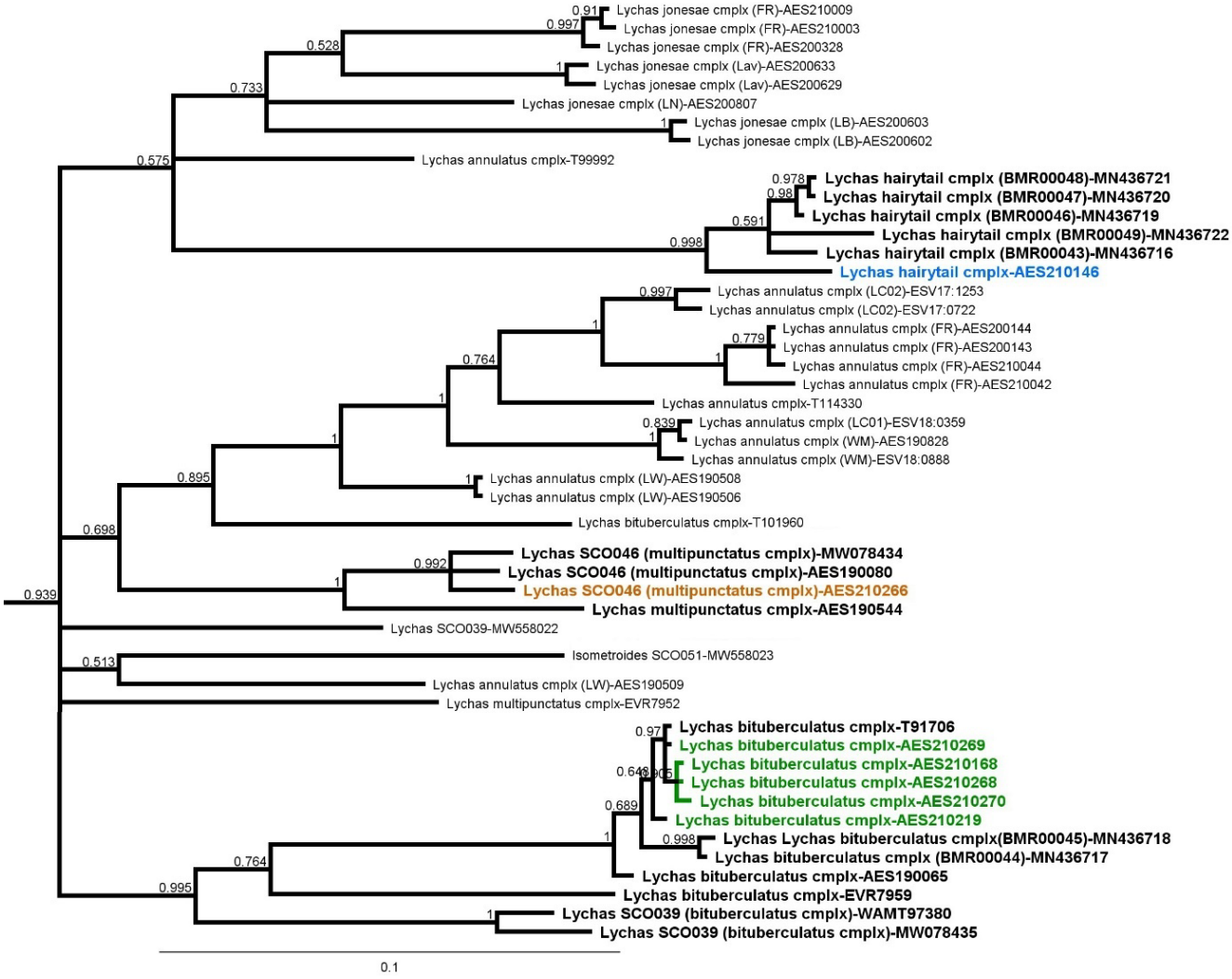

Figure 5.8. Subclade of Bayesian analysis of *Lychas* (Table 2.7) with query taxa highlighted in coloured text and conspecific species 'groups' in bold text. Branch labels represent posterior probabilities and scale bar represents substitutions per site.

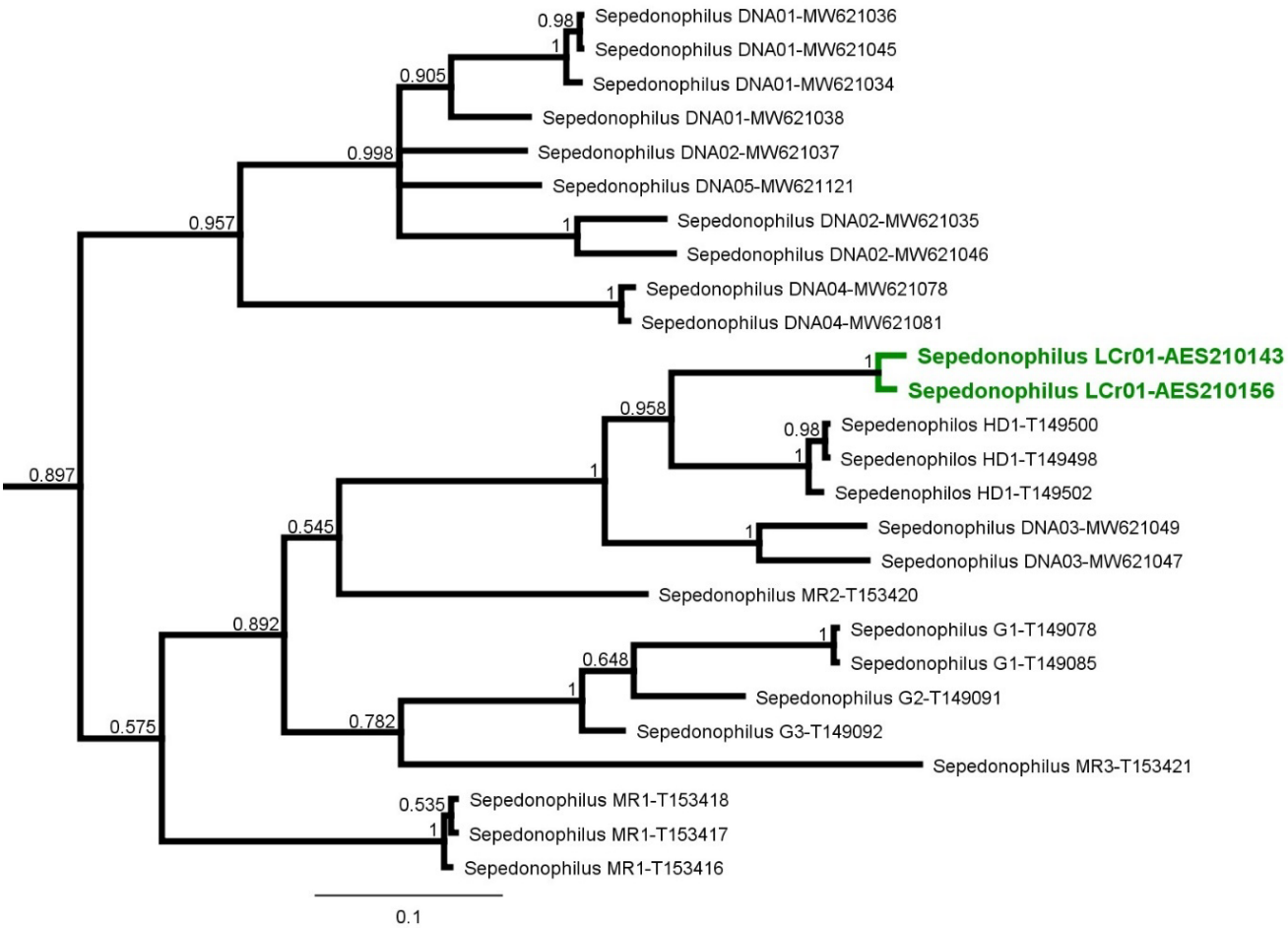

Figure 5.9. Subclade of Bayesian phylogeny of Geophilomorpha (*Sepedonophilus*) analysis (Table 2.8) with query taxon highlighted in green text. Branch labels represent posterior probabilities and scale bar represents substitutions per site.

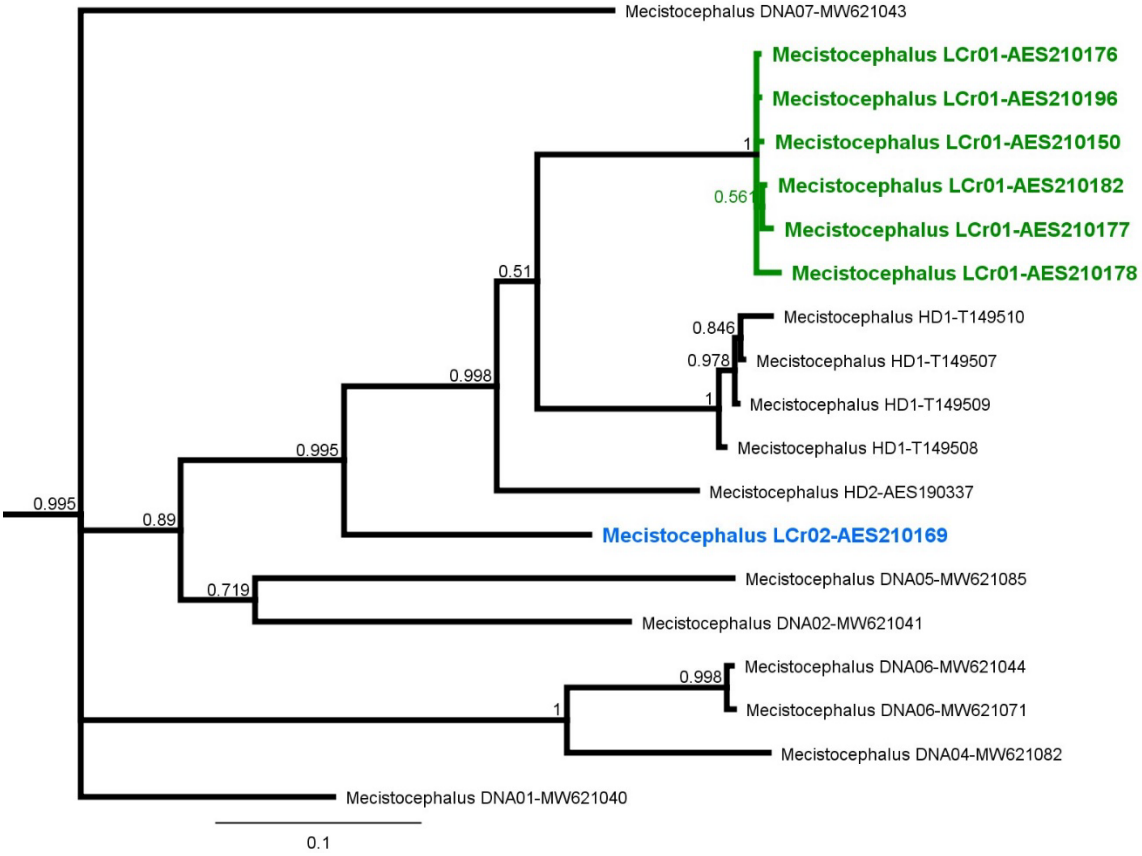

Figure 5.10. Subclade of Bayesian phylogeny of Geophilomorpha (*Mecistocephalus*) analysis (Table 2.8) with query taxa highlighted in coloured text and conspecific species 'groups' in bold text. Branch labels represent posterior probabilities and scale bar represents substitutions per site.

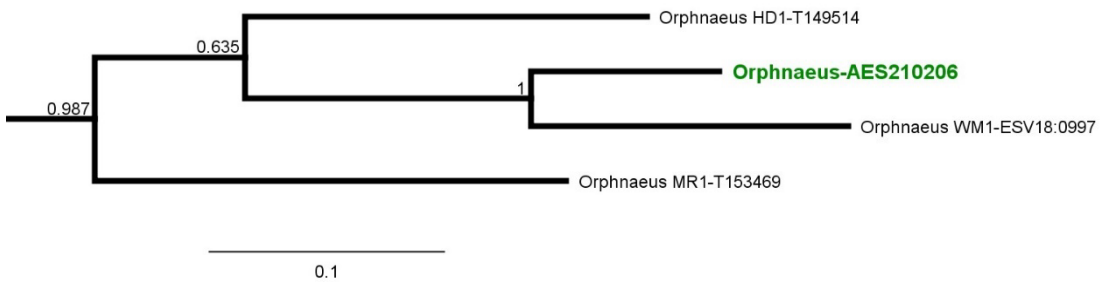

Figure 5.11. Subclade of Bayesian phylogeny of Geophilomorpha (*Orphnaeus*) analysis (Table 2.8) with query taxon highlighted in green text. Branch labels represent posterior probabilities and scale bar represents substitutions per site.

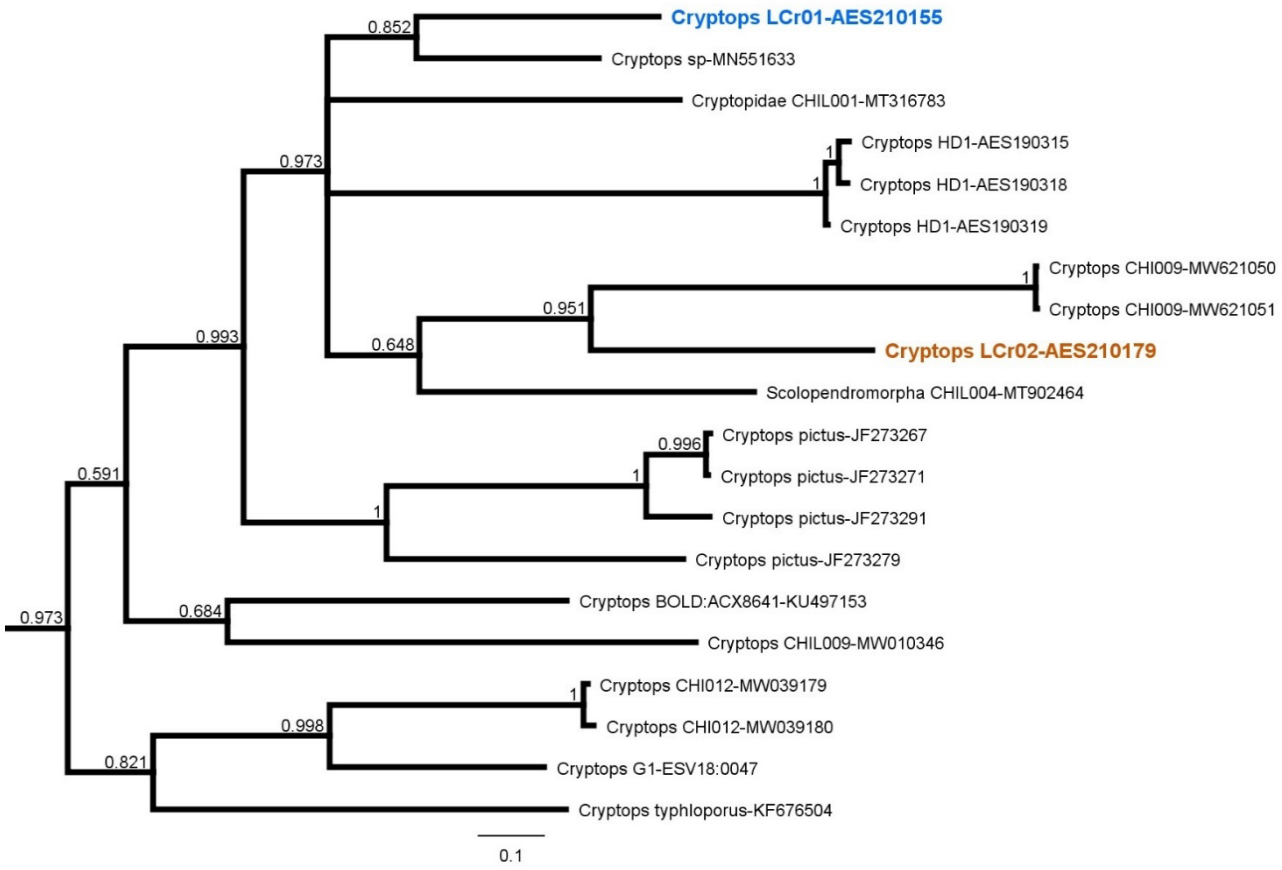

Figure 5.12. Subclade of Bayesian phylogeny of Cryptopidae analysis (Table 2.9) with query taxa highlighted in coloured text. Branch labels represent posterior probabilities and scale bar represents substitutions per site.

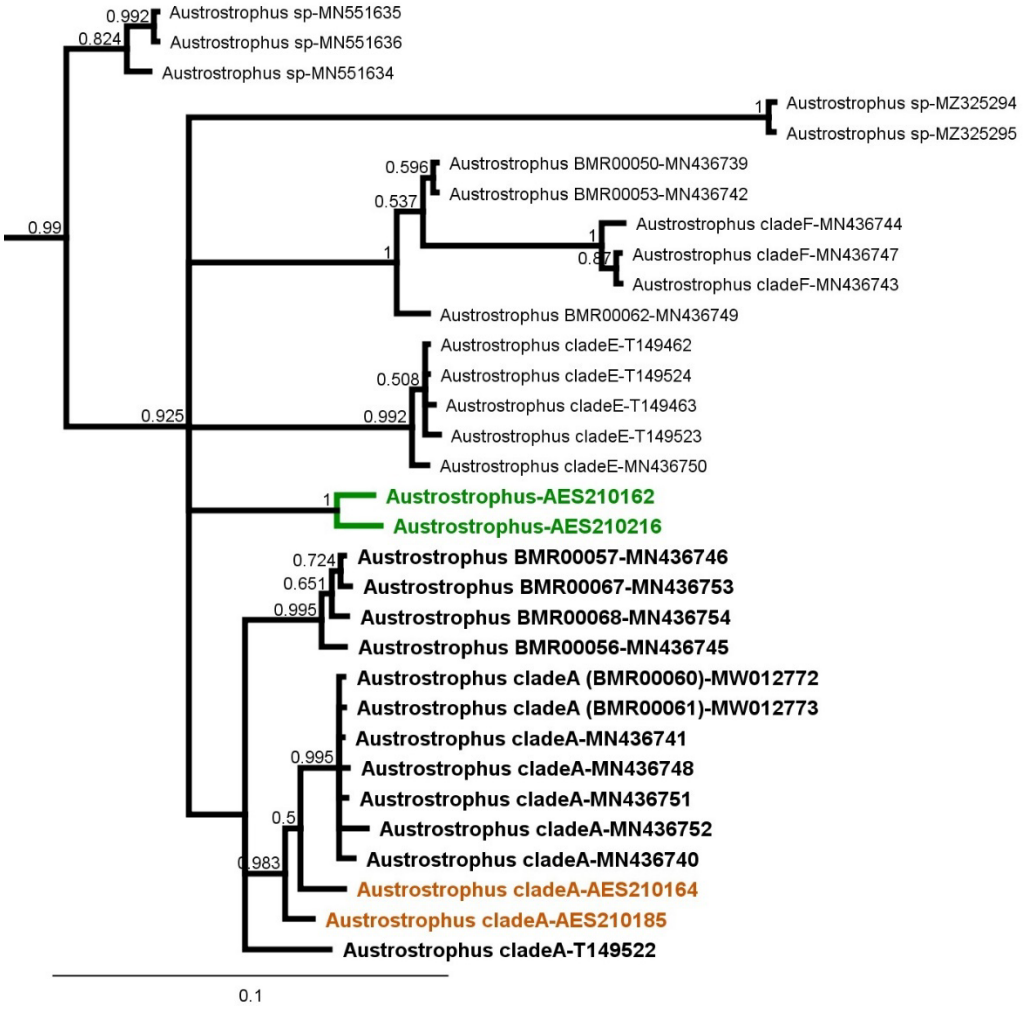

Figure 5.13. Subclade of Bayesian phylogeny of *Austrostrophus* analysis (Table 2.10) with query taxa highlighted in coloured text and conspecific species 'groups' in bold text. Branch labels represent posterior probabilities and scale bar represents substitutions per site.

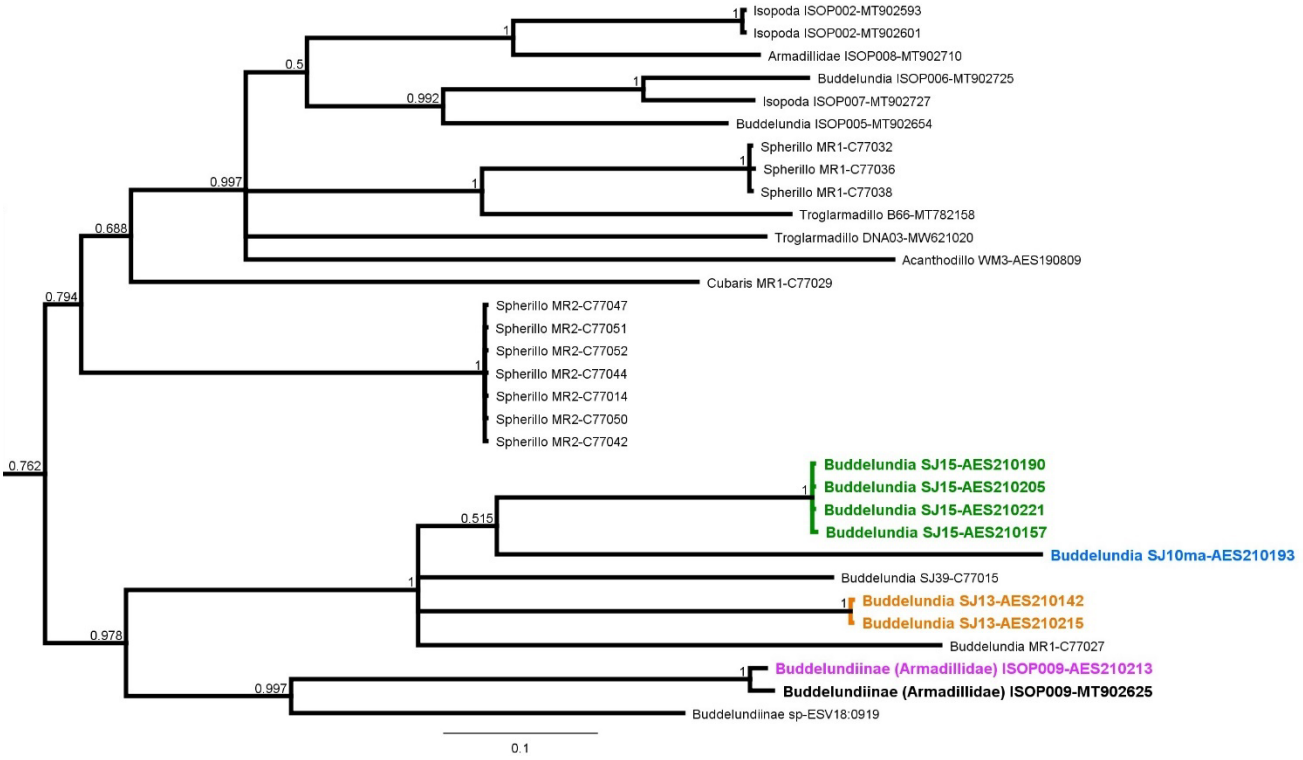

Figure 5.14. Subclade of Bayesian phylogeny of Armadillidae analysis (Table 2.11) with query taxa highlighted in coloured text and conspecific species 'groups' in bold text. Branch labels represent posterior probabilities and scale bar represents substitutions per site.

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7 APPENDIX

Appendix 1. DNA Sequences (COI) from the short: range endemic survey for the Lamb Creek Collection

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>Orphnaeus_LCr01-AES210206

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Appendix IV Lamb Creek Specimen Data

Appendix IV Specimen Data

Rapallo Reg number	Alacran Code	Date	CLASS	ORDER	FAMILY	SRE Category Taxa (Post WAM MSU check)	SITE CODE	Easting	Northing	UTM Zone	Location (Distance from Juna	SURVEY TYPE	HABITAT	Field Collection Method	SURVEY START DATE	SURVEY END DATE	MALES	FEMALES	JUVENILES	TOTAL	SRE STATUS
Rap LC 202102 101	AES210197	20/02/21	Arachnida	Araneae	Anamidae	Kwonkan 'MYG324'	LC09	692263.9170	7477401.7490	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Burrow Excavated	17/02/2021	25/02/2021		1		1	Potential SRE: DDG
Rap LC 202102 102	AES210147	20/02/21	Arachnida	Araneae	Anamidae	Aname mellosa	LC09	692263.9170	7477401.7490	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Burrow Excavated	17/02/2021	25/02/2021	1			1	Widespread
Rap LC 202102 105	AES210163	21/02/21	Arachnida	Araneae	Anamidae	Aname mellosa	LC15	690264.3380	7476806.7290	50	38 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Burrow Excavated	17/02/2021	25/02/2021				1	Widespread
Rap LC 202102 109	AES210144	21/02/21	Arachnida	Araneae	Anamidae	Aname mellosa	LC16	692741.5450	7477008.0400	50	41 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Stony Plain	Burrow Excavated	17/02/2021	25/02/2021		1		1	Widespread
AES200302	AES200302	24/04/20	Arachnida	Araneae	Anamidae	Aname mellosa	LCS08	692588.0770	7476971.2250	50	40 km east of Juna downs (a	Vertebrate trapping survey	Stony Plain	Dry Pitfall Trap	15/04/2020	29/04/2020		1		1	Widespread
Rap LC 202102 088	AES210149	24/02/21	Arachnida	Araneae	Barychelidae	Synothele 'MYG311'	LC33	685152.0300	7468508.1700	50	32 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Tussock grassland plain	Burrow Excavated	17/02/2021	25/02/2021				1	Widespread
Rap LC 202102 161	AES210187	17/02/21	Arachnida	Pseudoscorpiones	Atemnidae	Oratemnus 'WA1'	LC01	691726.9520	7477164.8810	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Medium Drainage	Litter sifted	17/02/2021	25/02/2021		1		1	Widespread
Rap LC 202102 238	AES210208	17/02/21	Arachnida	Pseudoscorpiones	Atemnidae	Oratemnus 'WA1'	LC02	691748.3260	7477231.0650	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Medium Drainage	Litter sifted	17/02/2021	25/02/2021	4	2	2	8	Widespread
Rap LC 202102 163	AES210191	17/02/21	Arachnida	Pseudoscorpiones	Atemnidae	Oratemnus 'WA1'	LC02	691748.3260	7477231.0650	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Medium Drainage	Litter sifted	17/02/2021	25/02/2021	1			1	Widespread
Rap LC 202102 231	AES210203	18/02/21	Arachnida	Pseudoscorpiones	Atemnidae	Oratemnus 'WA1'	LC05	691809.7290	7475591.0960	50	39 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021	2	2	1	5	Widespread
Rap LC 202102 234	AES210201	18/02/21	Arachnida	Pseudoscorpiones	Atemnidae	Oratemnus 'WA1'	LC06	691870.6230	7475534.9470	50	39 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021		1	2	3	Widespread
Rap LC 202102 106	AES210189	21/02/21	Arachnida	Pseudoscorpiones	Atemnidae	Oratemnus 'WA1'	LC15	690264.3380	7476806.7290	50	38 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021	1	1	2	4	Widespread
Rap LC 202102 146	AES210211	23/02/21	Arachnida	Pseudoscorpiones	Atemnidae	Oratemnus 'WA1'	LC28	683362.9560	7473303.3910	50	31 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Stony Plain	Litter sifted	17/02/2021	25/02/2021	1			1	Widespread
Rap LC 202102 144	AES210200	23/02/21	Arachnida	Pseudoscorpiones	Atemnidae	Oratemnus 'WA1'	LC28	683362.9560	7473303.3910	50	31 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Stony Plain	Litter sifted	17/02/2021	25/02/2021	6	5	4	15	Widespread
Rap LC 202102 096	AES210180	24/02/21	Arachnida	Pseudoscorpiones	Atemnidae	Oratemnus 'WA1'	LC32	684125.9550	7469362.4270	50	31 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Tussock grassland plain	Litter sifted	17/02/2021	25/02/2021	2			2	Widespread
Rap LC 202102 040	AES210172	24/02/21	Arachnida	Pseudoscorpiones	Atemnidae	Oratemnus 'WA1'	LC35	685046.3040	7468254.7320	50	32 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Tussock grassland plain	Litter sifted	17/02/2021	25/02/2021			1	1	Widespread
Rap LC 202102 021	AES210186	25/02/21	Arachnida	Pseudoscorpiones	Atemnidae	Oratemnus 'WA1'	LC42	684047.3850	7468809.6210	50	31 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Tussock grassland plain	Litter sifted	17/02/2021	25/02/2021	1	1	2	4	Widespread
Rap LC 202102 234	AES210202	18/02/21	Arachnida	Pseudoscorpiones	Chthoniidae	Austrochthonius 'LCr01'	LC06	691870.6230	7475534.9470	50	39 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDT
Rap LC 202102 171	AES210152	20/02/21	Arachnida	Pseudoscorpiones	Olpiidae	Euryolpium 'LCr01'	LC12	694380.3110	7475879.5500	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Shallow Open Gully	Litter sifted	17/02/2021	25/02/2021	2	2	1	5	Potential SRE: DDG
Rap LC 202102 171	AES210153	20/02/21	Arachnida	Pseudoscorpiones	Olpiidae	Indolpium 'LCr04'	LC12	694380.3110	7475879.5500	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Shallow Open Gully	Litter sifted	17/02/2021	25/02/2021			1	1	Potential SRE: DDG
Rap LC 202102 201	AES210184	20/02/21	Arachnida	Pseudoscorpiones	Olpiidae	Euryolpium 'LCr01'	LC13	694389.5830	7475801.9000	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Deep Gully	Litter sifted	17/02/2021	25/02/2021		2	1	3	Potential SRE: DDG
Rap LC 202102 201	AES210183	20/02/21	Arachnida	Pseudoscorpiones	Olpiidae	Indolpium 'LCr04'	LC13	694389.5830	7475801.9000	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Deep Gully	Litter sifted	17/02/2021	25/02/2021		1		1	Potential SRE: DDG
Rap LC 202102 034	AES210145	20/02/21	Arachnida	Pseudoscorpiones	Olpiidae	Euryolpium 'LCr01'	LC14	694285.7870	7475714.6240	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Shallow Open Gully	Litter sifted	17/02/2021	25/02/2021			3	3	Potential SRE: DDG
Rap LC 202102 111	AES210173	21/02/21	Arachnida	Pseudoscorpiones	Olpiidae	Euryolpium 'LCr01'	LC20	694802.3610	7475962.7390	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Shallow Open Gully	Litter sifted	17/02/2021	25/02/2021		1		1	Potential SRE: DDG
Rap LC 202102 082	AES210194	21/02/21	Arachnida	Pseudoscorpiones	Olpiidae	Euryolpium 'LCr01'	LC20	694802.3610	7475962.7390	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Shallow Open Gully	Litter sifted	17/02/2021	25/02/2021			1	1	Potential SRE: DDG
Rap LC 202102 111	AES210175	21/02/21	Arachnida	Pseudoscorpiones	Olpiidae	Euryolpium 'LCr01'	LC20	694802.3610	7475962.7390	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Shallow Open Gully	Litter sifted	17/02/2021	25/02/2021	1			1	Potential SRE: DDG
Rap LC 202102 111	AES210174	21/02/21	Arachnida	Pseudoscorpiones	Olpiidae	Indolpium 'LCr04'	LC20	694802.3610	7475962.7390	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Shallow Open Gully	Litter sifted	17/02/2021	25/02/2021	1			1	Potential SRE: DDG
Rap LC 202102 113	AES210141	21/02/21	Arachnida	Pseudoscorpiones	Olpiidae	Euryolpium 'LCr01'	LC21	694884.3480	7475950.6100	50	43 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Deep Gully	Litter sifted	17/02/2021	25/02/2021		1		1	Potential SRE: DDG
Rap LC 202102 083	AES210210	22/02/21	Arachnida	Pseudoscorpiones	Olpiidae	Indolpium 'LCr05'	LC23	687239.0160	7476279.5360	50	35 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Minor Drainage	Litter sifted	17/02/2021	25/02/2021		1		1	Potential SRE: DDG
RAPLC202004002b	AES210265	25/04/20	Arachnida	Pseudoscorpiones	Olpiidae	Indolpium 'LCr03'	LCS10	693034.9370	7476662.8450	50	41 km east of Juna downs (a	Vertebrate trapping survey	Hillcrest/ hillslope	Litter sifted	15/04/2020	29/04/2020	1	1		2	Potential SRE: DDG
RAPLC202004002	AES210267	25/04/20	Arachnida	Pseudoscorpiones	Olpiidae	Olpiidae 'LCr02'	LCS10	693034.9370	7476662.8450	50	41 km east of Juna downs (a	Vertebrate trapping survey	Hillcrest/ hillslope	Litter sifted	15/04/2020	29/04/2020		2	1	3	Potential SRE: DDG
Rap LC 202102 081	AES210168	21/02/21	Arachnida	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	LC16	692741.5450	7477008.0400	50	41 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Stony Plain	Litter sifted	17/02/2021	25/02/2021		1		1	Potential SRE: DDG
Rap LC 202102 112	AES210146	21/02/21	Arachnida	Scorpiones	Buthidae	Lychas 'hairy tail complex'	LC21	694884.3480	7475950.6100	50	43 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Deep Gully	Litter sifted	17/02/2021	25/02/2021			1	1	Potential SRE: DDG
Rap LC 202102 143	AES210219	23/02/21	Arachnida	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	LC28	683362.9560	7473303.3910	50	31 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Stony Plain	Litter sifted	17/02/2021	25/02/2021	1		1	2	Potential SRE: DDG
RAPLC202004003	RAPLC202004003	25/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	LCS01	684841.471	7467748.835	50	32 km east of Juna downs (a	Vertebrate trapping survey	Tussock grassland plain	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Potential SRE: DDG
RAPLC202004006	RAPLC202004006	25/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	LCS01	684841.471	7467748.835	50	32 km east of Juna downs (a	Vertebrate trapping survey	Tussock grassland plain	Dry Pitfall Trap	15/04/2020	29/04/2020			1	1	Potential SRE: DDG
RAPLC202004004	RAPLC202004004	25/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	LCS01	684841.471	7467748.835	50	32 km east of Juna downs (a	Vertebrate trapping survey	Tussock grassland plain	Dry Pitfall Trap	15/04/2020	29/04/2020		1		1	Potential SRE: DDG
RAPLC202004005	AES210266	25/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'multipunctatus complex'	LCS01	684841.471	7467748.835	50	32 km east of Juna downs (a	Vertebrate trapping survey	Tussock grassland plain	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Potential SRE: DDG
RAPLC202004007	RAPLC202004007	26/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	LCS04	685944.3530	7475365.1450	50	34 km east of Juna downs (a	Vertebrate trapping survey	Stony Plain	Dry Pitfall Trap	15/04/2020	29/04/2020			1	1	Widespread
RAPLC202004011	RAPLC202004011	26/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	LCS04	685944.3530	7475365.1450	50	34 km east of Juna downs (a	Vertebrate trapping survey	Stony Plain	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Widespread
RAPLC202004010	RAPLC202004010	26/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	LCS04	685944.3530	7475365.1450	50	34 km east of Juna downs (a	Vertebrate trapping survey	Stony Plain	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Widespread
RAPLC202004008	RAPLC202004008	26/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	LCS04	685944.3530	7475365.1450	50	34 km east of Juna downs (a	Vertebrate trapping survey	Stony Plain	Dry Pitfall Trap	15/04/2020	29/04/2020			1	1	Widespread
RAPLC202004009	AES210268	26/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	LCS04	685944.3530	7475365.1450	50	34 km east of Juna downs (a	Vertebrate trapping survey	Stony Plain	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Potential SRE: DDG
RAPLC202004012	RAPLC202004012	26/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	LCS05	688624.5870	7477059.7940	50	37 km east of Juna downs (a	Vertebrate trapping survey	Stony Plain	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Potential SRE: DDG
RAPLC202004014	RAPLC202004014	26/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	LCS05	688624.5870	7477059.7940	50	37 km east of Juna downs (a	Vertebrate trapping survey	Stony Plain	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Potential SRE: DDG
RAPLC202004013	RAPLC202004013	26/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	LCS05	688624.5870	7477059.7940	50	37 km east of Juna downs (a	Vertebrate trapping survey	Stony Plain	Dry Pitfall Trap	15/04/2020	29/04/2020		1		1	Widespread
RAPLC202004016	RAPLC202004016	26/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	LCS05	688624.5870	7477059.7940	50	37 km east of Juna downs (a	Vertebrate trapping survey	Stony Plain	Dry Pitfall Trap	15/04/2020	29/04/2020			1	1	Widespread
RAPLC202004015	AES210269	26/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	LCS05	688624.5870	7477059.7940	50	37 km east of Juna downs (a	Vertebrate trapping survey	Stony Plain	Dry Pitfall Trap	15/04/2020	29/04/2020			1	1	Potential SRE: DDG
RAPLC202004019	RAPLC202004019	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	LCS06	690248.1110	7477150.2740	50	38 km east of Juna downs (a	Vertebrate trapping survey	Mulga Shrubland Patches	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Potential SRE: DDG
RAPLC202004025	RAPLC202004025	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	LCS06	690248.1110	7477150.2740	50	38 km east of Juna downs (a	Vertebrate trapping survey	Mulga Shrubland Patches	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Potential SRE: DDG
RAPLC202004021	RAPLC202004021	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	LCS06	690248.1110	7477150.2740	50	38 km east of Juna downs (a	Vertebrate trapping survey	Mulga Shrubland Patches	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Potential SRE: DDG
RAPLC202004023	RAPLC202004023	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	LCS06	690248.1110	7477150.2740	50	38 km east of Juna downs (a	Vertebrate trapping survey	Mulga Shrubland Patches	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Potential SRE: DDG

Appendix IV Specimen Data

RAPLC202004018	RAPLC202004018	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	LCS06	690248.1110	7477150.2740	50	38 km east of Juna downs (a	Vertebrate trapping survey	Mulga Shrubland Patches	Dry Pitfall Trap	15/04/2020	29/04/2020			1	1	Potential SRE: DDG
RAPLC202004024	RAPLC202004024	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	LCS06	690248.1110	7477150.2740	50	38 km east of Juna downs (a	Vertebrate trapping survey	Mulga Shrubland Patches	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Potential SRE: DDG
RAPLC202004026	RAPLC202004026	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	LCS06	690248.1110	7477150.2740	50	38 km east of Juna downs (a	Vertebrate trapping survey	Mulga Shrubland Patches	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Potential SRE: DDG
RAPLC202004020	RAPLC202004020	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	LCS06	690248.1110	7477150.2740	50	38 km east of Juna downs (a	Vertebrate trapping survey	Mulga Shrubland Patches	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Potential SRE: DDG
RAPLC202004027	RAPLC202004027	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	LCS06	690248.1110	7477150.2740	50	38 km east of Juna downs (a	Vertebrate trapping survey	Mulga Shrubland Patches	Dry Pitfall Trap	15/04/2020	29/04/2020		1		1	Widespread
RAPLC202004028	RAPLC202004028	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	LCS06	690248.1110	7477150.2740	50	38 km east of Juna downs (a	Vertebrate trapping survey	Mulga Shrubland Patches	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Widespread
RAPLC202004022	RAPLC202004022	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	LCS06	690248.1110	7477150.2740	50	38 km east of Juna downs (a	Vertebrate trapping survey	Mulga Shrubland Patches	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Widespread
RAPLC202004017	AES210270	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'bituberculatus complex'	LCS06	690248.1110	7477150.2740	50	38 km east of Juna downs (a	Vertebrate trapping survey	Mulga Shrubland Patches	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Potential SRE: DDG
RAPLC202004029	RAPLC202004029	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	LCS07	691417.3790	7476231.0200	50	39 km east of Juna downs (a	Vertebrate trapping survey	Medium Drainage	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Potential SRE: DDG
RAPLC202004031	RAPLC202004031	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'harveyi complex'	LCS08	692588.0770	7476971.2250	50	40 km east of Juna downs (a	Vertebrate trapping survey	Stony Plain	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Potential SRE: DDG
RAPLC202004032	RAPLC202004032	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	LCS08	692588.0770	7476971.2250	50	40 km east of Juna downs (a	Vertebrate trapping survey	Stony Plain	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Widespread
RAPLC202004030	RAPLC202004030	24/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	LCS08	692588.0770	7476971.2250	50	40 km east of Juna downs (a	Vertebrate trapping survey	Stony Plain	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Widespread
RAPLC202004034	RAPLC202004034	25/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	LCS09	692984.1070	7477590.8600	50	41 km east of Juna downs (a	Vertebrate trapping survey	Medium Drainage	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Widespread
RAPLC202004033	RAPLC202004033	25/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	LCS09	692984.1070	7477590.8600	50	41 km east of Juna downs (a	Vertebrate trapping survey	Medium Drainage	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Widespread
RAPLC202004035	RAPLC202004035	25/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	LCS09	692984.1070	7477590.8600	50	41 km east of Juna downs (a	Vertebrate trapping survey	Medium Drainage	Dry Pitfall Trap	15/04/2020	29/04/2020	1			1	Widespread
RAPLC202004036	RAPLC202004036	25/04/20	Arachnida	Scorpiones	Buthidae	Lychas 'pilbara 1'	LCS10	693034.9370	7476662.8450	50	41 km east of Juna downs (a	Vertebrate trapping survey	Hillcrest/ hillslope	Dry Pitfall Trap	15/04/2020	29/04/2020		1		1	Widespread
Rap LC 202102 205	AES210143	20/02/21	Chilopoda	Geophilomorpha	Chilenophilidae	Sepedonophilus 'LCr01'	LC12	694380.3110	7475879.5500	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Shallow Open Gully	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
Pap LC 202102 033	AES210156	20/02/21	Chilopoda	Geophilomorpha	Chilenophilidae	Sepedonophilus 'LCr01'	LC14	694285.7870	7475714.6240	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Shallow Open Gully	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
Rap LC 202102 236	AES210182	18/02/21	Chilopoda	Geophilomorpha	Mecistocephalidae	Mecistocephalus 'LCr01'	LC04	691576.6420	7476646.2270	50	39 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
Rap LC 202102 227	AES210150	18/02/21	Chilopoda	Geophilomorpha	Mecistocephalidae	Mecistocephalus 'LCr01'	LC04	691576.6420	7476646.2270	50	39 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
Rap LC 202102 226	AES210196	18/02/21	Chilopoda	Geophilomorpha	Mecistocephalidae	Mecistocephalus 'LCr01'	LC05	691809.7290	7475591.0960	50	39 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
Rap LC 202102 098	AES210176	21/02/21	Chilopoda	Geophilomorpha	Mecistocephalidae	Mecistocephalus 'LCr01'	LC16	692741.5450	7477008.0400	50	41 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Stony Plain	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
Rap LC 202102 098	AES210178	21/02/21	Chilopoda	Geophilomorpha	Mecistocephalidae	Mecistocephalus 'LCr01'	LC16	692741.5450	7477008.0400	50	41 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Stony Plain	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
Rap LC 202102 098	AES210177	21/02/21	Chilopoda	Geophilomorpha	Mecistocephalidae	Mecistocephalus 'LCr01'	LC16	692741.5450	7477008.0400	50	41 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Stony Plain	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
Rap LC 202102 038	AES210169	24/02/21	Chilopoda	Geophilomorpha	Mecistocephalidae	Mecistocephalus 'LCr02'	LC34	685069.9450	7468509.1750	50	32 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Tussock grassland plain	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
Rap LC 202102 221	AES210206	17/02/21	Chilopoda	Geophilomorpha	Oryidae	Orphnaeus 'LCr01'	LC01	691726.9520	7477164.8810	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Medium Drainage	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
Pap LC 202102 033	AES210155	20/02/21	Chilopoda	Scolopendromorpha	Cryptopidae	Cryptops 'LCr01'	LC14	694285.7870	7475714.6240	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Shallow Open Gully	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
Rap LC 202102 098	AES210179	21/02/21	Chilopoda	Scolopendromorpha	Cryptopidae	Cryptops 'LCr02'	LC16	692741.5450	7477008.0400	50	41 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Stony Plain	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
Rap LC 202102 170	AES210188	17/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Cormocephalus aurantiipes	LC01	691726.9520	7477164.8810	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Medium Drainage	Litter sifted	17/02/2021	25/02/2021				1	non-target
Rap LC 202102 239	AES210214	17/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Scolopendra laeta	LC02	691748.3260	7477231.0650	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Medium Drainage	Litter sifted	17/02/2021	25/02/2021				1	non-target
Rap LC 202102 236	AES210181	18/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Scolopendra laeta	LC04	691576.6420	7476646.2270	50	39 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	non-target
Rap LC 202102 226	AES210195	18/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Scolopendra laeta	LC05	691809.7290	7475591.0960	50	39 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	non-target
Rap LC 202102 235	AES210209	18/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Scolopendra morsitans	LC06	691870.6230	7475534.9470	50	39 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	non-target
Rap LC 202102 045	AES210192	19/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Cormocephalus aurantiipes	LC07	690727.5470	7476081.0000	50	38 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	non-target
Rap LC 202102 042	AES210212	19/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Cormocephalus aurantiipes	LC08	690777.6230	7475980.6900	50	38 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	non-target
Rap LC 202102 104	AES210158	20/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Cormocephalus westangelasensis	LC09	692263.9170	7477401.7490	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021		1		1	Widespread
Rap LC 202102 173	AES210217	20/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Cormocephalus westangelasensis	LC10	692334.6630	7477312.2470	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	Widespread
Rap LC 202102 107	AES210165	21/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Arthrorhabdus mjobergi	LC15	690264.3380	7476806.7290	50	38 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	Widespread
Rap LC 202102 085	AES210207	22/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Cormocephalus aurantiipes	LC22	687114.4570	7476170.3210	50	35 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Stony Plain	Litter sifted	17/02/2021	25/02/2021				1	non-target
Rap LC 202102 086	AES210148	22/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Scolopendra morsitans	LC24A	692215.1310	7476793.2070	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Stony Plain	Litter sifted	17/02/2021	25/02/2021				1	non-target
Rap LC 202102 036	AES210171	22/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Cormocephalus aurantiipes	LC25	692318.3730	7476027.6780	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Minor Drainage	Litter sifted	17/02/2021	25/02/2021				1	non-target
Rap LC 202102 036	AES210170	22/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Scolopendra morsitans	LC25	692318.3730	7476027.6780	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Minor Drainage	Litter sifted	17/02/2021	25/02/2021				1	non-target
Rap LC 202102 097	AES210161	24/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Cormocephalus westangelasensis	LC32	684125.9550	7469362.4270	50	31 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Tussock grassland plain	Litter sifted	17/02/2021	25/02/2021				1	Widespread
Rap LC 202102 037	AES210166	24/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Cormocephalus westangelasensis	LC33	685152.0300	7468508.1700	50	32 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Tussock grassland plain	Litter sifted	17/02/2021	25/02/2021				1	Widespread
Rap LC 202102 039	AES210199	24/02/21	Chilopoda	Scolopendromorpha	Scolopendridae	Cormocephalus westangelasensis	LC35	685046.3040	7468254.7320	50	32 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Tussock grassland plain	Litter sifted	17/02/2021	25/02/2021				1	Widespread
Rap LC 202102 141	Rap LC 202102 141	23/02/21	Chilopoda	Scutigeromorpha		Scutigeromorpha sp.	LC28	683362.9560	7473303.3910	50	31 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Stony Plain	Litter sifted	17/02/2021	25/02/2021				1	Widespread
Rap LC 202102 032	Rap LC 202102 032	25/02/21	Chilopoda	Scutigeromorpha		Scutigeromorpha sp.	LC42	684047.3850	7468809.6210	50	31 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Tussock grassland plain	Litter sifted	17/02/2021	25/02/2021				1	Widespread
Rap LC 202102 169	Rap LC 202102 169	17/02/21	Diplopoda	Polyxenida	Polyxenidae	Polyxenidae sp.	LC01	691726.9520	7477164.8810	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Medium Drainage	Litter sifted	17/02/2021	25/02/2021				1	non-target
Rap LC 202102 228	Rap LC 202102 228	18/02/21	Diplopoda	Polyxenida	Polyxenidae	Polyxenidae sp.	LC04	691576.6420	7476646.2270	50	39 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	non-target
Rap LC 202102 204	AES210151	20/02/21	Diplopoda	Polyxenida		polyxenida sp.	LC12	694380.3110	7475879.5500	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Shallow Open Gully	Litter sifted	17/02/2021	25/02/2021				1	Widespread
Rap LC 202102 225	AES210162	18/02/21	Diplopoda	Spirobolida	Trigoniulidae	Austrostrophus 'clade M'	LC04	691576.6420	7476646.2270	50	39 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG

Appendix IV Specimen Data

Rap LC 202102 108	AES210185	21/02/21	Diplopoda	Spirobolida	Trigoniulidae	Austrostrophus 'Clade A'	LC15	690264.3380	7476806.7290	50	38 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
Rap LC 202102 110	AES210164	21/02/21	Diplopoda	Spirobolida	Trigoniulidae	Austrostrophus 'Clade A'	LC20	694802.3610	7475962.7390	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Shallow Open Gully	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
Rap LC 202102 145	AES210216	23/02/21	Diplopoda	Spirobolida	Trigoniulidae	Austrostrophus 'clade M'	LC28	683362.9560	7473303.3910	50	31 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Stony Plain	Litter sifted	17/02/2021	25/02/2021		2		2	Potential SRE: DDG
NA - Calico BAG	AES210081	19/02/21	Gastropoda	Eupulmonata	Bothriembryontidae	Bothriembryon 'BOT065'	LC07	690727.5470	7476081.0000	50	38 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
NA - Calico BAG	AES210080	19/02/21	Gastropoda	Eupulmonata	Bothriembryontidae	Bothriembryon 'BOT065'	LC07	690727.5470	7476081.0000	50	38 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
NA - Calico BAG	AES210057	19/02/21	Gastropoda	Eupulmonata	Bothriembryontidae	Bothriembryon 'BOT065'	LC07	690727.5470	7476081.0000	50	38 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
NA - Calico BAG	AES210079	19/02/21	Gastropoda	Eupulmonata	Bothriembryontidae	Bothriembryon 'BOT065'	LC07	690727.5470	7476081.0000	50	38 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021				1	Potential SRE: DDG
Rap LC 202102 203	AES210167	20/02/21	Gastropoda	Eupulmonata	Subulinidae	Eremopeas interioris	LC13	694389.5830	7475801.9000	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Deep Gully	Litter sifted	17/02/2021	25/02/2021				1	Widespread
Rap LC 202102 240	AES210204	17/02/21	Malacostraca	Isopoda	Armadillidae	Buddelundia '13'	LC01	691726.9520	7477164.8810	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Medium Drainage	Litter sifted	17/02/2021	25/02/2021	1			1	Potential SRE: DDG
Rap LC 202102 224	AES210213	17/02/21	Malacostraca	Isopoda	Armadillidae	Buddelundiinae (Armadillidae) 'ISOP009'	LC01	691726.9520	7477164.8810	50	40 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Medium Drainage	Litter sifted	17/02/2021	25/02/2021			1	1	Potential SRE: DDG
Rap LC 202102 229	AES210160	18/02/21	Malacostraca	Isopoda	Armadillidae	Buddelundia '13'	LC04	691576.6420	7476646.2270	50	39 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021	1			1	Potential SRE: DDG
Rap LC 202102 232	AES210221	18/02/21	Malacostraca	Isopoda	Armadillidae	Buddelundia '15'	LC05	691809.7290	7475591.0960	50	39 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021			1	1	Widespread
Rap LC 202102 233	AES210218	18/02/21	Malacostraca	Isopoda	Armadillidae	Buddelundia '15'	LC06	691870.6230	7475534.9470	50	39 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021		1		1	Widespread
Rap LC 202102 167	AES210205	18/02/21	Malacostraca	Isopoda	Armadillidae	Buddelundia '15'	LC06	691870.6230	7475534.9470	50	39 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021			1	1	Widespread
Rap LC 202102 202	AES210215	20/02/21	Malacostraca	Isopoda	Armadillidae	Buddelundia '13'	LC13	694389.5830	7475801.9000	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Deep Gully	Litter sifted	17/02/2021	25/02/2021		1	2	3	Potential SRE: DDG
Rap LC 202102 174	AES210159	20/02/21	Malacostraca	Isopoda	Armadillidae	Buddelundia '16'	LC13	694389.5830	7475801.9000	50	42 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Deep Gully	Litter sifted	17/02/2021	25/02/2021	1	1		2	Potential SRE: DDG
Rap LC 202102 100	AES210157	21/02/21	Malacostraca	Isopoda	Armadillidae	Buddelundia '15'	LC15	690264.3380	7476806.7290	50	38 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Mulga Shrubland Patches	Litter sifted	17/02/2021	25/02/2021			1	1	Widespread
Rap LC 202102 113	AES210142	21/02/21	Malacostraca	Isopoda	Armadillidae	Buddelundia '13'	LC21	694884.3480	7475950.6100	50	43 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Deep Gully	Litter sifted	17/02/2021	25/02/2021		1		1	Potential SRE: DDG
Rap LC 202102 084	AES210193	22/02/21	Malacostraca	Isopoda	Armadillidae	Buddelundia '10ma'	LC22	687114.4570	7476170.3210	50	35 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Stony Plain	Litter sifted	17/02/2021	25/02/2021	1	2		3	Potential SRE: DDG
Rap LC 202102 142	AES210220	25/02/21	Malacostraca	Isopoda	Armadillidae	Buddelundia '13'	LC39A	692608.2130	7477829.3330	50	41 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Medium Drainage	Litter sifted	17/02/2021	25/02/2021	2		2	4	Potential SRE: DDG
Rap LC 202102 142	AES210220b	25/02/21	Malacostraca	Isopoda	Armadillidae	Buddelundia '15'	LC39A	692608.2130	7477829.3330	50	41 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Medium Drainage	Litter sifted	17/02/2021	25/02/2021	1			1	Widespread
Rap LC 202102 022	AES210190	25/02/21	Malacostraca	Isopoda	Armadillidae	Buddelundia '15'	LC42	684047.3850	7468809.6210	50	31 km east of Juna Downs (a	SRE Invertebrate Foraging Survey	Tussock grassland plain	Litter sifted	17/02/2021	25/02/2021	2			2	Widespread

Appendix V WAM MSU Sequencing Report

Molecular identification of terrestrial arthropods from near Juna Downs Station, Western Australia (2116)

Report to *Alacran Environmental Science*

31 August 2021

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Although identifications in this report were consistent with the best available information and current scientific thinking at the time of identification the use of this report is at the risk of the user. Any liability to users of this report for loss of any kind arising out of the use of this report or the information and identifications it contains is expressly disclaimed.

Summary

Alacran Environmental Science requested identification of mitochondrial COI sequences from specimens of terrestrial invertebrates from near Juna Downs Station, Western Australia. This comprised of 14 supplied sequences (see Table 1 and Appendix 1 for sequence and specimen details). The main objectives of the WA Museum's Molecular Systematics Unit (MSU) were to use these supplied sequences to determine the taxonomic identity of the specimens.

Provided DNA sequences were BLASTED against publicly accessible sequences in GenBank and with data sets derived from current research projects in collaboration with the WA Museum. Extraneous primers sequences were removed prior to analysis. The top 10 blast hits for each major taxon were gathered, duplicates removed, and analysed with a Maximum Likelihood phylogenetic analysis using a GTR+G model of evolution and 100 bootstraps (RAxML). Distances were calculated via tree-based estimates of identical bases in Geneious Prime 2020.2.5.

A summary of sequences queried is in Table 1.

Table 1. Summary of identified sequenced specimens supplied to WA Museum.

FAMILY	GENUS	SPECIES	# of sequences
Anamidae	*Kwonkan*	1 species	1
Armadillidae	indet.	1 species	1
Bothriembryontidae	*Bothriembryon*	1 species	1
Chthoniidae	*Austrochthonius*	1 species	1
Cryptopidae	*Cryptops*	2 species	2
Mecistocephalidae	*Mecistocephalus*	2 species	2
Olpiidae	*Euryolpium*	1 species	1

Olpiidae	Genus 7/4	1 species	1
Olpiidae	*Indolpium*	3 species	3
Trigoniulidae	*Austrostrophus*	1 species	1

Results

Provided COI barcodes were compared to existing data held by the Western Australian Museum. A summary of the results is provided in Table 2. Complete or excised relevant parts of the resulting Maximum Likelihood trees are provided in Appendix 2 for visualisation of genetic relationships. The raw sequence data is supplied for reference in Appendix 3.

Table 2. Summary of identifications of queried specimens (alphabetical by family).

FIELD NO	FAMILY	SPECIES DESIGNATION	SUMMARY OF RESULTS
AES210197	Anamidae	*Kwonkan* MYG324	· this specimen is 2.28% divergent from its nearest relative in the tree (WAMT122817), and falls in a clade known as MYG324 which is a known but undescribed species. Other sequenced specimens are known from Karijini as well as the Juna Downs area. *Appendix 2a.*
AES210213	Armadillidae	Genus indet. sp. indet.	· this specimen fall in a clade that represents a known but undescribed species *Armadillidae* with a code from GenBank ISOP009 (2.13% divergent). That specimen was collected 124 km NW of this target specimen. *Appendix 2b.*
AES210080	Bothriembryontidae	*Bothriembryon BOT065*	· this specimen falls in a clade known as BOT065 and represents a known but undescribed species of *Bothriembryon*. It is 3.97% divergent from the nearest specimen. *Appendix 2c.*
AES210202	Chthoniidae	*Austrochthonius* new sp. 1	· this specimen forms a clade with WAMT135836+T135835; however the specimens are 16.87% divergent, which indicates it is likely a different species. There is no code system for this group, so it is just noted as a new undescribed or previously unsequenced species. *Appendix 2d.*
AES210155	Cryptopidae	*Cryptops* new sp. 1	· this specimen is not closely linked to any other species. It is at least 17.82% divergent from its nearest relative in the tree. However, the support for this node connecting the two taxa is absent, so this relationship is likely somewhat artificially close. There is no code

			system for this group, so it is just noted as a new undescribed or previously unsequenced species. *Appendix 2e.*
AES210179	Cryptopidae	*Cryptops* new sp. 2	· this specimen is 11.11% divergent from its nearest relatives in the tree (WAMT93678+T93668), which represents another undescribed species. These two were found approximately 46 km SW of the target specimen. There is no code system for this group, so it is just noted as a new undescribed or previously unsequenced species, but different to the queried *Cryptops* above. *Appendix 2e.*
AES210169	Mecistocephalidae	*Mecistocephalus* new sp. 1	· this specimen is 13.83% divergent from the other queried *Mecistocephalus* below. However, the support for the node supporting this relationship is absent, so this relationship is likely somewhat artificially close. There is no code system for this group, so it is just noted as a new undescribed or previously unsequenced species, but different to the queried *Mecistocephalus* below. *Appendix 2f.*
AES210150	Mecistocephalidae	*Mecistocephalus* new sp. 2	· this specimen is 13.83% divergent from the other queried *Mecistocephalus* above. However, the support for the node supporting this relationship is absent, so this relationship is likely somewhat artificially close. There is no code system for this group, so it is just noted as a new undescribed or previously unsequenced species, but different to the queried *Mecistocephalus* above. *Appendix 2f.*
AES210141	Olpiidae	*Euryolpium* new sp.	· this specimen is 14.2% divergent from WAMT139754+T139763, and likely represents a different species. However, the support for the node supporting this relationship is absent, so this relationship is likely somewhat artificially close. There is no code system for this group, so it is just noted as a new undescribed or previously unsequenced species. *Appendix 2g.*
AES210267	Olpiidae	Genus 7/4 new sp.	· this specimen is essentially identical to its nearest relatives in the tree (WAMT122180+T122190) and represents a known but undescribed species. The two WAM specimens were found about 7 km north of the queried specimen. The difference between the two highly-supported clades seen in this Appendix is 17.1%. There is no code system for this group, so it is just noted as an undescribed species. *Appendix 2h.*
AES210265	Olpiidae	*Indolpium* new sp. 1	· this specimen is 10.38% divergent from its nearest relative in the tree (WAMT149362). We do not yet have a good grasp of typical species level divergences in this group, so it is unclear if the queried taxa is conspecific with others or not. There is no code system for this

			group, so it is just noted as a new undescribed or previously unsequenced species. *Appendix i.*
AES210153	Olpiidae	*Indolpium* new sp. 2	· this specimen is 11.45% divergent from its nearest relative in the tree (AES210265). We do not yet have a good grasp of typical species level divergences in this group, so it is unclear if the queried taxa is conspecific with others or not. There is no code system for this group, so it is just noted as a new undescribed or previously unsequenced species. *Appendix i.*
AES210210	Olpiidae	*Indolpium* new sp. 3	· this specimen is 12.82% divergent from its nearest relative in the tree (WAMT114698). We do not yet have a good grasp of typical species level divergences in this group, so it is unclear if the queried taxa is conspecific with others or not. There is no code system for this group, so it is just noted as a new undescribed or previously unsequenced species. *Appendix i.*
AES210162	Trigoniulidae	*Austrostrophus* new clade M	· this specimen is at least 6.08% divergent from its nearest relative in the tree (WAMT100193). Based on the topology of the tree, which places this specimen on a branch that falls between known clades, we have allocated this taxon a new clade name (M). In this study system, clades names approximate species-level clades. *Appendix j.*

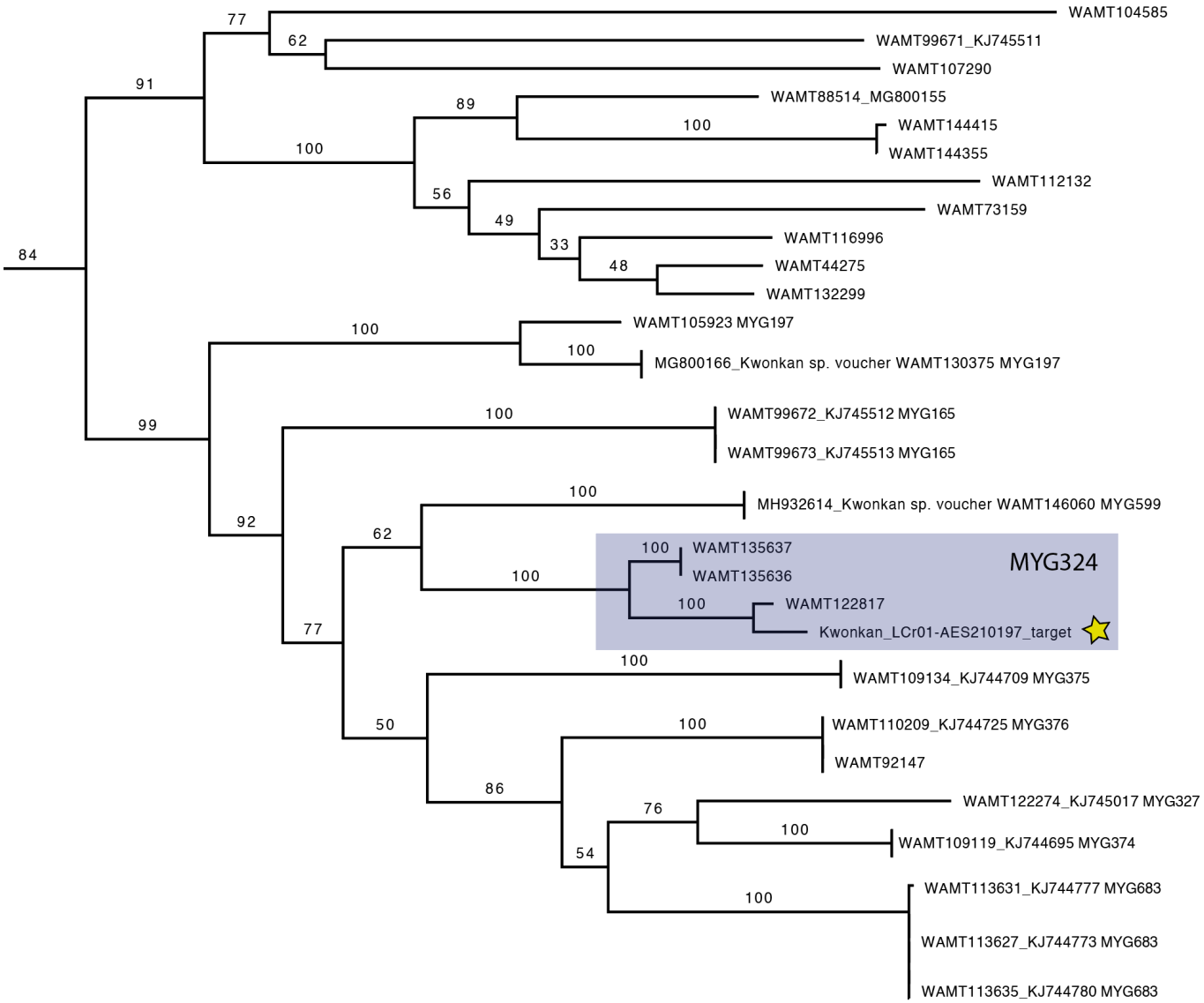
Conclusions

The sequences supplied represent fourteen different species, from eight different families. Four of those species can be linked with existing sequenced although undescribed species. Ten species are either new, or represent newly sequenced species.

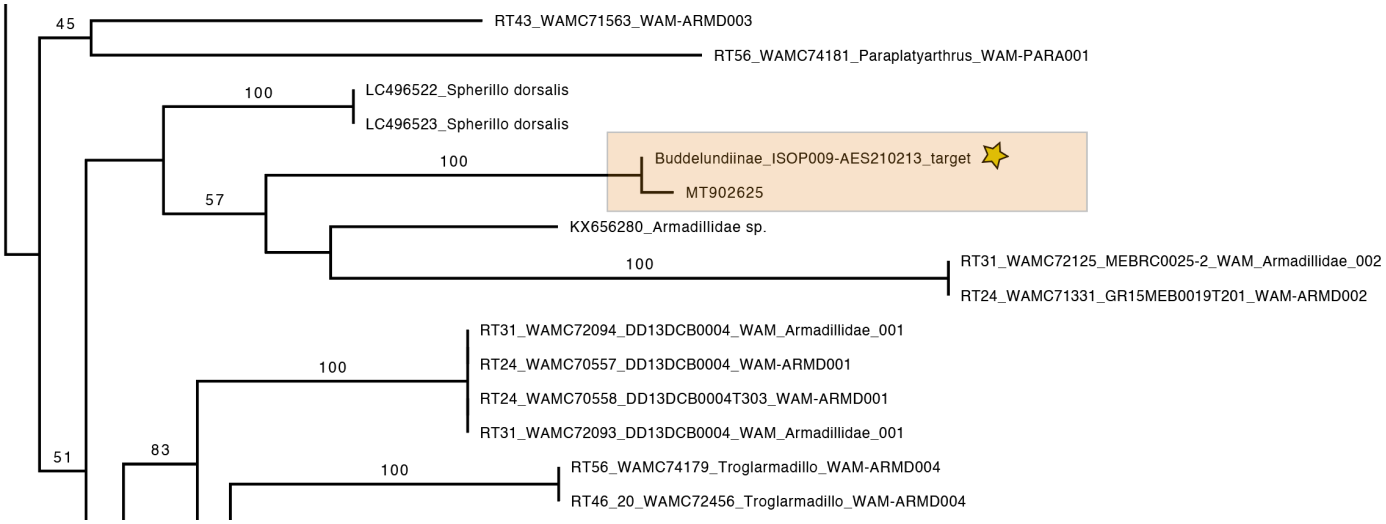
Appendix 1. Specimen data for all sequences, updated with new identifications (in order supplied).

FIELD NO	FAMILY	GENUS	SPECIES	SITE	LATITUDE	LONGITUDE
AES210197	Anamidae	*Kwonkan*	MYG324	ca. 40.9 km ENE. Juna Downs Stn.	22°48'00.00	118°52'23.16
AES210202	Chthoniidae	*Austrochthonius*	new sp.	ca. 40.2 km ENE. Juna Downs Stn.	22°49'00.84	118°52'10.20
AES210141	Olpiidae	*Euryolpium*	new sp.	ca. 43.2 km ENE. Juna Downs Stn.	22°48'46.08	118°53'55.68
AES210265	Olpiidae	*Indolpium*	new sp. 1	ca 22 km E of Juna Downs	22°48'23.7	118°53'08.4
AES210153	Olpiidae	*Indolpium*	new sp. 2	ca. 42.7 km ENE. Juna Downs Stn.	22°48'48.60	118°53'38.04
AES210210	Olpiidae	*Indolpium*	new sp. 3	ca. 35.8 km ENE. Juna Downs Stn.	22°48'38.52	118°49'27.48
AES210267	Olpiidae	Genus 7/4	new sp. 1	ca 22 km E of Juna Downs	22°48'23.7	118°53'08.4
AES210169	Mecistocephalidae	*Mecistocephalus*	new sp. 1	ca. 32.8 km ENE. Juna Downs Stn.	22°52'51.96	118°48'14.76
AES210150	Mecistocephalidae	*Mecistocephalus*	new sp. 2	ca. 40.1 km ENE. Juna Downs Stn.	22°48'24.84	118°51'59.40
AES210155	Cryptopidae	*Cryptops*	new sp. 1	ca. 42.6 km ENE. Juna Downs Stn.	22°48'54.00	118°53'34.80
AES210179	Cryptopidae	*Cryptops*	new sp. 2	ca. 41.3 km ENE. Juna Downs Stn.	22°48'12.60	118°52'40.08
AES210162	Trigoniulidae	*Austrostrophus*	new clade M	ca. 40.1 km ENE. Juna Downs Stn.	22°48'24.84	118°51'59.40
AES210080	Bothriembryontidae	*Bothriembryon*	BOT065	ca. 39.2 km ENE. Juna Downs Stn.	22°48'43.56	118°51'29.88
AES210213	Armadillidae	indet.	indet.	ca. 40.4 km ENE. Juna Downs Stn.	22°48'07.92	118°52'04.44

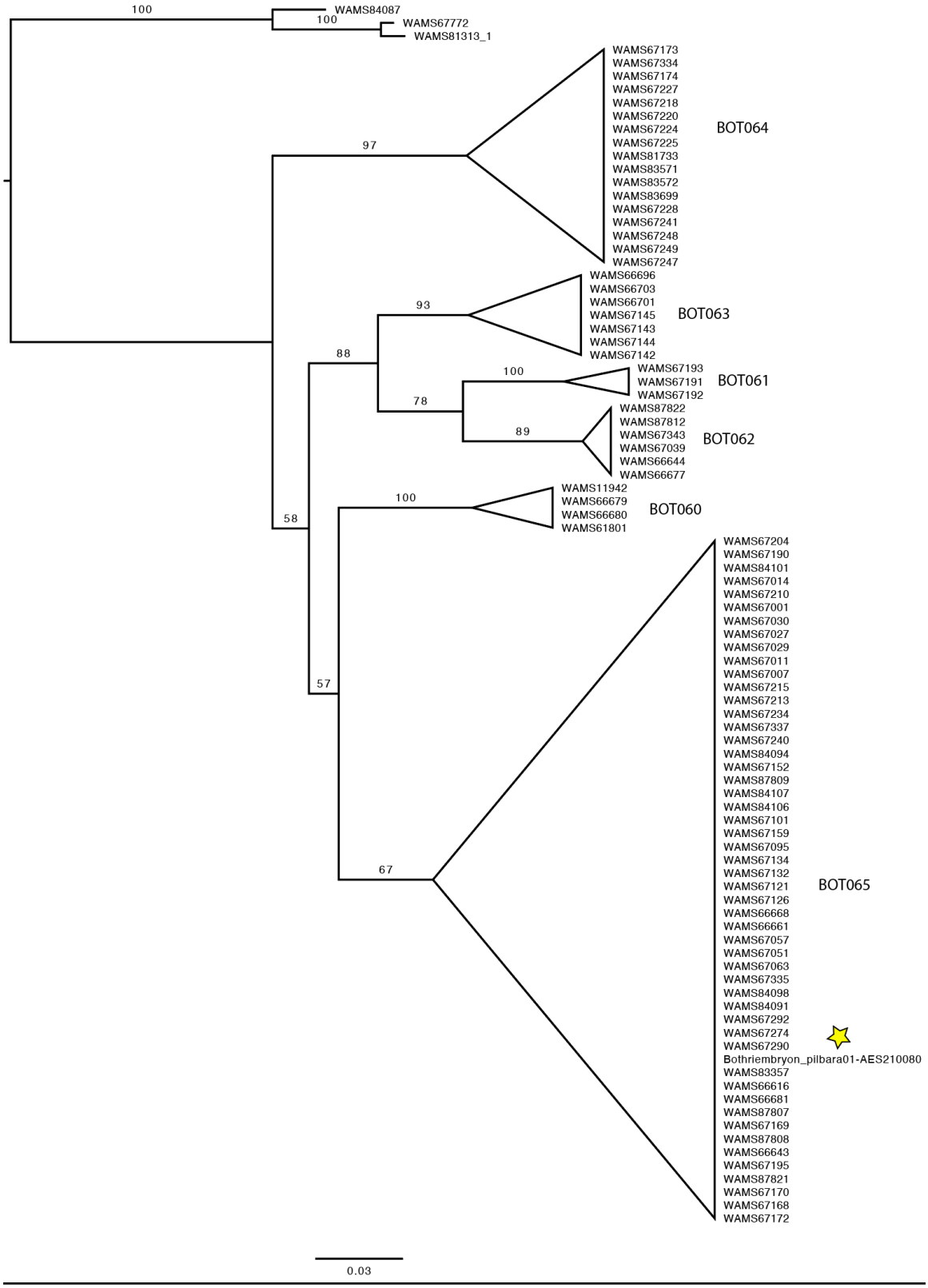
Appendix 2a. Excerpt from Maximum Likelihood tree of Anamidae, *Kwonkan* COI, to be used *ONLY* for visualisation of relationships. Bootstrap values less than 50 and some interior node support were removed.



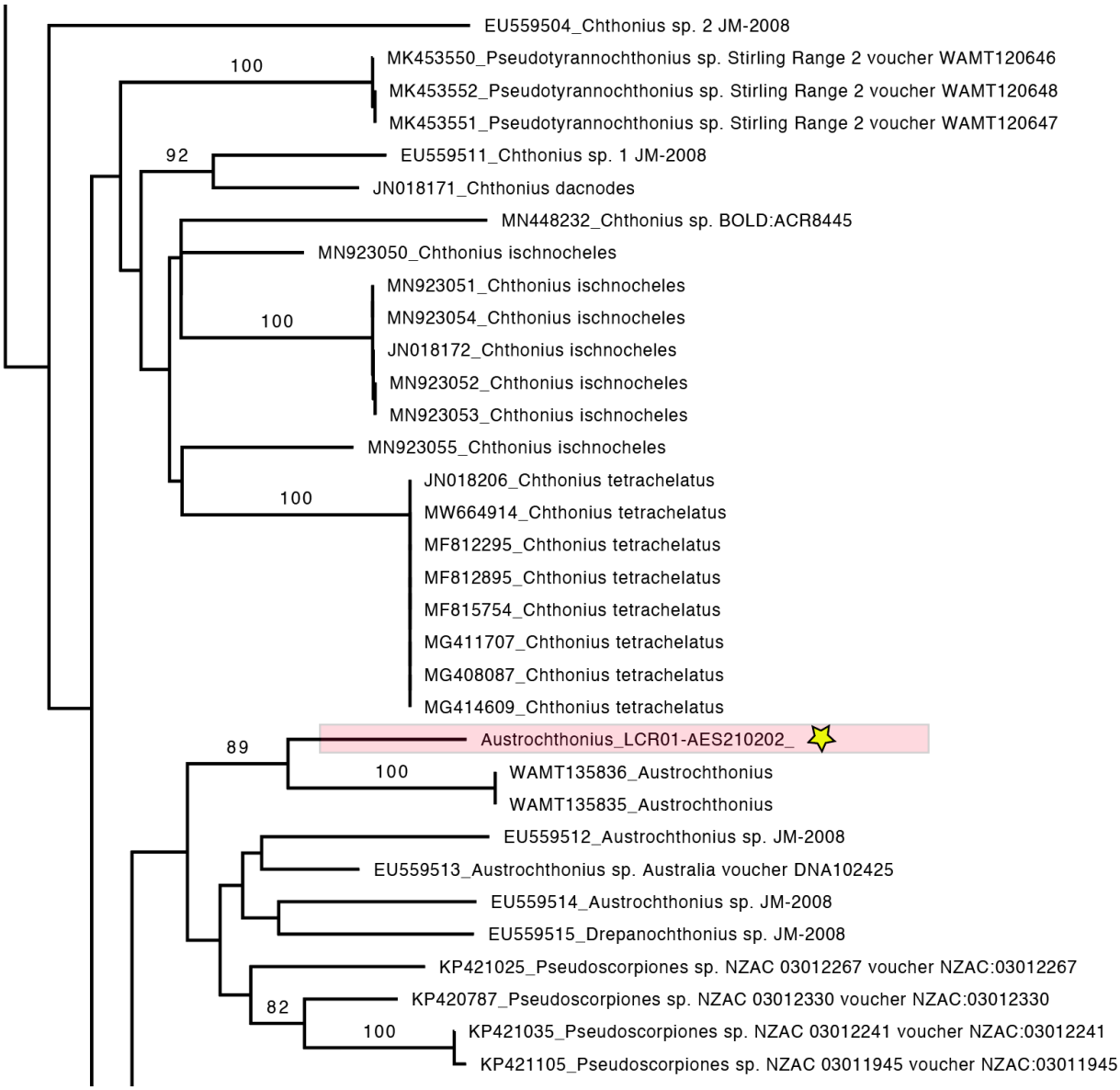
Appendix 2b. Excerpt from Maximum Likelihood tree of Armadillidae COI, to be used *ONLY* for visualisation of relationships. Bootstrap values less than 50 and some interior node support were removed.



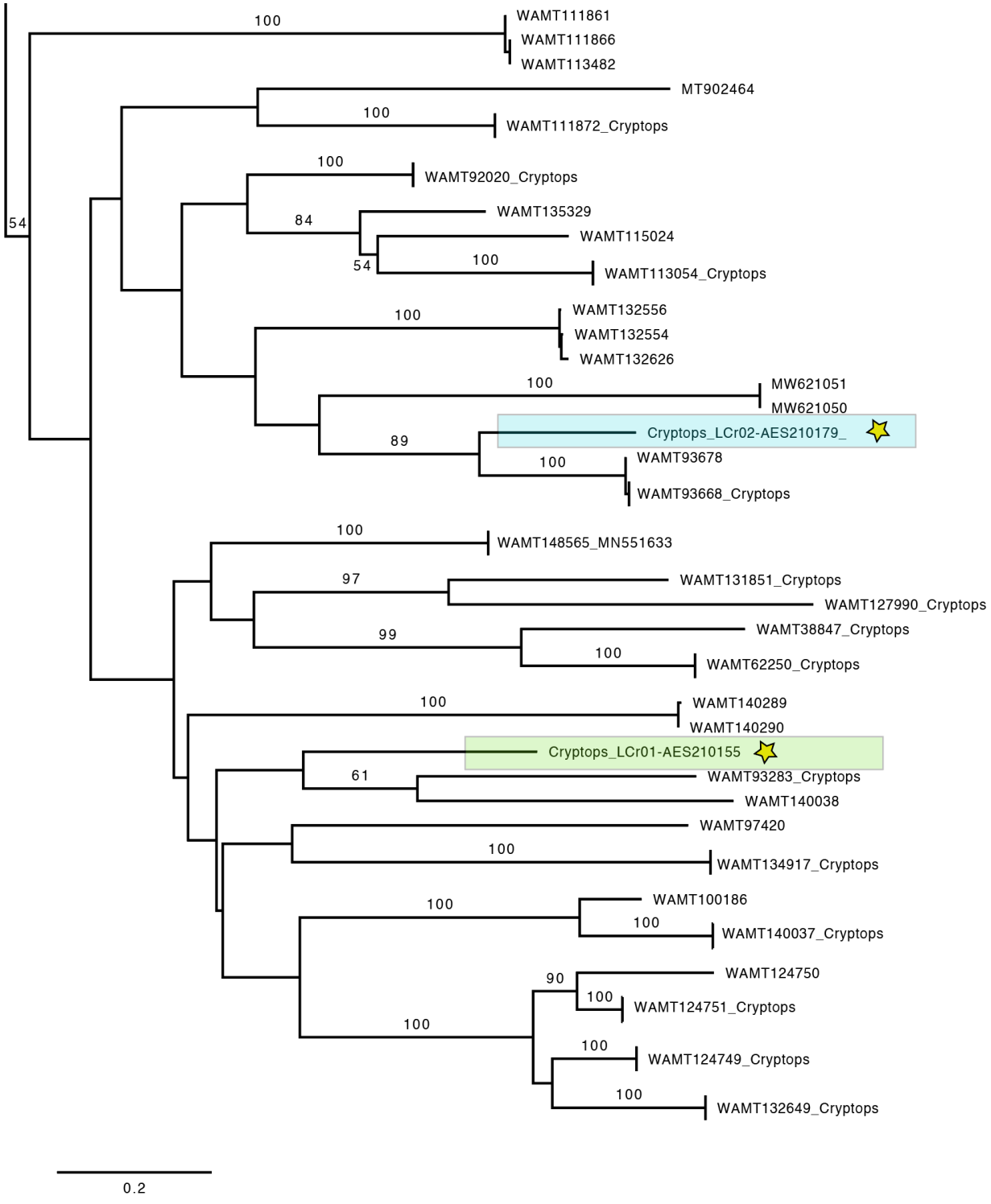
Appendix 2c. Excerpt from Maximum Likelihood tree of Bothriembryontidae, *Bothriembryon* COI, to be used *ONLY* for visualisation of relationships. Bootstrap values less than 50 and some interior node support were removed.



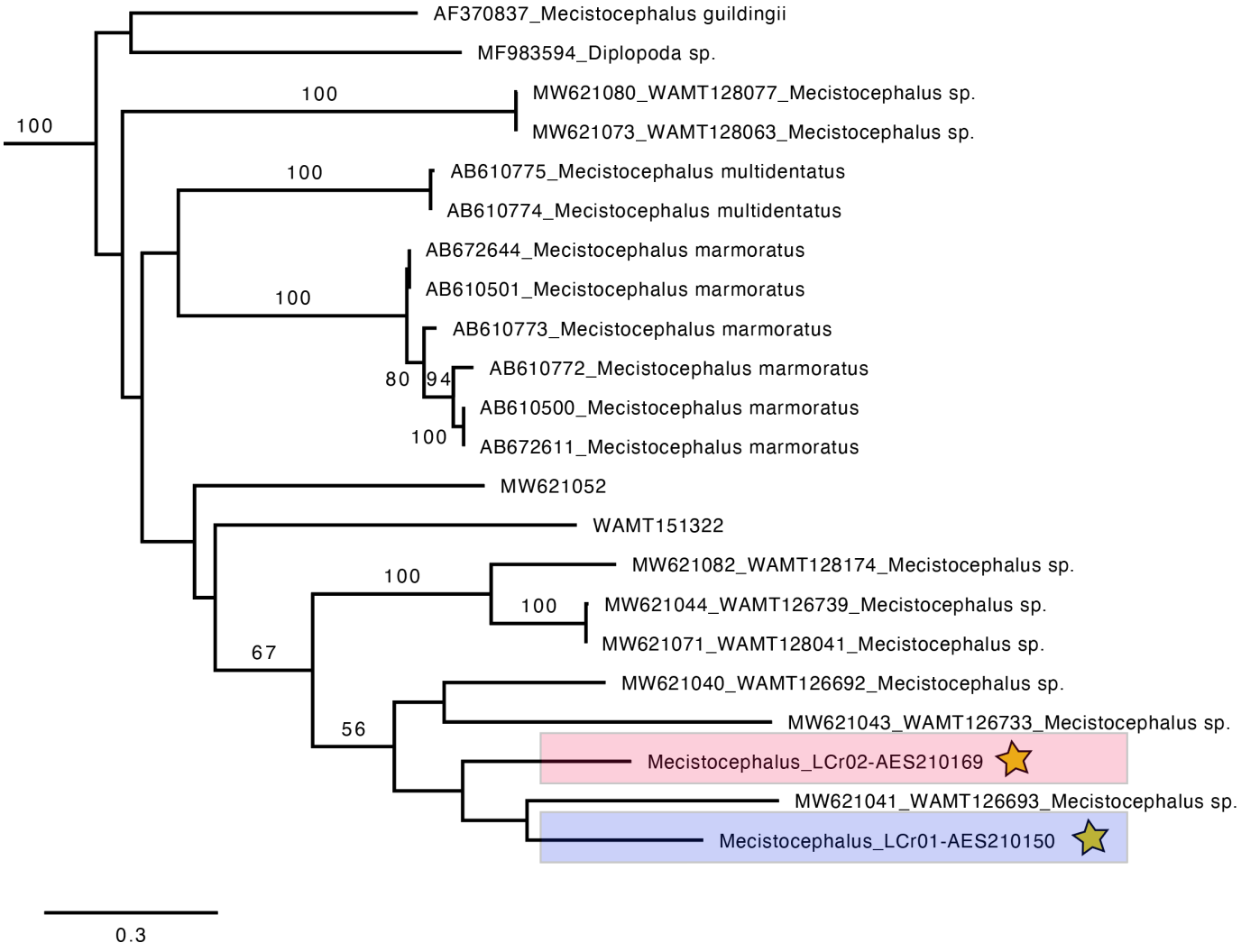
Appendix 2d. Excerpt from Maximum Likelihood tree of Cthoniidae COI, to be used *ONLY* for visualisation of relationships. Bootstrap values less than 50 and some interior node support were removed.



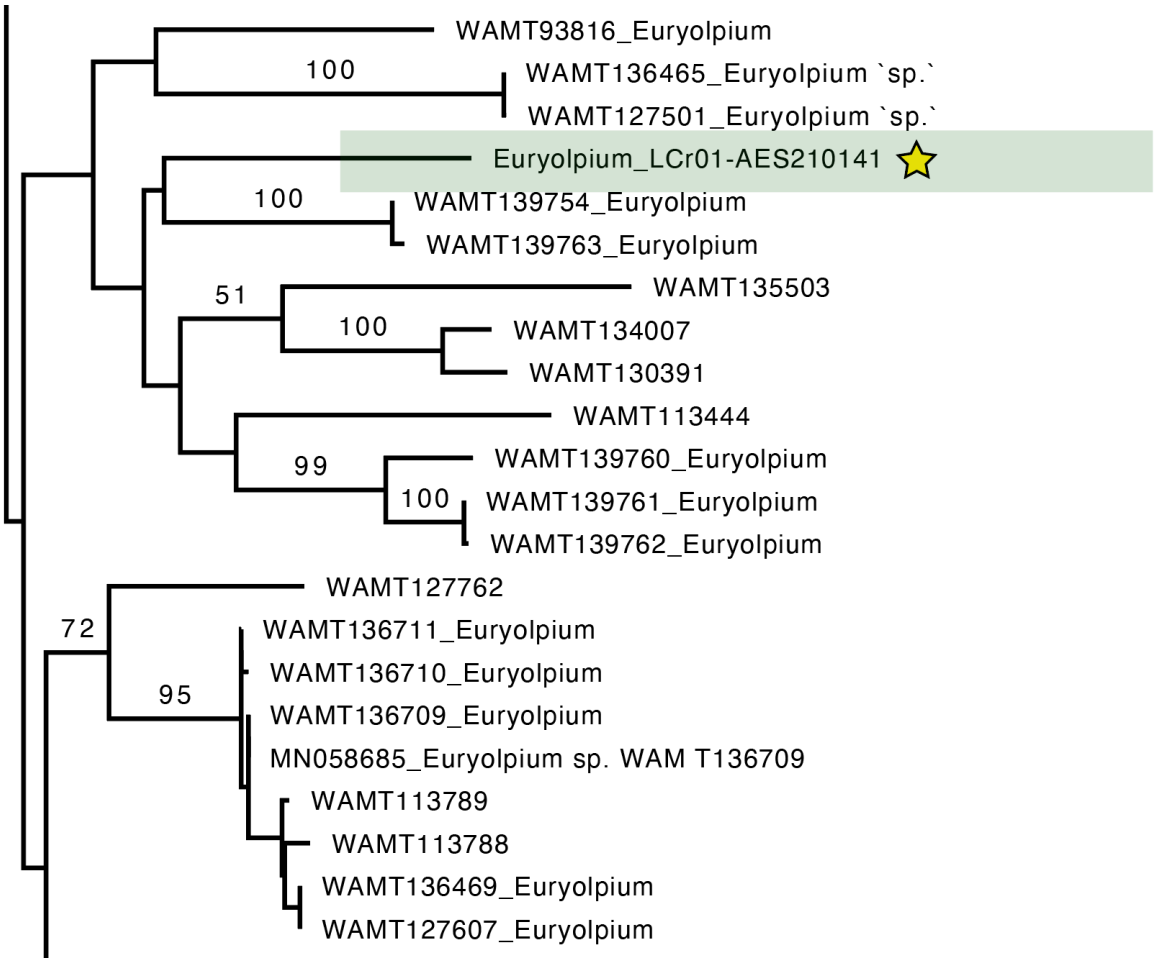
Appendix 2e. Excerpt from Maximum Likelihood tree of Cryptopidae, *Cryptops* COI, to be used *ONLY* for visualisation of relationships. Bootstrap values less than 50 and some interior node support were removed.



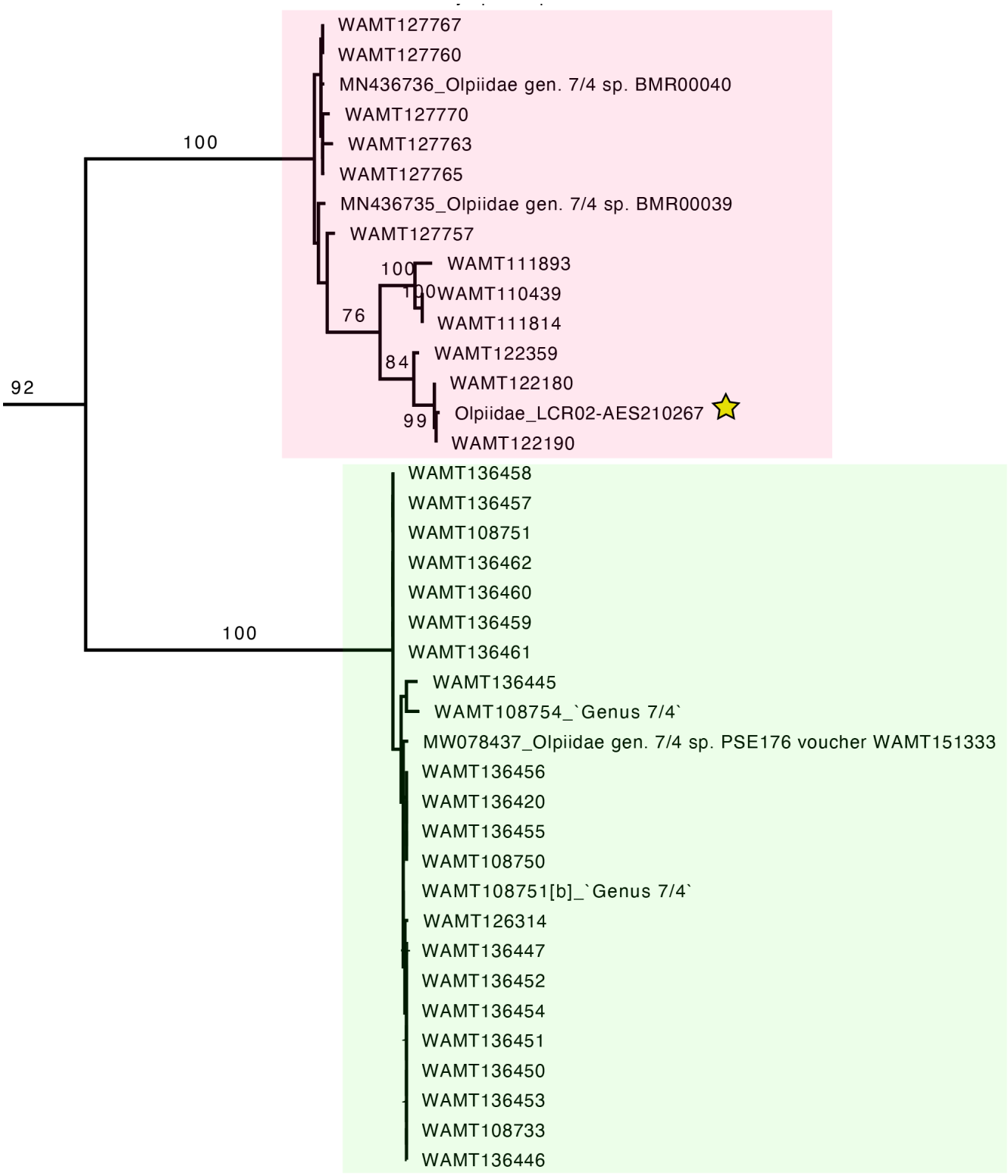
Appendix 2f. Excerpt from Maximum Likelihood tree of Mecistocephalidae*, Mecistocephalus* COI, to be used *ONLY* for visualisation of relationships. Bootstrap values less than 50 and some interior node support were removed.



Appendix 2g. Excerpt from Maximum Likelihood tree of Olpiidae*, Euryolpium* COI, to be used *ONLY* for visualisation of relationships. Bootstrap values less than 50 and some interior node support were removed.



Appendix 2h. Excerpt from Maximum Likelihood tree of Olpiidae, Genus 7/4 COI, to be used *ONLY* for visualisation of relationships. Bootstrap values less than 50 and some interior node support were removed.



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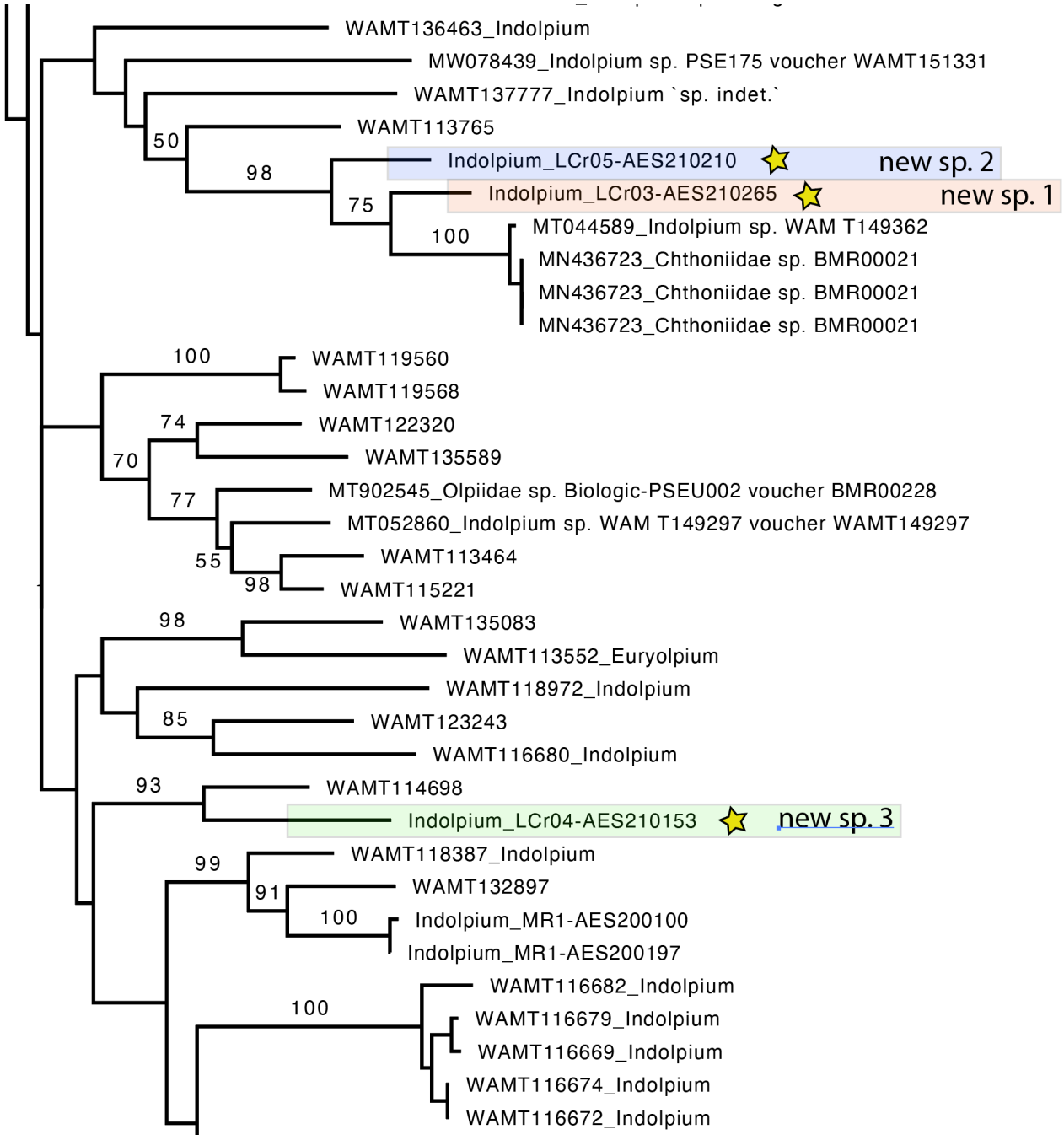
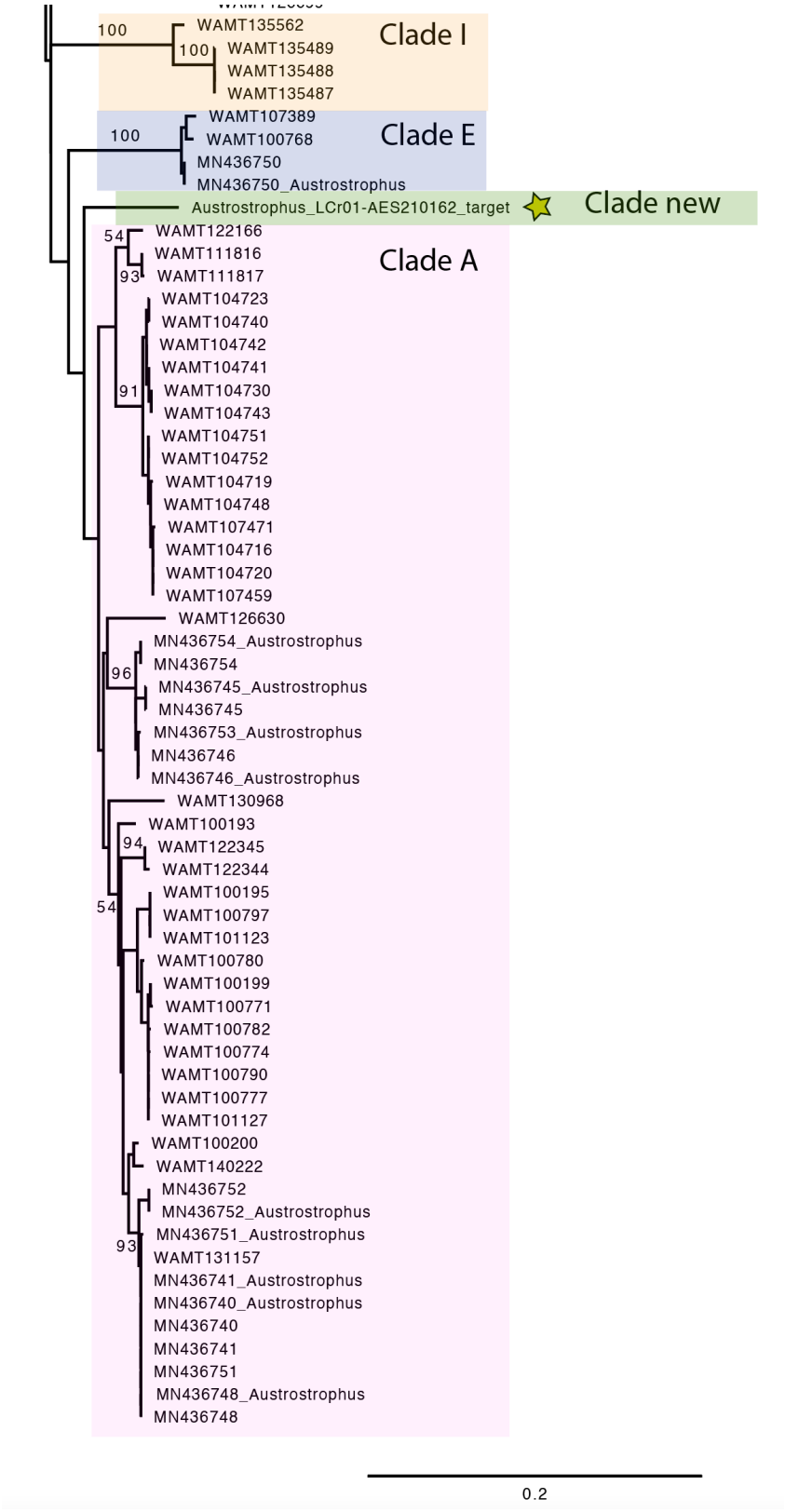
Appendix 2i. Excerpt from Maximum Likelihood tree of Olpiidae*, Indolpium* COI, to be used *ONLY* for visualisation of relationships. Bootstrap values less than 50 and some interior node support were removed.



Appendix 2j. Excerpt from Maximum Likelihood tree of Trigoniulidae, *Austrostrophus* COI, to be used *ONLY* for visualisation of relationships. Bootstrap values less than 50 and some interior node support were removed.



Appendix 3. COI DNA sequence data queried in this report (in order and with label supplied)

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PHOENIX
ENVIRONMENTAL SCIENCES

Ghost Bat Significance Assessment for the Lamb Creek Iron Ore Project

Prepared for Mineral Resources Limited

February 2022

Final

Ghost Bat Significance Assessment for the Lamb Creek Iron Ore Project
Prepared for Mineral Resources Limited

Version history

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EXECUTIVE SUMMARY

The Lamb Creek Iron Ore Project (LCIOP) is situated approximately 130 kilometres by road northwest of Newman, Western Australia. Process Minerals International (PMI), a wholly owned subsidiary of Mineral Resources Limited (MRL) is seeking to develop the Lamb Creek Iron Ore Project (LCIOP).

Phoenix Environmental Sciences Pty Ltd (Phoenix) was commissioned by MRL to undertake a significance assessment to examine the potential impacts of the Project on Ghost Bat (*Macroderma gigas*) assemblage.

This report considers the following historical fauna surveys:

- Level 2 Fauna Survey and Targeted Northern Quoll Survey of the Lamb Creek for PMI, Oct 2012 (Rapallo 2012)
- Lamb Creek Flora and Fauna Desktop Survey Review, Sept 2017 (MBS Environmental 2017)
- Lamb Creek and Wedge Project Vertebrate Fauna Desktop Assessment, March 2020 (Western Wildlife 2020)
- J020348 – Detailed vertebrate fauna survey of the Lamb Creek project, Jan 2022 (Rapallo 2022).

Detailed fauna surveys for the Project found that five caves are utilised by Ghost bat. Two caves are located within the Project area (Cave 1; Provisional Category 2, Cave 3; Provisional Category 3) and three caves are located within the vicinity of the Project (Cave 2; Provisional Category 3, Cave 4; Category 3 in an 'apartment block', Cave 5; Category 2). The closest distance from the proposed mine pit to a Ghost Bat cave is 729 m (Cave 1; Category 2). The same cave is located 350 m from a waste rock landform and diversion bund. The remaining caves in proximity to the operational areas are greater than 1km away. Cave 4 and Cave 5 are located 202 and 237 m, respectively, from the access road.

While the gap analysis has found that survey effort does not strictly comply with State and Federal requirements for three of the five caves this is not considered important as each was ultimately identified as a Ghost Bat roost cave. The objective of field surveys in the context of environmental impact assessment is to determine whether caves support significant species; to that end the surveys achieved their aim.

Analysis of the Project against the EPBC Act significant impact criterion for Vulnerable species has concluded that no criteria are met.

Further, analysis of the Project against each of the key threats to Ghost Bats identified by the Threatened Species Scientific Committee (TSSC 2016) reveals the Project represents negligible to low risk to the species. Indirect impact is also expected to be nil or negligible.

Therefore, on the basis of the historic survey effort achieved, and low risk the Project represents to the species, referral to DAWE under the EPBC Act is not considered necessary.

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1 INTRODUCTION

Process Minerals International (PMI), a wholly owned subsidiary of Mineral Resources Limited (MRL) is seeking to develop the Lamb Creek Iron Ore Project (the 'Project'; LCIOP), a new iron ore mine situated approximately 130 kilometres (km) by road northwest of Newman, Western Australia (WA; Figure 1-1).

The key components of the Project include a small open cut iron ore mine, crushing and screening process plant, and associated infrastructure. The Project will produce up to 10 million tonnes per annum (Mtpa) of iron ore over a period of 3 to 4 years.

Fauna surveys were undertaken across the Project area in 2012 to support environmental impact assessments. Further fauna surveys were undertaken in 2020 and 2021. The surveys identified that the State and Commonwealth listed species, Ghost Bat (*Macroderma gigas*), occurs within the Project area.

Since referral of the Project under the Environmental Protection and Biodiversity Conservation Act (EPBC Act) in 2012, the Ghost Bat has been listed as Vulnerable under the Western Australian Wildlife Conservation Act 1950 (WC Act) and the EPBC Act.

In November 2021, Phoenix Environmental Sciences Pty Ltd (Phoenix) was commissioned by MRL to undertake a significance assessment to examine the potential impacts of the Project on Ghost Bat (*Macroderma gigas*) assemblage.

1.1 BACKGROUND

1.1.1 Historical approvals

The Project was referred under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in 2012 and was determined as not a Controlled Action. Environmental impact assessments indicated that the Project would not result in significant impacts that would trigger referral under the *Environmental Protection Act 1986* (EP Act).

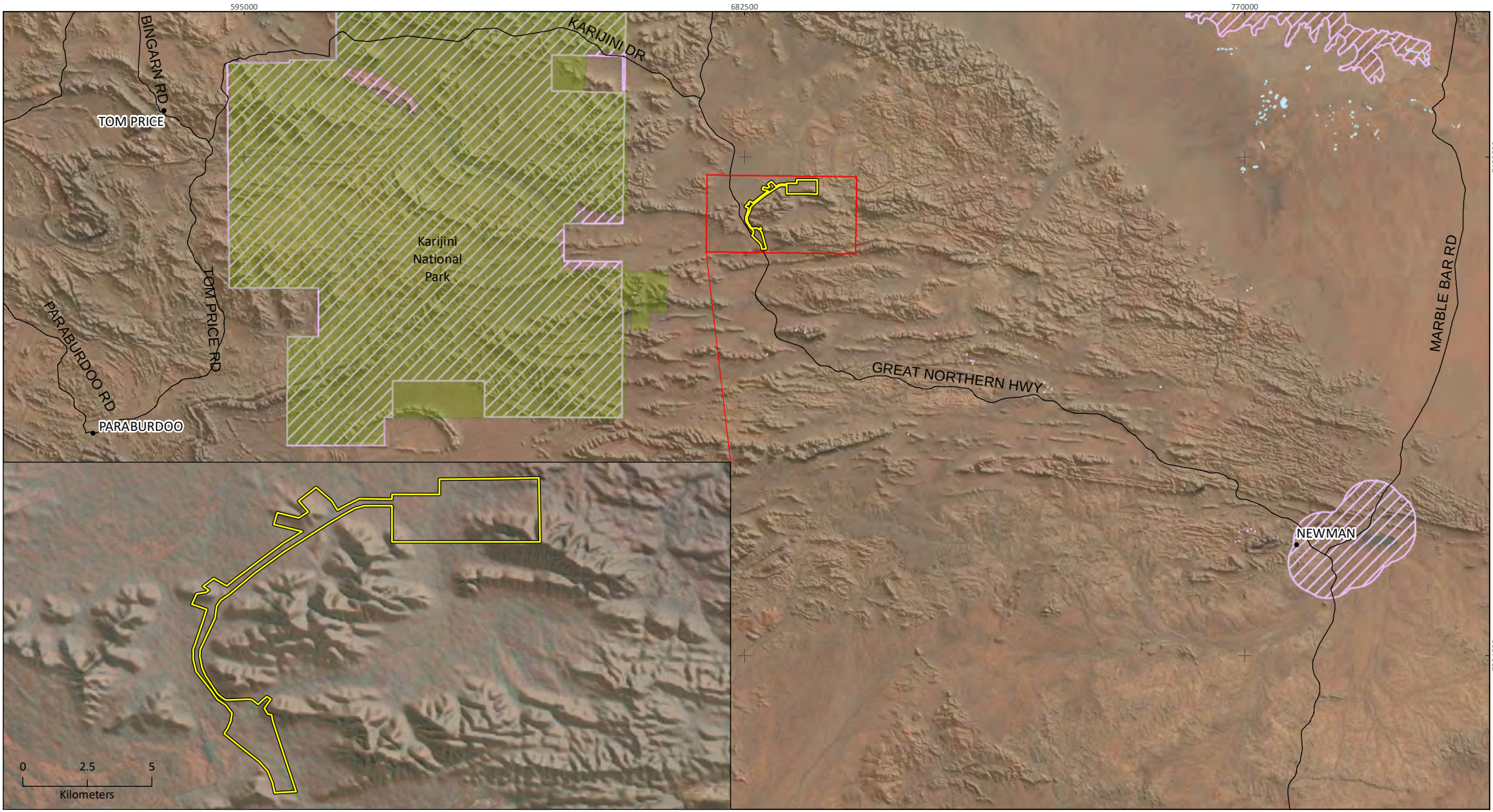
The Project was then put on hold until 2020, when MRL re-evaluated the LCIOP and resolved to progress the Project with a smaller disturbance footprint.

The intention was to seek only secondary approvals (Mining Proposal, Works Approval, Native Vegetation Clearing Permit). However, the Department of Mines, Industry Regulation and Safety indicated that it would be likely to refer the Mining Proposal submission under the EP Act. Accordingly, MRL are now proposing to self-refer the Project under s38 of the EP Act.

1.1.2 Historical fauna surveys

Historical fauna surveys for the Project have included the following:

- Level 2 Fauna Survey and Targeted Northern Quoll Survey of the Lamb Creek for PMI, Oct 2012 Rapallo (2012)
- Lamb Creek Flora and Fauna Desktop Survey Review, Sept 2017 (MBS Environmental 2017)
- Lamb Creek and Wedge Project Vertebrate Fauna Desktop Assessment, March 2020 (Western Wildlife 2020)
- J020348 – Detailed vertebrate fauna survey of the Lamb Creek project, Jan 2022 (Rapallo 2022).



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- Study area
- Environmentally sensitive areas
- DBCA managed land
- Lake
- Road

Figure 1-1

Project location and study area

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Five significant vertebrate fauna species have been recorded from the Lamb Creek study area to date:

- Northern quoll (*Dasyurus hallucatus*) (EN, EPBC and BC Acts) – recorded in 2012
- **Ghost Bat (*Macroderma gigas*) (VU, EPBC and BC Acts) – recorded in 2012, 2020 and 2021**
- Pilbara olive python (*Liasis olivaceus barroni*) (VU, EPBC and BC Acts) – recorded in 2012
- Western pebble-mound mouse (*Pseudomys chapmani*) (Priority 4) – recorded throughout the Project area in 2012 and 2020
- Fork-tailed Swift (*Apus pacificus*) (Mig. and Mar., EPBC Act) – recorded in 2012.

This report is concerned only with the Ghost Bat.

1.1.3 Knowledge and data gaps

Since referral of the Project under the EPBC Act in 2012, the Ghost Bat (*Macroderma gigas*) has been listed as Vulnerable under the *Western Australian Wildlife Conservation Act 1950* and the EPBC Act. At the time of referral, it was listed by the Department of Biodiversity, Conservation and Attractions (DBCA) as a Priority 4 species.

Accordingly, MRL wishes to understand:

- The potential significance of the Project on the Ghost Bat.

1.2 SCOPE OF WORK

The scope of work comprised:

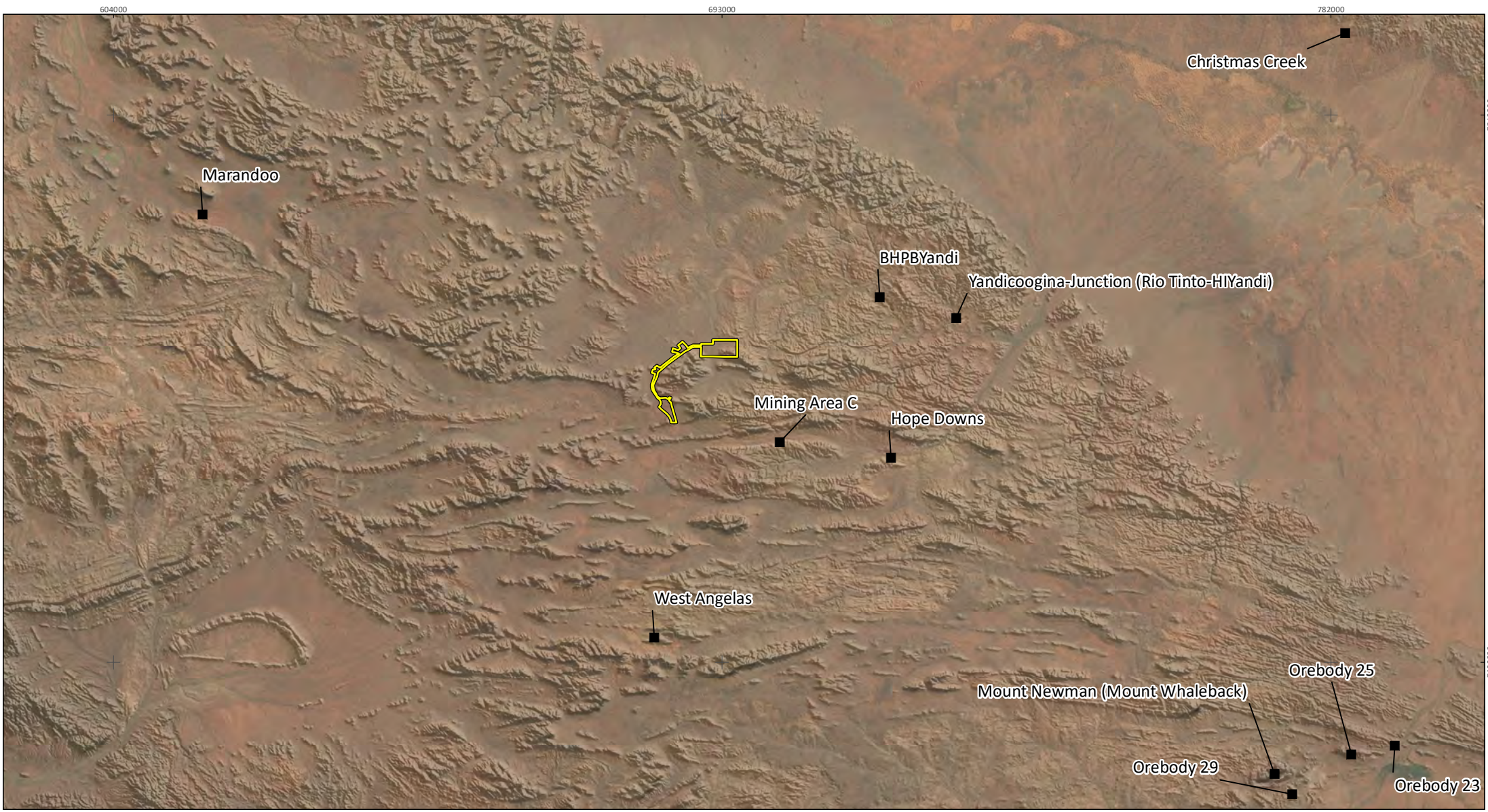
- complete a stand-alone desktop assessment report suitable for inclusion in environmental approval documentation that included –
    - an analysis of the Project against the EPBC Act significant impact criterion (VU) and key threats identified by the Threatened Species Scientific Committee (TSSC 2016), with consideration of historical and recent fauna assessments.

1.3 STUDY AREA

The Project is located within 50 km of the following active mine sites: Mining Area C, Yandi mine, Hope Downs, West Angelas and Yandicoogina mine (Figure 1-2). It is a greenfield site, and the current land use is pastoral. No infrastructure currently exists within the Project area. The Project has a total area of approximately 2,197 ha, and it is expected that up to approximately 657 ha of vegetation will be cleared as a result of its implementation.

A detailed fauna survey was completed in April 2020, with supplementary data collected in April 2021 (Rapallo 2022). The survey area was 1,645 hectares in size, comprising retention licence R47/19 (1,200 hectares), miscellaneous licence L47/736 (388 hectares), and an alternative area for the haul road to intersect with the Great Northern Highway, referred to as intersection version B (58 hectares) (Rapallo 2022). An earlier Level 2/detailed fauna survey was completed in 2012 (Rapallo 2012) over an area that partially overlaps with the current, 2020-2021 survey area (Rapallo 2022).

The Project area has changed since the latest surveys were completed (Rapallo 2022), with tenements L47/974, L47/1008 and M47/1592 added in December 2021, expanding the Project area. Hence, the 2020-2021 fauna survey covered 1,220 hectares (75%) of the current project area, with 555 hectares (25%) unsurveyed. The November 2021 footprint (657 hectares) extends outside the survey area by 24 hectares (4% of total footprint), with most of the unsurveyed area comprising the southern section of the proposed haul road (Figure 1-1)(Rapallo 2022).



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Study area

Active mine site

Figure 1-2

Active mine sites within the vicinity of the Project

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2 LEGISLATIVE CONTEXT

The protection of flora and fauna in WA is principally governed by three acts:

- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- State *Biodiversity Conservation Act 2016* (BC Act)
- State *Environmental Protection Act 1986* (EP Act).

The BC Act came into full effect on 1 January 2019 and replaced the functions of the *Wildlife Conservation Act 1950* (WC Act).

2.1 COMMONWEALTH

The EPBC Act is administered by the Federal Department of Agriculture, Water and the Environment (DAWE). The EPBC Act provides for the listing of Threatened fauna and Threatened Ecological Communities (TECs) as matters of National Environmental Significance (NES). Under the EPBC Act, actions that have, or are likely to have, a significant impact on a matter of NES, require approval from the Australian Government Minister for the Environment through a formal referral process.

Conservation categories applicable to Threatened fauna species under the EPBC Act are as follows:

- Extinct (EX)[1] – there is no reasonable doubt that the last individual has died
- Extinct in the Wild (EW) – taxa known to survive only in captivity
- Critically Endangered (CR) – taxa facing an extremely high risk of extinction in the wild in the immediate future
- Endangered (EN) – taxa facing a very high risk of extinction in the wild in the near future
- Vulnerable (VU) – taxa facing a high risk of extinction in the wild in the medium-term
- Conservation Dependent (CD)[1] – taxa whose survival depends upon ongoing conservation measures; without these measures, a conservation dependent taxon would be classified as Vulnerable, Endangered or Critically Endangered.

2.2 STATE

2.2.1 Threatened and Priority species

In WA, the BC Act provides for the listing of Threatened fauna species (Government of Western Australia 2018a, b)[2] in the following categories:

- Critically Endangered (CR) – species facing an extremely high risk of extinction in the wild in the immediate future[3]
- Endangered (EN) – species facing a very high risk of extinction in the wild in the near future[3]

[1] Species listed as Extinct and Conservation Dependent are not matters of NES and therefore do not trigger the EPBC Act.

[2] The *Wildlife Conservation (Specially Protected Fauna) Notice 2018* and the *Wildlife Conservation (Rare Flora) Notice 2018* have been transitioned under regulations 170, 171 and 172 of the *Biodiversity Conservation Regulations 2018* to be the lists of Threatened, Extinct and Specially Protected species under Part 2 of the BC Act.

[3] As determined in accordance with criteria set out in the ministerial guidelines.

- Vulnerable (VU) – species facing a high risk of extinction in the wild in the medium-term future[3].

Species may also be listed as specially protected (SP) under the BC Act in one or more of the following categories:

- species of special conservation interest (conservation dependent fauna, CD) – species with a naturally low population, restricted natural range, of special interest to science, or subject to or recovering from a significant population decline or reduction in natural range
- migratory species (Mig.), including birds subject to international agreement
- species otherwise in need of special protection (OS).

DBCA administers the BC Act and also maintains a non-statutory list of Priority fauna. Priority species are still considered to be of conservation significance – that is they may be Threatened – but cannot be considered for listing under the BC Act until there is adequate understanding of threat levels imposed on them. Species on the Priority fauna list are assigned to one of four Priority (P) categories, P1 (highest) – P4 (lowest), based on level of knowledge/concern.

2.2.2 Critical habitat

Under the BC Act, habitat is eligible for listing as critical habitat if it is critical to the survival of a Threatened species or a TEC and its listing is otherwise in accordance with the ministerial guidelines.

2.2.3 Threatened and Priority Ecological Communities

The BC Act provides for the listing of TECs in the following categories:

- Critically Endangered – facing an extremely high risk of becoming eligible for listing as a collapsed ecological community in the immediate future[3]
- Endangered – facing a very high risk of becoming eligible for listing as a collapsed ecological community in the near future[3]
- Vulnerable – facing a high risk of becoming eligible for listing as a collapsed ecological community in the medium-term future[3].

An ecological community may be listed as a collapsed ecological community under the BC Act if there is no reasonable doubt that the last occurrence of the ecological community has collapsed or the ecological community has been so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure.

The DBCA also maintains a non-statutory list of Priority Ecological Communities (PECs), which may become TECs in the future; however, do not currently meet survey criteria or that are not adequately defined. PECs are assigned to one of five categories depending on their priority for survey or definition, with Priority 1 of highest concern and Priority 5 of lowest concern.

2.2.4 Other fauna

Under the Environmental Protection Authority's (EPA) environmental factor guidelines fauna may be considered significant for a range of reasons other than listing as a Threatened or Priority species. EPA (2016) identifies the following attributes that constitute significant fauna:

- species with restricted distribution
- species subject to a degree of historical impact from threatening processes
- providing an important function required to maintain the ecological integrity of a significant ecosystem.

3 EXISTING ENVIRONMENT

3.1 LAND SYSTEMS AND SURFACE GEOLOGY

DPIRD undertakes land system mapping for WA using a nesting soil-landscape mapping hierarchy (Schoknecht & Payne 2011). While the primary purpose of the mapping is to inform pastoral and agricultural land capability, it is also useful for informing biological assessments. Under this hierarchy, land systems are defined as areas with recurring patterns of landforms, soils, vegetation and drainage (Payne & Leighton 2004).

The Project area is located within the Hamersley subregion of the Pilbara region (Figure 3-1) and intersects five land systems (Table 3-1) of which the Boolgeeda System comprises over 60%.

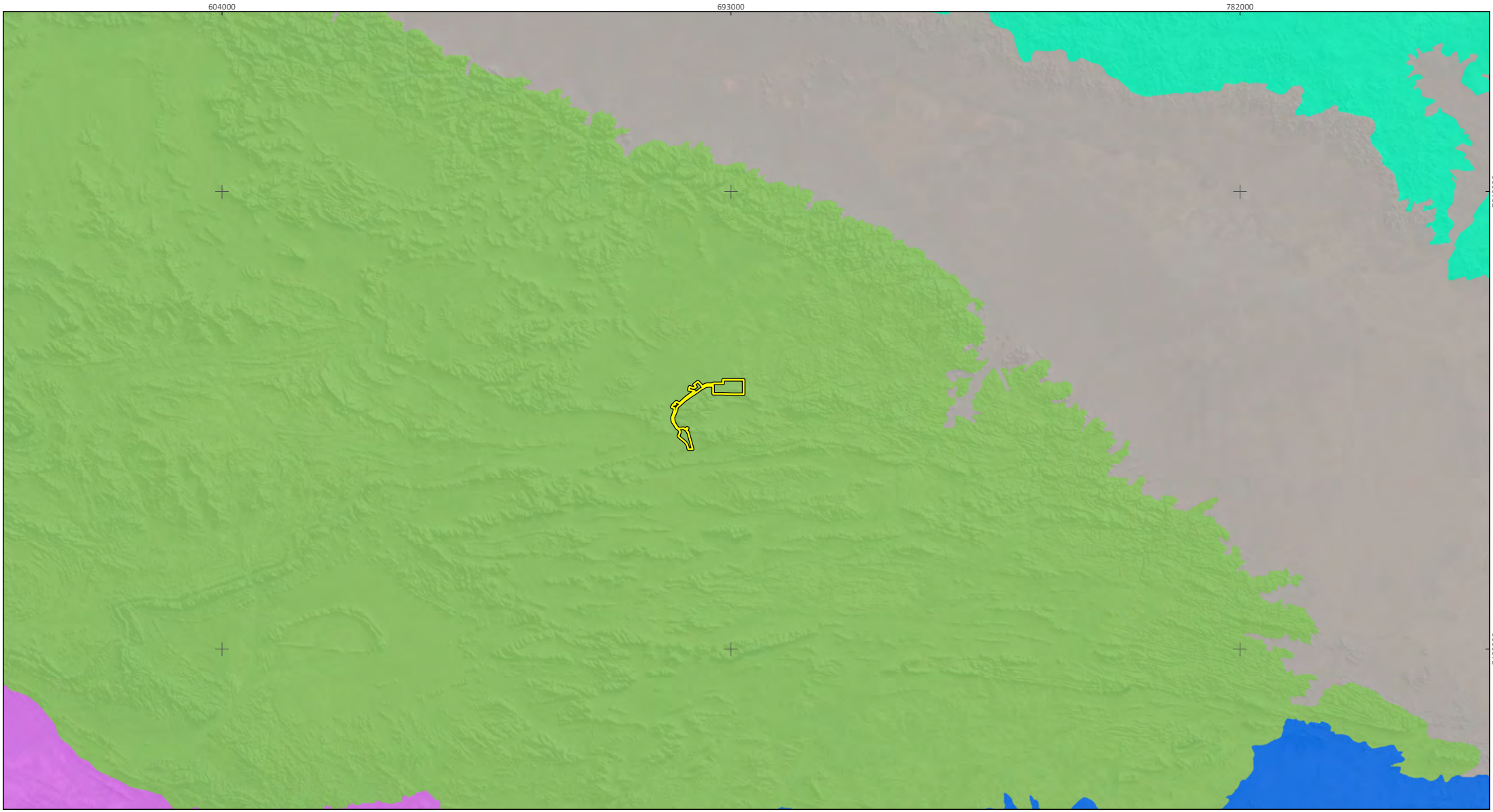
Table 3-1 Land systems and extent in Project area

Land system	Description	Area (ha)	% of Project area
Boolgeeda System	Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands.	1,329.4	60.6
McKay System	Hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands with acacias and occasional eucalypts.	44.0	2.0
Newman System	Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands.	499.2	22.7
Platform System	Dissected slopes and raised plains supporting shrubby hard spinifex grasslands.	198.1	9.0
Wannamunna System	Hardpan plains and internal drainage tracts supporting mulga shrublands and woodlands and occasionally eucalypt woodlands.	126.3	5.7
	Total	2,197.0	100.0

According to the Surface Geology of Australia 1:1,000,000 scale, Western Australia database (Stewart et al. 2008), the LCIOP intersects four geological formations (Table 3-2; Figure 3-2), of which Colluvium represents over 60% of the Project area.

Table 3-2 Surface geology of the Project area, extent by deposit type

Surface geology	Abbreviation	Description	Area (ha)	% of Project area
Alluvium 38485	Qa	Channel and flood plain alluvium; gravel, sand, silt, clay, locally calcreted.	79.7	3.6
Brockman Iron Formation	Lchk	Banded iron-formation, chert, mudstone and siltstone.	660.9	30.1
Colluvium 38491	Qrc	Colluvium, sheetwash, talus; gravel piedmonts and aprons over and around bedrock; clay-silt-sand with sheet and nodular kankar; alluvial and aeolian sand-silt-gravel in depressions and broad valleys in Canning Basin; local calcrete, reworked laterite.	1,456.4	66.3
Weeli Wolli Formation	Lchw	Banded iron-formation (commonly jaspilitic), mudstone, siltstone; common interlayered metadoleritic sills.	0.1	0
		Total	2197.0	100.0



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Study area

IBRA region and subregion

- Pilbara, Hamersley
- Pilbara, Fortescue
- Pilbara, Chichester
- Gascoyne, Ashburton
- Gascoyne, Augustus

Figure 3-1

Study area in relation to IBRA bioregions and subregions

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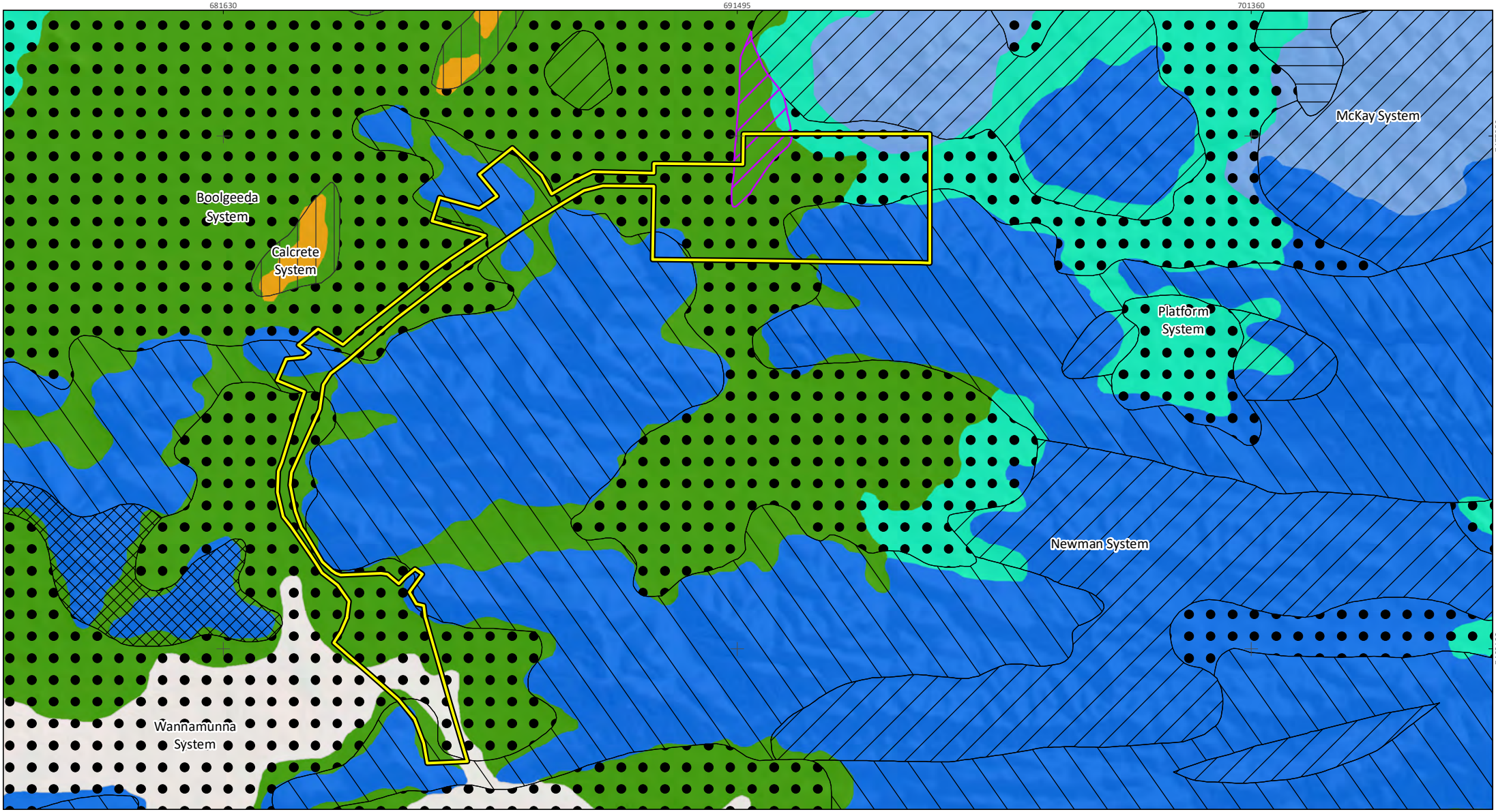

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Study area

Surface geology

- Ashm
- Czk
- Czlr
- Lchk
- Lchw
- Qa
- Qrc

Land system

- Boolgeeda System
- Calcrete System
- McKay System
- Newman System
- Platform System
- Wannamunna System

Figure 3-2

Land systems and surface geology in the study area

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4 METHODS

The significance assessment has been conducted in the context of various relevant State and Commonwealth survey guidelines, including:

- EPA Environmental Factor Guideline: Terrestrial fauna (EPA 2016)
- Technical Guidance: Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA 2020)
- Survey guidelines for Australia's threatened bats: guidelines for detecting bats listed as threatened under the Environmental Protection and Biodiversity Conservation Act 1999 (DEWHA 2010)
- Conservation Advice. Macroderma gigas: Ghost Bat (Threatened Species Scientific Committee 2016)

A review of DBCA's Threatened and Priority fauna database (DBCA 2021) has also been undertaken to identify Ghost Bat records within 40km of the Project area.

4.1 GAP ANALYSIS

The gap analysis was primarily concerned with reviewing the methods employed to detect Ghost Bat presence with respect to relevant survey guidelines, to determine if surveys undertaken to date were compliant with those guidelines:

- Technical Guidance: Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA 2020)
- Survey guidelines for Australia's threatened bats: guidelines for detecting bats listed as threatened under the Environmental Protection and Biodiversity Conservation Act 1999 (DEWHA 2010).

The following reports detail the survey methods undertaken for the Project:

- Detailed vertebrate fauna survey of the Lamb Creek project (Rapallo 2022)
- Level 2 Fauna Survey and Targeted Northern Quoll Survey of the Lamb Creek (Rapallo 2012).

4.2 SIGNIFICANCE ASSESSMENT

The significance of the potential direct and indirect impacts of the Project on Ghost bat was assessed against the EPBC Act significant impact criterion (VU) and key threats identified by the Threatened Species Scientific Committee (TSSC 2016), with consideration of Project design, Indicative Disturbance Footprint (IDF) and the biological characteristics of Ghost bat.

5 RESULTS

5.1 GHOST BAT BIOLOGY

The Ghost Bat (*Macroderma gigas*) is a large carnivorous bat, weighing approximately 140 – 165 g (Richards *et al.* 2008). Individuals have light grey to dark grey fur and a paler underbelly, with large, partially fused ears, large eyes, a simple nose-leaf, and no tail.

They are Australia's only strictly carnivorous bat, feeding nocturnally for small terrestrial mammals, amphibians, small birds, other bats, lizards, spiders and large insects (Churchill 2008; Richards *et al.* 2008). Much of its prey is captured on the ground and taken to an established feeding site, usually a rocky overhang or cave which are easily recognised by the accumulation of discarded prey, middens, and scat piles. Unlike the majority of microbats, Ghost bat are proficient in navigating and hunting visually without the need to constantly echolocate (Richards *et al.* 2008).

The Ghost Bat was once found across most of mainland Australia, but are now restricted to northern Australia across a range of habitats, such as the arid Pilbara region to the tropical region of northern Queensland (Richards *et al.* 2008). In WA, Ghost bat occur within the Pilbara and Kimberley regions (Woinarski *et al.* 2014). Although the exact reason for their decreased range is unknown, it is certain that Ghost bat are sensitive to disturbance (Richards *et al.* 2008).

The key threats to Ghost bat as listed in Federal conservation advice (Threatened Species Scientific Committee 2016) are:

- Habitat loss (destruction of, or disturbance to, roost sites and nearby areas) due to mining
- Disturbance of (human visitation at) breeding sites
- Modification to foraging habitat
- Collision with fences, especially those with barbed wire
- Collapse or reworking of old mine adits
- Contamination by mining residue at roost sites
- Disease
- Poisoning by cane toads (*Rhinella marina*)
- Competition for prey with foxes and feral cats.

Little information is known about the types of disturbances that lead Ghost bat to abandon their roosts. It is thought that repeated human visitation during the breeding season is a primary cause of roost abandonment (TSSC 2016). Ghost bat is shown to tolerate some audio disturbance from machinery, and disturbance from drilling is much less likely to cause abandonment then blasting impacts. Recent work has shown that caves located within 0.4 and 1.8 km from active mining continue to be used by Ghost bat (Biologic 2016). If abandoned, so long as caves remain unblocked, structural integrity maintained and the microclimate is not disrupted, Ghost bat are likely to re-occupy caves once mining disturbance moves away.

The distribution of Ghost bat in the Pilbara is largely determined by the presence of suitable caves, as they rely on caves for roosting and breeding. There are currently no studies on the home range of Ghost bat in the Pilbara (Biologic 2018), although Tidemann *et al.* (1985) recorded an average foraging area of 61 ha, typically located 1.9 km from a diurnal roost. Individuals were found to return to the same foraging area each night with multiple bats using the same foraging areas.

Ghost bat require a range of cave sites, moving between numerous caves seasonally or as dictated by weather conditions, moonlight, rainfall and fire (Woinarski *et al.* 2014). Ghost Bat may move in small groups between caves, making it difficult to determine whether their absence at monitoring sites between years is due to natural movements or to anthropogenic impacts (Armstrong & Anstee 2000).

Roost sites include sheltered rock formations such as caves, rock crevices and unused mine adits. In the Hamersley Range of the Pilbara, Ghost bat appears to prefer sheltered caves beneath bluffs of larger hills of Brockman Iron formation (Threatened Species Scientific Committee 2016); Brockman Iron and Weeli Wolli Iron formations (both types of Banded ironstone) comprise over 30% of the Project area (Table 3-2).

The species' persistence in the arid Pilbara depends on a stable microclimate. Ideally caves will have temperatures between 23 and 28°C, with 28°C being the optimal maintenance of body temperature (Baudinette *et al.* 2000; Threatened Species Scientific Committee 2016). The preferred range of humidity varies widely between 14 and 84% (Armstrong & Anstee 2000).

Ghost bat disperse widely to forage when they are not breeding. However, during the breeding cycle (Table 5-1), distribution is determined by the presence of suitable roosting sites, few of which are known (Richards *et al.* 2008). Females are likely to stay close to preferred maternity roosts, a cause for serious conservation concern (Richards *et al.* 2008).

Whilst roosting, they are particularly sensitive to disturbance. If disturbed, young may be dislodged by adults in rapid take-off (Toop 1985) and may not return to roosting sites (Woinarski *et al.* 2014). Such susceptibility to disturbance also threatens the viability of roosts with unregulated human visitation, including surveys which target caves and may inadvertently flush individuals into daylight.

Mating is thought to occur during July and August, females baring one young three months later between September and November (Richards *et al.* 2008) (Table 5-1). Young are weaned on prey by their mothers and begin hunting as juveniles, until they are completely independent.

Table 5-1 Approximate breeding cycle for Ghost Bat in the Pilbara

Month	Breeding Stage
July – August	Mating
August – October	Gestation
September – November	Birth

Ghost Bat caves can be categorised based on their usage (Table 5-2) and the timing and frequency of occupancy (Bat Call WA 2021) Table 5-3). Maternity roosts are considered the most significant cave type, followed by diurnal roosts and night roosts. 'Potential' is used to denote the highest Category based on the information collected where insufficient information to confirm the Category has been recorded (e.g., potential roost contains attributes and/or evidence to suggest diurnal roosting though no diurnal roosting has been confirmed). Caves can be categorised accordingly via assessing the structure of the cave in combination with monitoring of Ghost Bat signs.

Table 5-2 Ghost Bat cave categories, in decreasing significance (Bat Call WA 2021)

Category	Description
Maternity roosts	In addition to being used for shelter during the day, these caves have attributes suitable to support breeding, and Ghost bat have been recorded in these caves during the breeding season, including pregnant females or females with pups.
Diurnal roosts	Used for shelter during the day.
Night roosts	Only utilised during the night, mostly to feed on prey items or to rest, and are typically shallow caves and shelters/overhangs that can be well lit during the day.

Bat Call WA (2021) has categorised Ghost Bat caves according to their habitat value, established by occupancy and usage (Table 5-3).

Table 5-3 Bat Call WA Cave Habitat Classifications (Bat Call WA 2021)

Category	Description	Significance*
Category 1	**Diurnal roost caves with permanent Ghost Bat occupancy.** Caves and historical underground mines (adits and declines) that are used continuously as diurnal roosts by large numbers of Ghost Bat for long periods of time.	Must all be assumed to be maternity caves and are critical habitat for the species.
Category 2	**Diurnal roost caves with regular occupancy.** Caves that are used regularly as diurnal roosts by small numbers of Ghost bat but not continuously. These tend to be deep caves with ceiling heights in rear chambers of at least 1.5 m allowing multiple roosting opportunities out of reach of predators. These caves typically have a number of other caves, shelters, and overhangs within a few hundred meters.	Must be assumed to be capable of supporting one or more reproducing females and their offspring. These caves are critical habitat for the species.
Category 3	**Roost caves with occasional occupancy**. Caves that are occasionally used as diurnal roosts and as nocturnal roosts for feeding and resting more frequently.	When directly associated with a Category 2 cave, they form an apartment block grouping that is considered critical habitat. Isolated caves are important habitat for the long-term preservation of the species in the area.
Category 4	**Nocturnal roost caves with opportunistic usage.** This may be anything from a single foraging visit to a longer visit with a resting period or possibly a feeding session.	These caves are not important habitat for the long-term preservation of the species in the area.

***** All Category 1, 2 and 3 caves in apartment blocks are considered to be critical habitat.

5.2 DESKTOP REVIEW

The desktop review identified 113 records of Ghost Bat within 40 km of the Project area (DBCA 2021) (Figure 5-1), found at an average distance of 17.85 km from the Project area. Over 95% of these records have been made since 2012 (DBCA 2021).

Further, the bat assemblage of the survey area was assessed using ultrasonic echolocation recorders during three field deployments by Rapallo; a Level 2 fauna survey and targeted Northern Quoll survey (Rapallo 2012), and a detailed vertebrate fauna survey that included ultrasonic echolocation recorder deployments for detecting Ghost bat in April 2020 and February 2021 (Rapallo 2022)(Table 5-4).

In 2012, a Level 2 fauna survey was conducted at the LCIOP on the 26 March to 12 April. Ultrasonic recorders were placed in seven suitable locations for one night (Rapallo 2012)(Table 5-4). No unambiguous calls attributable to the Ghost Bat could be determined in the recordings made during the survey (with the techniques available at the time). Individuals were sighted at three caves in the survey area: two within the Project area (Cave 1 and Cave 3) and one within the vicinity of the Project (Cave 2) (Rapallo 2012). Seven individuals were recorded at two of these caves: five within the Project and two individuals within the vicinity of the Project (Cave 2). There was no evidence of middens within either cave.

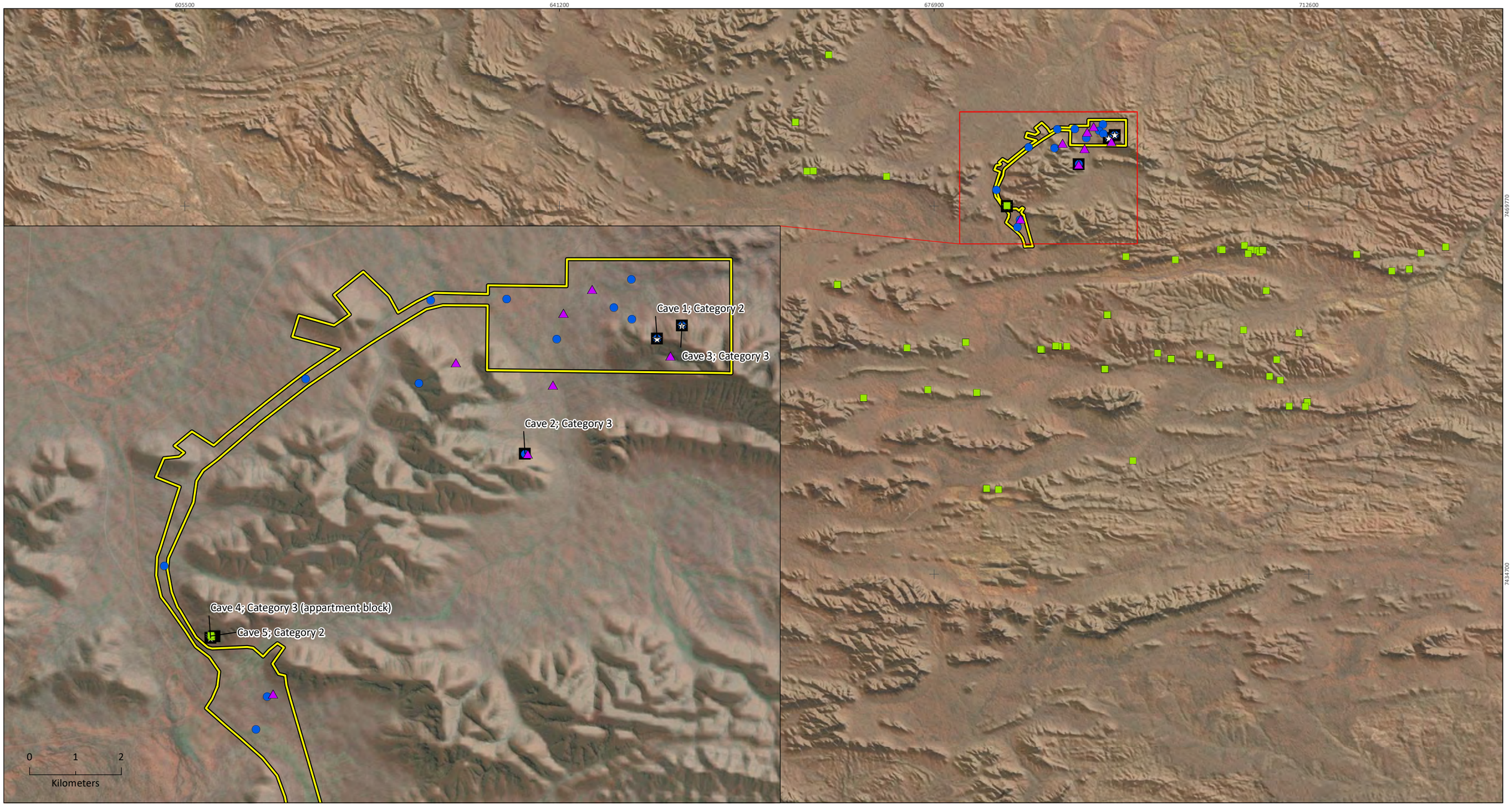
Caves surveyed in 2012 were revisited in 2020 and 2021 and ultrasonic recorders deployed during field trips from the 16 to 28 April 2020 and 20 to 24 February 2021 (Rapallo 2022)(Table 5-4). In 2020, 17 acoustic detectors were installed; 14 set to record ultrasonic calls and three set to record Night

Parrot and Ghost Bat social calls in gullies. Of the 14 echolocation sites surveyed in 2020, three detectors were deployed at cave entrances, four deployed in thin woodland, three in shrubland, one in spinifex plain, two in minor drainage lines and one in an incised gully (Figure 5-2). Detectors were left between one and four nights. Ultrasonic calls of Ghost bat were recorded at Cave 1, Cave 2, and Cave 3. No ultrasonic or social call recordings of Ghost bat were made at any other site in the 2020 survey (Rapallo 2022). Middens were present at Cave 1 (Rapallo 2022).

In February 2021, additional data on Ghost Bat presence was collected while on-site for other studies. Four acoustic detectors were installed to record ultrasonic calls, all deployed at cave sites (Table 5-4; Figure 5-2). Detectors were left between two and three nights. Ultrasonic calls of Ghost Bat were recorded at Cave 3, Cave 4 and Cave 5 (Rapallo 2022), consistent with the known population and dispersal of Ghost Bat observed in the 2012 field survey (Rapallo 2012).

Table 5-4 Summary of Ghost Bat monitoring at Lamb Creek from 2012 – 2021

Survey	Season	Records	Comments from report
Level 2 Fauna Survey and Targeted Northern Quoll Survey of the Lamb Creek (Rapallo 2012)	Autumn	Ultrasonic recorders were deployed one night at seven suitable locations. Ghost Bat were observed roosting in two caves within the Project area (Cave 1 and Cave 3) and one within the survey area (Cave 2) (Figure 5-2).	There are several small cave systems within the survey area that are likely to be used as roosts by Ghost Bat (Rapallo 2012).
Detailed vertebrate fauna survey of the Lamb Creek project (Rapallo 2022)	Autumn	Ultrasonic recorders were deployed between one and four nights at 14 locations. Ghost bat were visually recorded roosting in two caves within the Project area (Cave 1 and Cave 3) and one within the vicinity of the Project area (Cave 2) (Figure 5-2).	At Cave 1 both social and ultrasonic calls were recorded before dawn followed by similar numbers of calls soon after dusk. Calls consistent with foraging Ghost Bats was detected at Caves 2 and 3 on one night each (Rapallo 2022).
	Summer	Ultrasonic recorders were deployed between two and three nights at four locations. Ultrasonic recordings of Ghost bat were recorded at two caves within the Project area (Cave 1 and Cave 3) and two caves within the vicinity of the Project (Cave 4 and Cave 5).	Calls consistent with foraging visits detected at Caves 3 and Cave 4. Calls consistent with diurnally roosting Ghost bat detected at Cave 5 (Rapallo 2022). Rapallo (2022) concluded the survey area (but not Project area) was fully surveyed. Approximately 555 hectares (25%) of the current Project area has not been covered by fauna surveys and is considered a 'partial' limitation. There was also a 'partial' limitation for the timing/rainfall/seasonality of the fauna work due to lower than average rainfall preceding the survey (Rapallo 2022).



Mineral Resources Ltd
Lamb Creek and Wedge deposits

Project No	1462-LCW-MRL-VER
Date	16/12/2021
Drawn by	IN
Map author	BQ

0 10 20
Kilometers

1:350,000 (at A3) GDA 1994 MGA Zone 50

Study area

Desktop record - *Macroderma gigas*, VU (EPBC Act; BC Act)

Cave

2021 ultrasonic echolocation recorders

2020 ultrasonic echolocation recorders

2012 ultrasonic echolocation recorders

Figure 5-1

Ghost Bat records for the Project and within the vicinity of the Project

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P:\GIS\Projects\LambCreekIroOreProject\1462-LCW-MRL-VER\Mapping\MapDocuments\Figures\Additional_Maps\Figure_5_1_Ghost_bat_A3_v6_additionalMap.mxd

679645 685930 692215 698500

7474840

Access/Internal Road and Drainage (TYP)
Topsoil stockpile
Landfill
Cave 3; Category 3
Cave 1; Category 2
Topsoil stockpile
Landfill
Diversion bund
Waste rock landform
Wate rock landform
Lamb Creek mine
Cave 2; Category 3
Cave 4; Category 3 (appartment block)
Cave 5; Category 2

7468700

Western Australia
PERTH

Mineral Resources Ltd
Lamb Creek and Wedge deposits

Project No	1462-LCW-MRL-VER
Date	16/12/2021
Drawn by	IN
Map author	BQ

0 1 2
Kilometers

1:61,400 (at A3) GDA 1994 MGA Zone 50

Study area
Development envelope
Indicative footprint, November 2021
Site layout
Access/ internal road and drainage (TYP)
Cave

Figure 5-2

Development footprint for the Lamb Creek Iron Ore Project, November 2021

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5.3 GAP ANALYSIS

The bat survey effort achieved during the 2012 and 2020/2021 field work for the LCIOP is outlined in Table 5-4 and Table 5-5 (Rapallo 2012, 2022). The survey work completed on Ghost Bats in 2012, 2020 and 2021 was wither a component of a detailed survey or opportunistic record.

Table 5-5 Summary of survey effort at Ghost Bat caves (Rapallo 2012, 2022).

Site	Rapallo (2012)		Rapallo (2022)			
			2020 data collected		2021 data collected	
	No. of nights ultrasonic recorder deployed	Compliant	No. of nights ultrasonic recorder deployed	Compliant	No. of nights ultrasonic recorder deployed	Compliant
Cave 1	0	No	4	Yes	3	Yes
Cave 2	1	No	2	No	0	No
Cave 3	0	No	4	Yes	3	Yes
Cave 4	0	No	0	No	2	No
Cave 5	0	No	0	No	2	No

Survey effort for two of the five Ghost Bat caves met Commonwealth (DEWHA 2010) and State (DEWHA 2010) survey requirements for bats (Table 5-5)(Cave 1 and Cave 3). All other sites were not surveyed an adequate number of nights to meet bat survey requirements (Table 5-5).

Rapallo (2022) concluded the survey area (but not Project area) was fully surveyed. Approximately 555 hectares (25%) of the current Project area has not been covered by fauna surveys and is considered a 'partial' limitation. There was also a 'partial' limitation for the timing/rainfall/seasonality of the fauna work due to lower than average rainfall preceding the survey (Rapallo 2022).

5.4 SIGNIFICANCE ASSESSMENT

Five caves were found to be utilised by Ghost bat within or in the vicinity of the Project area. Bat Call WA assigned the five Ghost Bat caves as the following cave type and habitat classification (Pers. Comm., R. Bullen, in Rapallo 2021):

- Within Project area
    - Cave 1 – Provisional Category 2
    - Cave 3 – Provisional Category 3
- Outside Project area
    - Cave 2 – Provisional Category 3
    - Cave 4 – Category 3 (apartment block)
    - Cave 5 – Category 2.

The distance from Ghost Bat caves to the proposed operational and infrastructure areas are provided in Table 5-4. The closest distance from the proposed mine pit to a Ghost Bat cave is 729 m (Cave 1; Category 2). The same cave is located 350 m from a waste rock landform and diversion bund (Table 5-4). The remaining caves in proximity to the mine pit are greater than 1 km away (Table 5-4). Cave 4 and Cave 5 are located 202 m and 237 m, respectively, from the access road.

Table 5-6 Caves recorded in the survey area and their distance to nearest proposed structure and pit of Nov 2021 footprint

Site	Habitat value and use by Ghost Bat	Habitat assessment	Within Project area	Distance (m) from cave to nearest structure as per Nov 2021 footprint		Distance (m) from cave to proposed pit
				Structure	Distance (m)	
Cave 1	Provisional Category 2- Diurnal roost with regular but not continuous occupancy	Potentially critical	Y	Waste rock landform and diversion bund	350	729
Cave 2	Provisional Category 3- Roost caves with occasional occupancy	Noncritical	N	Waste rock landform and diversion bund	1,960	2,049
Cave 3	Provisional Category 3- Nocturnal roost caves with opportunistic usage	Noncritical	Y	Waste rock landform and diversion bund	583	1,285
Cave 4	Category 3 (apartment block)- Nocturnal roost caves with opportunistic usage	Critical	N	Access road	202	9,932
Cave 5	Category 2- Diurnal roost with regular but not consistent occupancy	Critical	N	Access road	237	9,902

The current November 2021 footprint extends outside the survey area by 24 hectares (4% of the total footprint), mostly comprising the southern end of the proposed haul road (Rapallo 2022). At present, no Ghost Bat cave is located within the November 2021 development footprint (Figure 5-2) and there is a 100m buffer around all five caves (Pers. Comm., A. Parker). On that basis therefore, none of the five known roost sites will be physically damaged or lost. It is also considered unlikely that cave structural integrity or roosting site viability will be adversely impacted by blasting or other operational elements associated with the implementation of the LCIOP. Minimal vibration is expected from the waste rock landforms, diversion bund and access road, and disturbance is therefore expected to be unlikely. Therefore, the Project is expected to have minimal impact on Ghost Bat populations.

5.4.1 EPBC Act significant impact criteria assessment

Analysis of the Project against the EPBC Act significant impact criterion for Vulnerable species is presented in Table 5-7. The assessment has found none of the criteria are met, with the implementation of the Project and expected management measures. On that basis re-referral of the Project to DAWE is not expected to be required.

Table 5-7 EPBC Act: Significant Impact Criteria for Vulnerable Listed Species (DoE 2013)

Significant Impact Criterion	Ghost Bat	Comments
Lead to a long-term decrease in the size of an important population of a species	Unlikely	The Project will not result in the direct disturbance or loss of critical Ghost Bat caves. Further, given the size, lifespan and design of operations, the Project is unlikely to lead to a long-term decrease in the population of Ghost Bat.
Reduce the area of occupancy of an important population	Unlikely	The Project will not result in the direct disturbance or loss of critical Ghost Bat caves. The distance from known caves to proposed operational and infrastructure areas are provided above in Table 5-6. There are two caves present in proximity to the proposed blasting areas (categories 2, 3) and a cluster close to the haul road near its intersection with the Great Northern Highway (GNH) intersection (Category 2, 3). The closest distance from the proposed mine pit to a Ghost Bat cave is 729 m (Cave 1; Category 2). The same cave is located 350 m from a waste rock landform and diversion bund. The remaining caves in proximity to the operational area is greater than 1km away. Cave 4 and Cave 5 near the GNH intersection are located over 200 m from the access road. Cave 2 was initially surveyed when a southern haul road route option was under consideration (now dropped), and is at least 2 km from the currently proposed operations On that basis therefore, it is considered unlikely that any of the five known roost sites will be physically damaged or lost. It is also considered unlikely that cave structural integrity or roosting site viability will be adversely impacted by blasting or other operational elements at Lamb Creek. Therefore, the area of occupancy of the species will not be reduced.
Fragment an existing important population into two or more populations	Unlikely	Ghost bat have been recorded in low numbers within the Project area at two caves (Cave 1, Cave 3) located east of the development footprint. No direct disturbance or loss of caves is expected and thus it is considered unlikely the Project will fragment existing populations.
Adversely affect habitat critical to the survival of a species	Unlikely	All critical habitat (Cave 1, Cave 4, Cave 5) has a 100 m buffer implemented (Pers. Comm., A. Parker) to minimise disturbance to caves and preserve foraging habitat. Revegetation will occur after LCIOP operations. Given the distance from known caves to proposed operational blasting areas (Table 5-6), it is unlikely blasting will physically damage caves. Therefore, the Project is unlikely to adversely affect critical habitat.

Significant Impact Criterion	Ghost Bat	Comments
Disrupt the breeding cycle of an important population	Unlikely	Due to the low levels of cave usage recorded thus far (Rapallo 2012, 2022), it is considered unlikely that caves support breeding females. However, scat collection and hormone analysis has not been conducted at Category 2 caves with middens at the Project, therefore this cannot be confirmed. That being said, adverse impacts to Ghost Bat breeding are unlikely due to the distance of known roost sites to mining operations (Table 5-6) and if suitable management techniques are enforced (for example, restricting entry of all 'non-environmental' site personnel from the five caves identified within the vicinity of the Project).
Modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely	Ghost Bat foraging habitat occurs across all habitat types within the Project area (Rapallo 2022). Approximately 657 ha of Ghost Bat habitat will be disturbed for the development of the Project; however, Project design has incorporated a 100m buffer around each cave located within the Project and within the vicinity of the Project (Cave 1-5; Pers. Comm., A. Parker). Due to the short lifespan of mining and low number of Ghost Bat populations within the Project area, it is unlikely the Project will modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Unlikely	The Project is unlikely to introduce any new species to the area that would impact Ghost Bat.
Introduce disease that may cause the species to decline	Unlikely	There are no known diseases that may lead to Ghost Bat decline as a result of the Project. The Project is unlikely to increase species vulnerability to disease as a result of inbreeding.
Interfere substantially with the recovery of the species	Unlikely	Given the size, lifespan, and design of the Project, it is unlikely to interfere substantially with the recovery of the species.

5.4.2 Assessment of impacts against Key Threats

Key threats to the persistence of Ghost bat are identified by the Threatened Species Scientific Committee (TSSC 2016). Potential impacts arising from implementation of the Project and potential management techniques concerning Ghost bat are summarised in Table 5-8. The impact assessment has largely concluded that where impacts may occur, they are expected to be negligible–low. This is due to the distance of the pit to known roost sites and the fact that impact in the form of loss of foraging habitat will be rectified via rehabilitation immediately following the short mining duration proposed. Five threats are not considered applicable to this Proposal.

Table 5-8 Potential threats to Ghost Bat from implementation of the Project (TSSC 2016)

Threat factor	Consequence rating (TSSC 2016)	Expected impact	Impact details
Habitat loss (destruction of, or disturbance to, roost sites and nearby areas) due to mining	Severe	Negligible potential impact	The distance from known caves to proposed operational and infrastructure areas are provided above in Table 5-6. There are two caves present in proximity to the proposed blasting areas (categories 2, 3) and a cluster close to the haul road near its intersection with the GNH intersection (Category 2, 3). The closest distance from the proposed mine pit to a Ghost Bat cave is 729 m (Cave 1; Category 2). The same cave is located 350 m from a waste rock landform and diversion bund. The remaining caves in proximity to the operational area is greater than 1km away. Cave 4 and Cave 5 are located 202 m and 237 m from the access road, respectively (Table 5-6). Cave 2 was initially surveyed when a southern haul road route option was under consideration (now dropped), and is at least 2 km from the currently proposed operations On that basis therefore, it is considered unlikely that any of the five known roost sites will be physically damaged or lost. It is also considered unlikely that cave structural integrity or roosting site viability will be adversely impacted by blasting or other operational elements at Lamb Creek.
Disturbance of (human visitation at) breeding sites	Moderate-severe	Negligible potential impact	Due to the low levels of cave usage recorded thus far (Rapallo 2012, 2022), it is considered unlikely that caves support breeding females. However, scat collection and hormone analysis has not been conducted at Category 2 caves with middens at the Project, therefore this cannot be confirmed. That being said, so long as personnel are restricted from approaching and entering roost sites at all times, there should be no impacts to these potential breeding sites. In addition, the remote and rugged location of the caves habitat further discourages human visitation.

Threat factor	Consequence rating (TSSC 2016)	Expected impact	Impact details
Modification to foraging habitat	Moderate	Low potential impact	It is expected that approximately 657 ha of vegetation will be cleared as a result of the Project. Rapallo (2022) concluded suitable foraging habitat occurs across all habitats of the survey area. It is considered likely that Ghost Bat use the Project area for foraging, particularly in drainage lines, rocky ridge and gorge habitat (Western Wildlife 2020). The accumulative effect of modifying foraging habitat in the Pilbara is a potential indirect impact to the persistence of Ghost Bat populations. Five active mine sites are located within 50 km of the Project (Figure 1-2) and have potential to cause habitat fragmentation and reduce foraging habitat extent. Little is known regarding the number of caves lost to mine sites within the vicinity of the Project, so the impact of foraging habitat destruction is difficult to assess. However, given the small disturbance footprint, short duration of the proposed Project and requirement to rehabilitate foraging habitat, impacts to foraging habitat are expected to be low, even when taking into consideration the cumulative impacts to such habitat from other mining operations locally.
Collision with fences, especially those with barbed wire	Moderate	Unknown	Fencing will be minimal and no barbed wire fences will be constructed at the Project. That being said there is in fact no evidence that collision with fencing is a threat to the species in the Pilbara.
Collapse or reworking of old mine adits	Minor-moderate	No impact	N/A
Contamination by mine residue at roost sites	Moderate	No impact	Given the distance of roost caves to the proposed pit, it is considered unlikely blast residue or dust will affect the microclimate of Ghost Bat caves. No direct contamination is expected.
Disease	Unknown	No impact	N/A
Poisoning by cane toads	Severe	No impact	N/A
Competition for prey with foxes and feral cats	Unknown	No impact	N/A

5.5 DISCUSSION AND CONCLUSION

Ghost Bat are commonly recorded in the vicinity of the Project. Five Ghost Bat roost caves are present within relatively close proximity of the Project, at varying distances to proposed disturbance; However, significance assessment has revealed no Ghost Bat roost caves are proposed to be directly impacted or lost through its implementation. Indirect impact is also expected to be nil or negligible.

While the gap analysis has found that survey effort does not strictly comply with State and Federal requirements for three of the five caves this is not considered important as each was ultimately identified as a Ghost Bat roost cave. The objective of field surveys in the context of environmental impact assessment is to determine whether caves support significant species; to that end the surveys achieved their aim.

Analysis of the Project against the EPBC Act significant impact criterion for Vulnerable species has concluded that no criteria are met.

Further, analysis of the Project against each of the key threats to Ghost Bats identified by the Threatened Species Scientific Committee (TSSC 2016) reveals the Project represents negligible to low risk to the species. Therefore, on the basis of the historic survey effort achieved, and low risk the Project represents to the species, referral to DAWE under the EPBC Act is not considered necessary.

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LEVEL 2 FAUNA SURVEY

AND

TARGETED NORTHERN QUOLL SURVEY

OF THE

LAMB CREEK

FOR

PROCESS MINERALS INTERNATIONAL PTY LTD

OCTOBER 2012

Rev	Date	Revision Description	Prepared by	Reviewed By	Approved by
A	23/02/2012	Draft A	Cara McGary Chris Cooper	Chris Jackson	
B	21/05/2012	Draft B	Cara McGary Chris Cooper	J Fielder	
C	13/08/2012	Final Draft	Cara McGary Chris Cooper	J Fielder M Weerheim	Chris Jackson
D	17/10/2012	Final Version	Cara McGary	Sean Gregory James Hesford	Chris Jackson

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1. EXECUTIVE SUMMARY

Rapallo Environmental was commissioned by Process Minerals International Pty Ltd (PMI) to conduct a Level 2 fauna survey of the proposed Lamb Creek iron ore mine, two alternative haul road routes and three alternative accommodation village sites. The Lamb Creek project is located approximately 130km north of Newman off the Great Northern Highway in the East Pilbara Region of Western Australia.

The core aims of the survey were to search published literature and databases for data on fauna found in the region; collect baseline data on vertebrate faunal assemblages of the project area and surrounding areas (collectively referred to as 'survey area'; survey for evidence of the presence of species of conservation significance; survey for introduced species; map the habitats of the project area; and identify habitat that could support species of conservation significance.

The Survey was divided into four projects

1) Reconnaissance Survey
2) Level 2 Vertebrate Fauna Survey
3) Level 2 SRE survey
4) Targeted Northern Quoll Survey

Surveys were conducted between the 19-20th March and 26 March – 12 April 2012. Prior to the surveys, database searches were completed to identify if species of conservation significance could potentially use habitats found along the haul road alignment. GIS data and aerial photography was used to demark the survey area, project area and land systems and to identify potential areas of interest.

Five habitat types were identified on the project area with each area being systematically trapped twice for a total of 10 trap sites on the project area. Vertebrate fauna was identified and released each morning as the trap lines were cleared. If specimens could not be immediately identified they were placed in a calico bag and identified at the field camp. After identification the specimens were released near the site of capture when conditions permitted (i.e. nocturnal fauna were not released during midday heat).

A Songbird SM2+ bat recording device was used to survey bat species in the survey area. The device was placed at a suitable location within each habitat for one night during the survey period. Suitable locations included areas with caves, water or mature woodlands with hollow bearing trees.

Bird assemblages were assessed and compiled using a combination of trap site specific surveys and opportunistic observations. Two hectare bird surveys, following Birds Australia guidelines, were completed each day between 6am and 9am when bird activity was peak and cryptic species were most detectable. Records from each site were supplemented with opportunistic records.

Spotlight surveys were undertaken on each night that the trap grids were open. Spotlight surveys were run over 30 minutes and were undertaken by a team of four ecologists.

A targeted Northern Quoll survey was conducted on the survey area consisting of 6 trap lines each containing ten cage traps. Each trap line was open for 5 consecutive nights and was checked each morning. Each cage was baited using a mammal bait mixture of honey, oats, peanut butter and sardines. In addition to targeted cage trapping, motion detecting cameras were deployed across the survey area in habitats that had the potential to support Northern Quolls. The targeted Northern Quoll survey was conducted in accordance with guidelines supplied by The Department of Sustainability, Environment Water, Populations and Communities (SEWPaC,).

Habitats were assessed by ground truthing areas of interest identified on aerial photographs and from land system mapping. To assess habitats, transects were walked across large areas of the survey area. Data was recorded at each point along the transect where the habitat changed.

Individual based rarefaction curves (species accumulation curves) were used to investigate the survey success and to calculate species richness values for the survey area. They were produced for each vertebrate fauna group. They were derived from data collected at systematic trap sites only.

Database searches and literature reviews indicated 16 species listed under the *Wildlife Conservation Act 1950*, the *Environmental Protection and Biodiversity (EPBC) Act 1999* and by the Department of Conservation (DEC) could potentially occur on the survey area. Evidence of four species listed under the *EPBC Act* and *Wildlife Conservation Act 1950* were recorded during the survey. Evidence of three species listed as Priority by the DEC were also recorded during the survey.

A total of 8087 vertebrate records were made during the survey at Lamb Creek representing 152 species.

Species listed under the *EPBC Act* and *Wildlife Conservation Act 1950* that were recorded during the survey were the Northern Quoll, the Pilbara Olive Python (*Liasis olivaceus barroni*), the Rainbow Bee-eater (*Merops ornatus*) and the Fork-tailed Swift (*Apus pacificus*). Species recorded during the survey that are listed as Priority by the DEC were the Ghost Bat (*Macroderma gigas*), the Australian Bustard (*Ardeotis australis*) and the Western Pebble-mound Mouse (*Pseudomys chapmani*).

In order to minimise the project's impacts on vertebrate and SRE invertebrate fauna, a series of general recommendations are given below.

- speed limits along haul roads that intersect habitats likely to support species of conservation significance;
- sensitive habitats and habitat features to be marked out to reduce risk of accidental damage;
- man-made water bodies (i.e. turkey nests) to be located away from vehicle traffic areas (as such features often attract the Pilbara Olive Python).
- avoid unnecessary clearing of vegetation, i.e. beyond that strictly required;
- avoid clearing or disturbing habitats that support populations of significant fauna;
- avoid excessive disturbance and clearing around creeks or minor drainage channels;
- rapidly rehabilitate cleared areas such as laydown sites, access tracks and grid lines where these are no longer required;

- avoid direct impacts (clearing and grading) to active nests and large trees, particularly those associated with watercourses as a variety of birds use these habitats;
- wind-rows of topsoil, log debris and leaf litter formed during clearing should be retained, as they create extremely good micro-habitat for a range of fauna, particularly reptiles;
- encourage a culture of environmental consciousness on site by increasing the awareness of the environmental commitments of the project;
- display appropriate signage on site e.g. litter management, speed restrictions, species of conservation significance, important habitat;
- set site and targeted habitat speed limits on site especially in areas where species of conservation significance are regularly reported;
- implement weed control program;
- rubbish disposal procedures should be applied, especially for food refuse, in order to discourage scavenging by crows, foxes and feral cats. Large numbers of these animals can have an adverse impact on other fauna;
- feral animal control program;
- fencing off vulnerable habitats; and
- implementing fire management plans to reduce the risk of large high intensity wildfires.

2. INTRODUCTION

2.1. BACKGROUND

Process Minerals International Pty Ltd (PMI) intends to construct and operate an iron ore mining operation at Lamb Creek, approximately 130 km north-west of Newman the East Pilbara Region of Western Australia (Figure 1). The project includes a proposed mine site, haul routes and an accommodation village. Iron ore will be hauled by road-trains from the site via a dedicated haul road to link in with the Great Northern Highway.

PMI purchased the Lamb's Creek project from Iron Ore Holdings (IOH) in October 2011. No previous fauna studies have been conducted by IOH in the area of the proposed mine. Table 1 and Figure 2 outline the tenements of the Lamb Creek project area.

Table 1 Tenements of the Lamb Creek Project

Tenement	Status	Purpose	Tenement Area
L47/635	Pending	A bore field, a mine site accommodation facility, a pipeline, a power line, taking water.	82 ha
L47/636	Pending	A bore field, a mine site accommodation facility, a pipeline, a power line, taking water.	64
L47/637	Pending	A bore field a pipeline, a power line, a road, taking water.	149 ha
L47/638	Pending	A bore field, a pipeline, a power line, a road, taking water.	30 ha
L47/639	Pending	A bore field, a pipeline, a power line, a road, taking water.	276 ha
L47/640	Pending	A bore field, a pipeline, a power line, a road, taking water.	156 ha
L47/641	Pending	A bore field, a pipeline, a power line, a road, a truck parking bay, taking water.	42 ha
E47/1238/ Pending M47/1468	Live/Pending	Mine site and associated infrastructure	44 blocks/ 1201 ha.

2.2. SCOPE AND AIMS

Rapallo Environmental was commissioned by PMI to conduct a Level 2 fauna survey (herein referred to as the 'fauna survey') of the proposed Lamb Creek iron ore project area (herein referred to as the

'project area') and adjacent areas of similar habitat. The project area and adjacent habitats that were investigated during the fauna survey combined are referred to as the 'survey area'(Figure 2). In addition, Rapallo Environmental was commissioned to conduct a targeted Northern Quoll survey of the survey area.

The core aims of the survey were to:

- characterise vertebrate fauna assemblages of the survey area;
- characterise habitats of the project area and investigate their linkages to regional habitats;
- collect data on species of conservation significance that occur within and adjacent to the project area (if any);
- identify habitats that may support species of conservation significance on the project area;
- identify habitats that may support species of conservation significance off the project area but within PMI's tenement holding;
- identify, map and survey habitats with potential to support Northern Quolls;
- identify Short-range Endemic (SRE) invertebrates occurring or likely to occur in the survey area;
- describe SRE habitat in the project area; and
- understand survey findings in a regional context to evaluate potential risks to SRE populations.

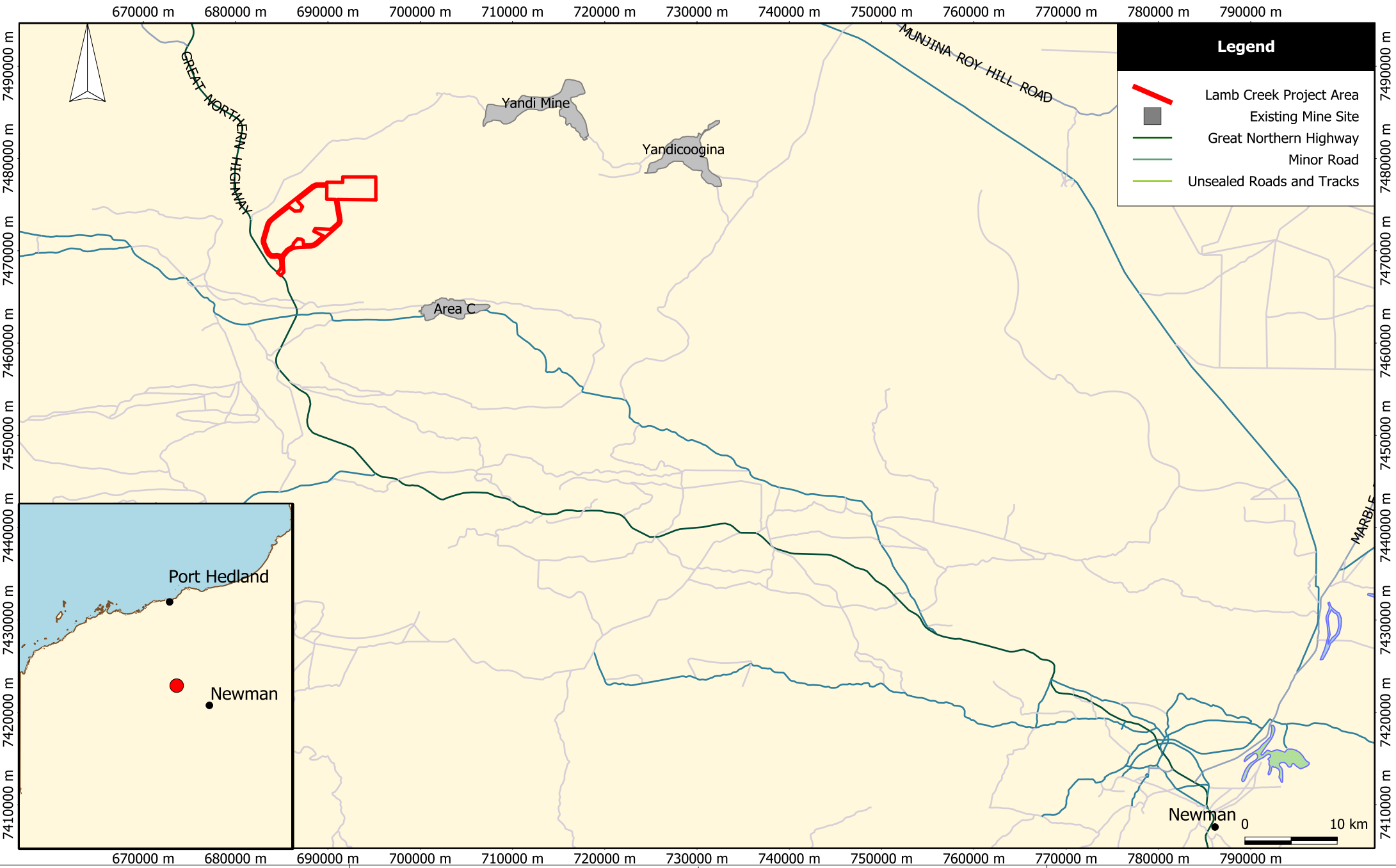

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Figure 1

Lamb Creek Location Plan

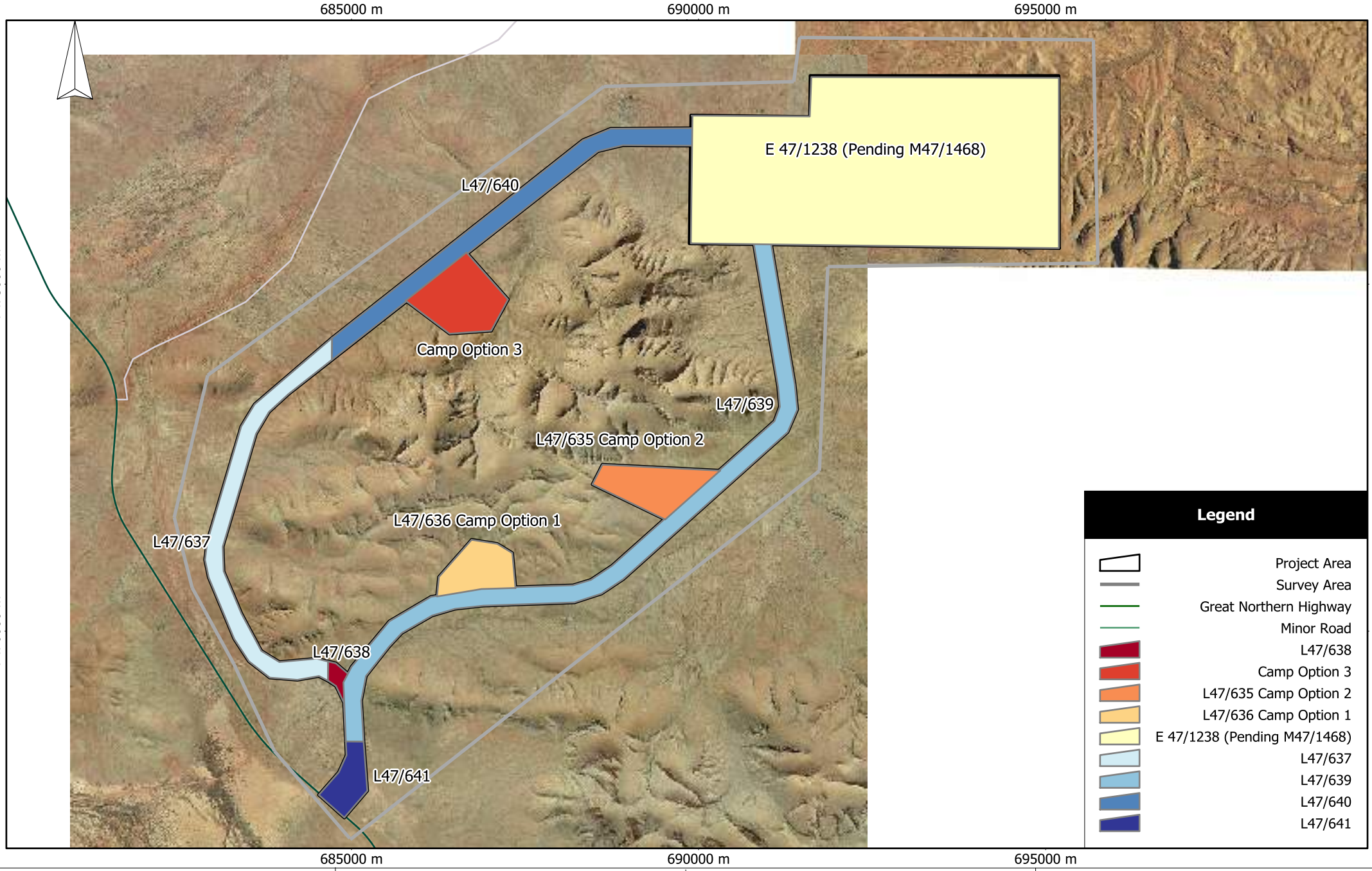

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Figure 2

Lamb Creek Survey Sites and Equipment

2.3. EXISTING ENVIRONMENT

2.3.1. CLIMATE

Climate in the Pilbara region of Western Australia is characterised as an arid tropical climate with most rain falling during the hot summers between January and March (Beard 1990). Climatic conditions are influenced by tropical cyclones predominately through these months.

The nearest Bureau of Meteorology (BoM) weather station to the survey area is at Newman Airport (station number 007176), approximately 130 km southeast of Lamb Creek. Mean annual rainfall recorded at this station over the period of 1971 to 2012, is 322 mm (Bureau of Meteorology 2012). February has the highest mean monthly rainfall of 77.3 mm and September has the lowest mean monthly rainfall of 4.5mm (Figure 3).

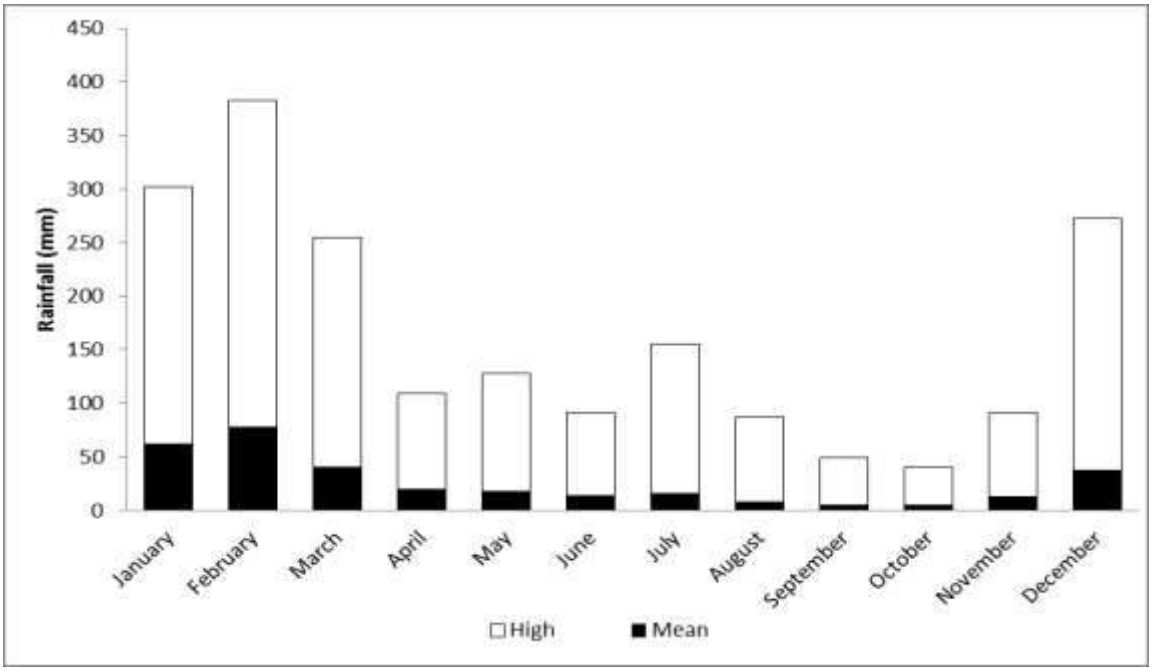


Figure 3 Mean annual rainfall at Newman Airport BoM Station (007176) over years 1971 to 2012

Evaporation rates are not recorded at the Newman Airport BoM Station. However, evaporation in the Central Pilbara Region is estimated to be between 2000 mm and 3500 mm, and is 10 times higher than rainfall (Gardiner 2003). This disparity maintains a typically arid landscape, with the exception of areas located in proximity to river systems and shallow groundwater resources.

The hottest month recorded at the Newman Airport Station is January with a mean maximum temperature of 39.2 °C and a mean minimum temperature of 24.9 °C (Figure 4).

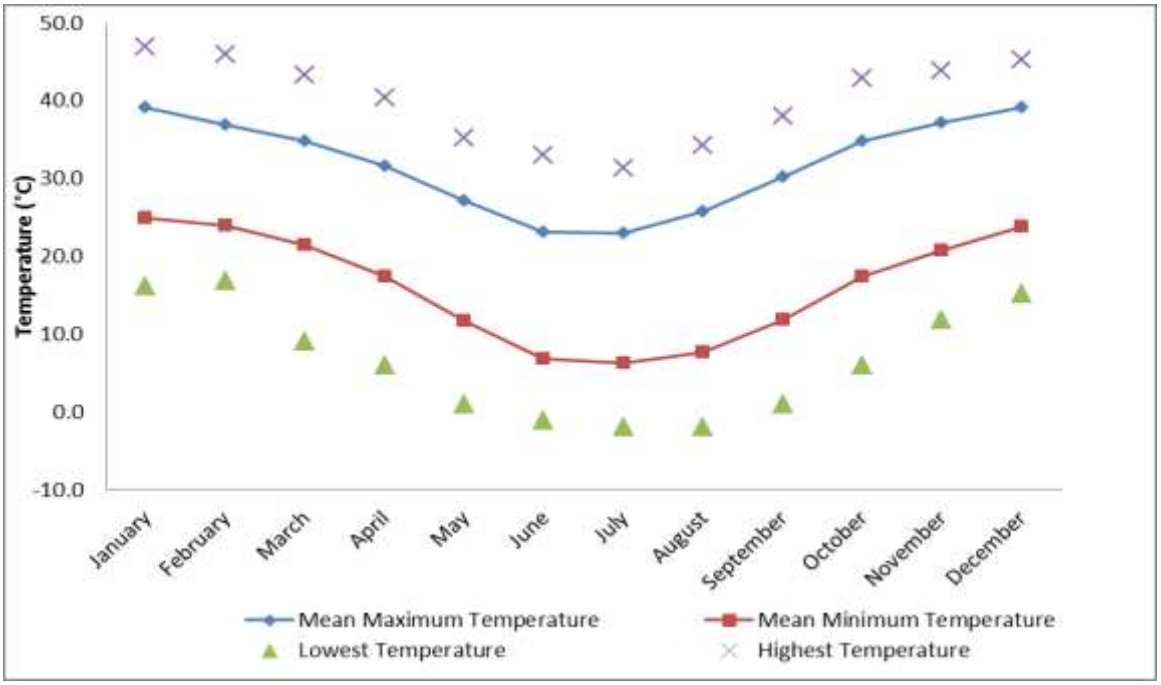


Figure 4 Mean monthly temperatures at Newman Airport BoM Station (007176)

2.3.2. DRAINAGE

Regional stream flow in the Pilbara is ephemeral, related to intense rainfall from with cyclonic activity or localised thunderstorms. Stream flow decays rapidly once rainfall has ceased. The drainage system upstream of the Fortescue Marsh has negligible base flow with stream flow and water table recharge following rainfall events (Van Vreeswyk *et al.* 2004).

The proposed mining area (tenement M47/1468) contains four minor non-perennial (type 2) water courses. The southern proposed haul route option (L47/638, L47/639, L47/641) and two prospective accommodation areas (L47/635, L47/636) are crossed by eight minor non-perennial water courses. Seven non-perennial water courses cross the northern proposed haul road option (L47/637, L47/640) and the northern prospective accommodation area (E47/1329). No major or perennial drainage lines occur within or directly adjacent to the survey area Geoscience Australia.

2.3.3. GEOLOGY

The project area is located in the south-west corner of the Roy Hill 1:250,000 Geological Survey Sheet (Thorne & Tyler 1997). The geology of the project area is generally defined by the assemblage prehnite-pumpellyite-epidote-actinolite. Basement rocks comprise the early Proterozoic Brockman Iron Formation and Weeli Wolli Formation. The Brockman Iron Formation consists of banded iron formation (BIF) and shale, while the Weeli Wolli formation consists of BIF separated by shale and siltstone bands, with younger dolerite sills that intersect the sedimentary sequence (Thorne & Tyler 1997).

Regionally, the fresh basement rocks are typically overlain by weathered basement rocks which occur as lateritic and basal gravel and/or conglomerate deposits. These weathered deposits underlie early Tertiary Channel Iron Deposits (CID), which are the dominant economic-grade iron deposits in the

region. The CID is typically overlain by younger alluvial and colluvial gravels and sediments (Thorne & Tyler 1997).

2.3.4. SOIL AND LANDFORM

The project area is typical of the Eastern Pilbara with rocky hills, small gorges, mostly seasonal watercourses and gravelly loam valleys. The project area is located in the Fortescue Valley Zone of the Fortescue Province which is described by Tillie (2006) as alluvial plains, hardpan wash plains and sandplains (with stony plains, floodplains and some salt lakes) on alluvial deposits over sedimentary rocks of the Hamersley Basin. Soils are generally red deep sands, red loamy earths and red/brown non-cracking clays with some red shallow loams and hard cracking clays. Vegetation is generally mulga shrublands and spinifex grasslands, with some tussock grasslands and halophytic shrublands. This region is located in the Pilbara along the Fortescue River between Millstream National Park and Ethel Creek Station.

The project area has two distinct soil and landform assemblages. The majority of the potential haul road alignment and the edges of the mine tenement are characterised as Fa13. The central part of the mine tenement and small portion of the potential haul road alignment is characterised as Fb3. These are defined in Australian Soils Resource Information System (CSIRO Australia 2012) as follows:

- **Fa13**: Ranges of banded jaspilite and chert along with shales, dolomites, and iron ore formations with some areas of ferruginous duricrust as well as occasional narrow winding valley plains and steeply dissected pediments. This unit is largely associated with the Hamersley and Ophthalmia Ranges. The soils are frequently stony and shallow and there are extensive areas without soil cover: chief soils are shallow stony earthy loams along with some soils on the steeper slopes. Associated are soils on the limited areas of dissected pediments, while and soils occur on the valley plains; and
- **Fb3**: High-level valley plains set in extensive areas of unit Fa13. There are extensive areas of pisolitic limonite deposits: principal soils are deep earthy loams along with small areas of soils.

2.3.5. IBRA ZONE

The project is within the Hamersley subregion (Pilbara 3) under the Interim Biogeographic Regionalisation of Australia (IBRA) system, which covers the southern section of the Pilbara Craton. The Hamersley subregion is a mountainous area of Proterozoic sedimentary ranges and plateaux, dissected by gorges of basalt, shale and dolerite. Vegetation is generally low Mulga woodland over bunch grasses on fine textured soils in the valleys with snappy gums (*Eucalyptus leucophloeia*) over *Triodia* species on skeletal soils of the ranges (Kendrick 2002).

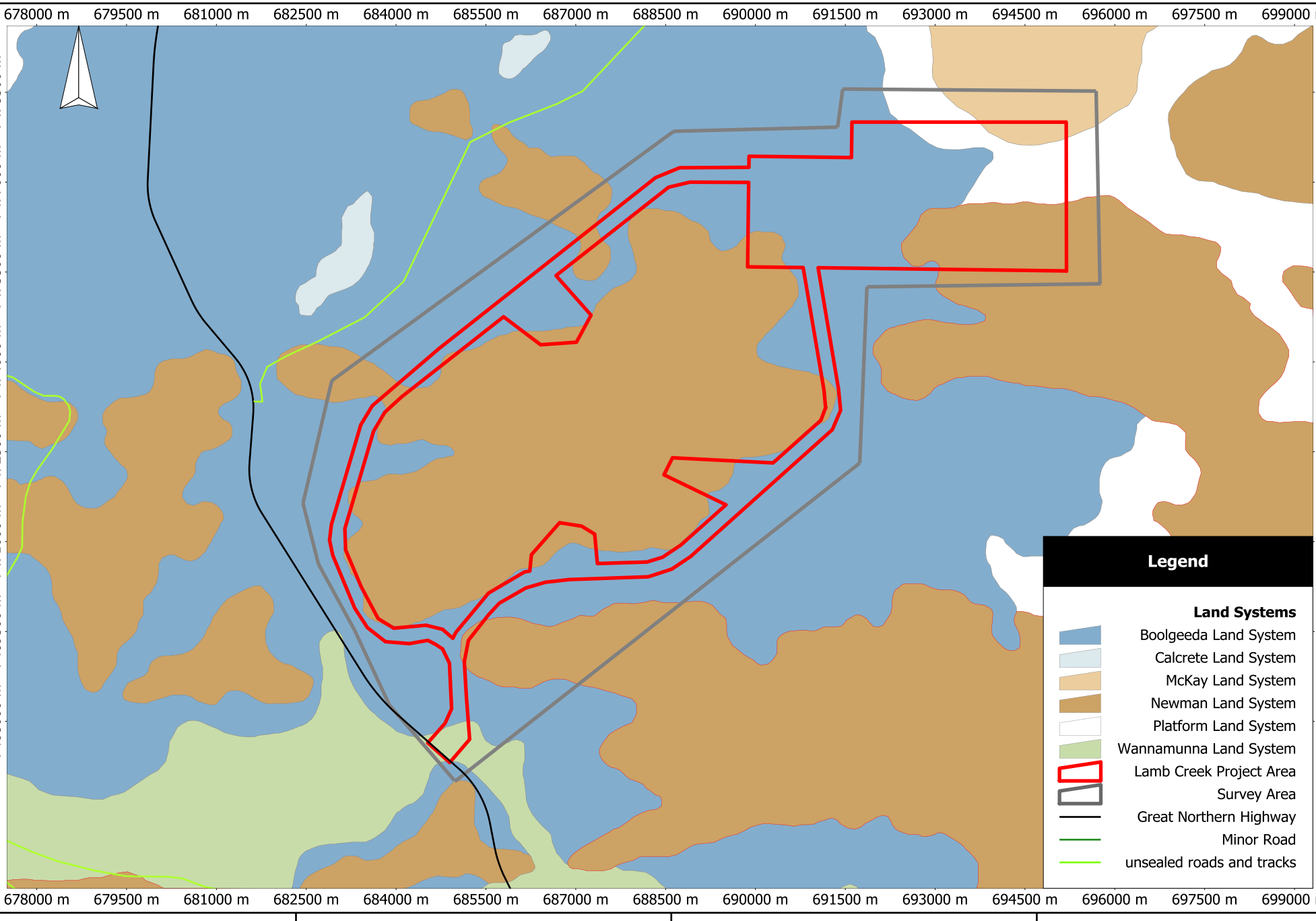
The Hamersley subregion contains calcrete deposits that are refugia and centres of endemism for troglofauna; however the current knowledge of troglofaunal diversity and endemism is preliminary. Several features in the Hamersley subregion serve as refugia. Gorges in the Hamersley Ranges that have permanent water and are protected from fire harbour humidophiles and fire intolerant species. Mountain tops in the Hamersley Ranges provide refuge from fire and support a diversity of restricted flora (Kendrick 2002).

2.3.6. LAND SYSTEMS

The project area covers several land systems within the Hamersley subregion (Figure 5, Table 2), as described by Van Vreeswyk et al. (2004). The approximate area size of each land system located on the project area can be found in Table 2.

Table 2: Land systems on the project area

Land System	Vegetation Description (Van Vreeswyk *et al.* 2004)	Area in the Pilbara (km^2)	Area on Project Area (km^2)	Precent of the land system that occurs within project area
Boolgeeda	Stony lower slopes, level stony plains and narrow sub-parallel drainage floors, relief up to 20 m. A common system in shallow valleys below hill systems such as Newman and Rocklea	7,748	11.584	0.149%
McKay	Hills, ridges, plateaux remnants and minor breakaways of sedimentary and meta sedimentary rocks supporting hard spinifex grasslands, relief up to 100 m	4,202	0.440	0.01%
Newman	Rugged high mountains, ridges and plateaux with near vertical escarpments of jaspilite, chert and shale	14,580	2.77	0.018%
Platform	Erosional surfaces formed by partial dissection of the old tertiary surface; gently inclined upper plains with extensive marginal dissection zones with gently inclined to steep slopes. Floors incised up to 30m with steep stable marginal slopes becoming wider downslope	1,570	1.98	0.12%
Wannamunna	Depositional surfaces, level hardpan washplains subject to overland sheet flow. Broad internal drainage flats receiving run-on from adjacent hardpan surfaces; rare channelled tracts but moistly no organised through drainage. Relief up to 5m	577	0.27	0.04%



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Process Minerals International

Figure 5

Lamb Creek Land Systems

2.3.7. REGIONAL VEGETATION

The vegetation within the study area is governed by geological, topographical, and edaphic influences of the Fortescue Botanical District (Beard 1990). This district consists predominantly of tree and shrub steppe communities with *Eucalyptus* trees, *Acacia* shrubs and grasses including *Triodia pungens* and *T. wiseana* (Beard 1975). Mulga (*Acacia aneura* and related taxa) occurs in valleys and short-grass plains may be present on alluvial soils (Beard 1990). Communities of *Eucalyptus leucophloia* over *Triodia* species occur on the skeletal soils of the ranges (Kendrick 2002). The other major influence on the flora and vegetation in the Pilbara Region is the heavy rains that occur during and immediately following cyclonic events. Cyclones develop off the north-west coast and often cross the coastline between Karratha and Port Headland and then travel inland over the Fortescue Valley system towards Newman. Vegetation was mapped by Rapallo (2012) in a Level 2 flora and vegetation survey.

2.3.8. LAND USE

Dominant land use within the Hamersley subregion is grazing. Land is classified (in order of spatial dominance) as unallocated crown land and crown reserves, native pastures, conservation, mining and urban (Kendrick 2002).The project area is located in the East Pilbara Region which has a total population of 10,500 people. The major industries in the East Pilbara Region are mining, pastoral and tourism (URS Australia Pty Ltd 2011) . The Shire of East Pilbara contains numerous Aboriginal communities; the largest are Jigalong, Punmu and Parngurr. Aboriginal communities are also located in Nullagine (Irrungadji Community) and Marble Bar (Pipunya and Goodabinya Communities).

2.3.9. RESERVES AND ENVIRONMENTALLY SENSITIVE AREAS

Environmentally sensitive areas (ESAs) are protected under the *Environmental Protection (Clearing of Native Vegetation) Regulation 2004* and are selected for their environmental values at state or national levels.

The project area does not overlay any ESAs as described by the *Environmental Protection (Clearing of Native Vegetation) Regulation 2004* or Priority Ecological Communities (PECs) as defined by DEC. According to the DEC's Native Vegetation Map Viewer, there are no ESAs within five kilometers of the project area. The nearest PEC buffer is located over 6 km south-west of where the proposed haul road will intersect with the Great Northern Highway. That PEC is described as 'Coolibah – Lignum Flats'.

Karijini National Park is located to the west of the project area, approximately 18 km west of the intersection of the proposed haul road and the Great Northern Highway. Mungaroona Range Nature Reserve is approximately 100 km northwest of the project area.

2.4. LEGISLATION AND SURVEY GUIDANCE

The conservation status of flora and fauna species is assessed under Commonwealth and State Acts; the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the Western Australian *Wildlife Conservation Act 1950.* In Western Australia the Department of Environment and Conservation (DEC) can also list fauna species under a Priority listing.

In addition to the conservation status of fauna the Environment Protection Authority (EPA) has produced a series of guidance statements to aid in assessing the environmental impacts of developments in Western Australia.

2.4.1. ENVIRONMENTAL PROTECTION AND BIODIVERSITY ACT (EPBC ACT) 1999

At a Federal level the *EPBC Act* contains a list of fauna species that are considered Critically Endangered, Endangered, Vulnerable, Conservation Dependent, Extinct or Extinct in the Wild (Appendix I). The conservation categories and EPBC listed species follow the recommendations of the International Union for the Conservation of Nature and Natural Resources (IUCN, 2008).

The *EPBC Act* also has lists of migratory species that are recognised under international treaties such as the China Australia Migratory Bird Agreement (CAMBA), the Japan Australia Migratory Bird Agreement (JAMBA) and the Bonn Convention (The Convention on the Conservation of Migratory Species of Wild Animals). The list of migratory species under the *EPBC Act* has been revised to include listed species only, thus excluding family listings.

2.4.2. WILDLIFE CONSERVATION ACT 1950

In Western Australia, all native fauna is protected under the *Wildlife Conservation Act 1950* and cannot be collected, kept or culled without the appropriate permits. The *Wildlife Conservation Act 1950* uses a set of Schedules to classify the level of protection given to fauna species.

Fauna species included under conservation acts and/or agreements are formally recognised as of conservation significance under state or federal legislation. Those species listed in JAMBA are also protected under Schedule 3 of the Western Australian *Wildlife Conservation Act 1950*.

The DEC regularly reviews and revises the schedule of threatened fauna listings in Western Australia.

2.4.3. DEC PRIORITY LISTINGS

In Western Australia, the DEC has produced a supplementary list of Priority fauna (Appendix I). These are species that are not considered Threatened under the Western Australian *Wildlife Conservation Act 1950*, but for which the DEC feels there is cause for concern. Thus these species are recognised as having conservation significance and are given consideration when developments are proposed within their distributions and known habitats.

At the State level the recommendations of listed species by the IUCN are not stringently adhered to. Hence a species may be listed as a Priority by the DEC and not listed by the IUCN and vice versa.

In addition to the Priority listings the DEC will recognise the conservation significance of species included in publications such as such as Garnett and Crowley (2000) and Cogger *et al*., (1993) and through interpretation of distribution information. In the latter a species may be considered significant, although this level of significance has no legislative or published recognition, if;

- the species is occurring at the limit of their distribution;
- the species that have a very restricted range e.g. Short Range Endemics; or,

- the species occurs as a breeding colony e.g. some waterbirds.

2.4.4. EPA GUIDANCE STATEMENTS

The Environmental Protection Authority (EPA) Guidance Statement; *Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australian No 56* (2004) and EPA Position Statement 3; *Terrestrial Biological Surveys as an Element of Biodiversity Protection* (2002) outlines the minimal expectations of the EPA in regards to terrestrial fauna considerations in an environmental impact assessment. The guidance statement provides a number of general recommendations for consideration before a survey:

- level of survey required;
- design and intensity factors;
- survey limitations; and,
- reporting of data.

For the Pilbara IBRA region – Group 2, the guidance statement states that any proposed project with footprint greater than 50 hectares is considered to generate a high scale impact and requires a Level 2 Fauna Survey to adequately assess potential impacts (EPA, 2004). The EPA's Technical Guide; *Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment* (Environmental Protection Authority 2004) provides the standards and protocols for undertaking fauna surveys (Level 1 and Level 2) with techniques and methods specific to the different bio-regions of Western Australia.

The following statements outline the minimal expectations of the EPA in regards to consideration of SRE fauna in an environmental impact assessment.

- EPA Position Statement No. 3: Terrestrial Biological Surveys as an Element of Biodiversity Protection (EPA 2002).
- EPA Guidance Statement No. 20: Sampling of Short Range Endemic Invertebrate Fauna for Environmental Impact Assessment in Western Australia (EPA 2009).

Guidance Statement No. 20 addresses the general standards required for SRE surveys and to develop a common framework by which they should be carried out. It also sets out the expectations in respect of the quality and quantity of data collected during SRE surveys, and how this data should be analysed and reported.

Importantly, the Guidance Statement recognises and discusses limitations on current knowledge in respect to SRE fauna. In particular, the limitations encountered after recording rare and cryptic taxa are discussed and the low probability of further survey success acknowledged. If such specimens are restricted to impact zones, risked based analysis based using habitat as a surrogate for distribution will be considered (EPA 2009).

2.4.5. SHORT RANGE ENDEMISM

Harvey (2002) reviewed the occurrence of short range endemism in Australian invertebrate fauna. The main criterion nominated for inclusion as a SRE species was that the species had a naturally small range of less than 10,000 square kilometres. He identified a series of major groups of

invertebrates as having a very high proportion of species that satisfied characterisation as SRE's. Harvey (2002) found that those species possessed a series of ecological and life-history traits including:

- Poor powers of dispersal.
- Confinement to discontinuous habitats.
- Usually highly seasonal; only active during cooler, wetter periods.
- Low levels of fecundity.

Based on these traits and after reviewing the literature in Australia, Harvey (2002) listed a series of invertebrate groups that either showed high levels of short range endemism or were likely to possess SRE species after further taxonomic studies. The list of groups includes:

- Mygalomorph Spiders
- Scorpions
- Pseudoscorpions
- Millipedes
- Snails

These taxa are of particular risk of possessing SRE species and survey methodologies should include specific systems that aim to record members of each taxon.

The EPA Guidance Statement No. 20 (EPA 2009) indicates that the optimal time for conducting surveys in the Pilbara is in the cyclone season (November to April), when there is sufficient rainfall to stimulate enhanced activity in otherwise cryptic groups such as *Quistrachia* (land snails) and male mygalomorph spiders. The SRE survey of the survey area was completed at the end of this period, with good rainfall preceding the survey.

2.4.6. NORTHERN QUOLL SURVEY GUIDELINES

The Department of Sustainability, Environment Water, Populations and Communities (SEWPaC,) has released survey and referral guidelines for Northern Quoll (*Dasyurus hallucatus*) (Department of Sustainability, Environment, Water, Population and Communities 2011). The guidelines include maps of known and potential distribution, survey methods, and guidelines for determining whether projects in potential Northern Quoll habitat should be referred to SEWPaC under the *Environment Biodiversity and Conservation Act 1999.*

For the purposes of assessment under the *EPBC Act*, SEWPaC (2011) recommends that surveys for Northern Quoll involve an initial reconnaissance survey which aims to identify the need for further investigations through a targeted survey. These should be conducted by a suitably qualified person with demonstrated skill in mammal surveys, maximise the chance of detecting the species, and account for uncertainty and error (such as false presences and absences).

A reconnaissance survey can be conducted at any time of the year but should be undertaken in the early planning stages of the project. The reconnaissance survey should assess the suitability of habitat for northern quolls, both for denning / shelter and dispersal and foraging purposes. Suitable habitat should be mapped during this survey and habitat areas calculated. Data collected should describe the

habitat quality including information on vegetation, microhabitat, fire history, presence of introduced predators, grazing history and landscape condition. A reconnaissance survey may investigate the presence or potential presence of the northern quoll by using non-invasive techniques such as active searching for scats and latrine sites, motion sensitive cameras, hair tubes or spotlighting where appropriate.

A targeted survey is recommended for any proposal occurring within the modelled distribution of the species and where the reconnaissance survey identifies the presence of quolls and / or habitat critical to the survival of northern quoll. The objective of the targeted survey is to determine the relative abundance and distribution of Northern Quolls likely to be impacted by the proposed development. The survey protocol should be designed so that the total population of Northern Quolls in the impact area can be calculated. A targeted survey should be undertaken before development and during the months of May, June, July or August (primarily to avoid any disturbance during the reproductive period) and include proposed impact areas as well as adjacent suitable habitat.

Records of the species exist within 50 kilometres of the project area. In addition, potential suitable habitat for the species exists on the project area. As a result, PMI has proceeded with undertaking a targeted Northern Quoll survey in conjunction with its Level 2 Fauna Survey.

3. METHODS

The survey was divided into four sections:

- a Reconnaissance Survey (Section 3.5);
- a systematic surveys for vertebrate fauna (Section 3.6):
- a systematic surveys for SRE's (Section 3.7) ; and,
- a targeted survey for Northern Quolls (Section 3.8).

3.1. SCIENTIFIC LICENCE

This survey was licensed under the Western Australian Wildlife Conservation Act 1950 Regulation 17 "Licence to Take Fauna for Scientific Purposes" licence number: SF008562 (Appendix II).

3.2. VOUCHERING

Rapallo will voucher specimens if:

- it can't be identified in the field (typically difficult species such as *Ramphotyphlops*);
- it is a species of taxonomic confusion/interest; or
- it is possibly an un-described species.

Rapallo sought advice from the Western Australian Museum (WAM) prior to the field survey in regards of fauna that may be required for vouchering. WAM advised Rapallo that they were not currently in need of vouchered specimens from the survey region.

3.3. PERSONNEL

Table 3 outlines the personnel that were involved in the field survey and the preparation of this report.

Table 3 Personnel involved in this survey

Name	Position	Trap Installation	Field Survey	Reporting
Chris Jackson	Senior Ecologist	•	•	•
Henry Cook	Ecologist	•	•	
Cara McGary	Environmental Scientist		•	•
Chris Cooper	Graduate Ecologist	•	•	•
Magnus Peterson	Field Ecologist		•	
Dejan Stojanovic	Field Ecologist	•	•	
Bruce Cripps	Laborer	•		
Shaun Stevens	Laborer	•		

3.4. DESKTOP SURVEY

Prior to the field survey, database searches were completed to determine if species of conservation significance had either been recorded within the survey area or had the potential to occur within habitats found on the project area. Table 4 describes which databases were used for information regarding species of conservation significance. Results of the database searches are presented in Appendices 4-8. An in-depth description of all potential conservation significant species found on the survey area can be found in section 6.

Table 4 Database Searches undertaken for the Lamb Creek survey area.

Search	Latitude	Longitude	Buffer (kilometres)	Comments
DEC Threatened Fauna Database (2012a)	22°50' 18" S	118°50' 17" E	50	Point Search
DEC Threatened Ecological Communities Database (2012b)	22°50' 18" S	118°50' 17" E	50	Point Search
SEWPaC Environmental Reporting Tool (2012)	22°46'01"S 22°53'52"S 22°53'56"S 22°45'57"S	118°42'17.89"E 118°42'17.89"E 118°56'4.52"E 118°55'55.96"E	10	Area Search
NatureMap(2012c)	22°26' 29" S	118°18' 53" E	40	Point Search
Birds Australia BirdData (Birdlife Australia 2012)	22°50'19"S	118°50'16"E	40	Point Search
WAM Mollusc Database (2012a)	22°50' 18" S	118°50' 17" E	50	Point Search
WAM Terrestrial SRE Database (2012b)	22°50' 18" S	118°50' 17" E	50	Point Search

In addition to the above database sources, data from previous fauna surveys in the region were reviewed. Table 5 details which reports were used for the regional literature review.

Table 5 Regional literature sources

Report	Author	Distance from Lamb Creek (km)
Fauna survey of the proposed Hope Downs 4 mining area.	Ninox Wildlife Consulting, (2009)	30km SE of Lamb Creek
Yandicoogina Junction South West and Oxbow Fauna Survey.	Biota Environmental Sciences, (2010)	41km NE of Lamb Creek.
Fauna survey of proposed Iron Ore Mine, Cloud Break.	Bamford Consulting Ecologists, (2005)	80km NE of Lamb Creek
Fauna Habitats and Fauna Assemblage of the Proposed FMG Stage B Rail Corridor and Mindy Mindy, Christmas Creek, Mt Lewin and Mt Nicholas Mine Areas.	Biota Environmental Sciences, (2005)	Mindy Mindy approximately 80km E of Lamb Creek.

3.5. RECONNAISSANCE SURVEY

Prior to the deployment of field teams to the survey area, aerial photographs and land system shape files were analysed to identify areas of interest across the survey area.

A two-day reconnaissance survey, via helicopter, of the survey area was conducted on the 19-20 March 2012 by staff from Rapallo Environmental. The aims of this survey were to identify habitat types, assess the road access to the survey area and ground truth areas of interest identified from GIS maps and aerial photography. A total of 5 unique habitat types were identified during the reconnaissance survey as being capable of supporting different assemblages of vertebrate fauna.

The reconnaissance survey team also deployed motion detecting cameras which were placed in caves and under rock overhangs at the bases of mesas and banded iron stone (BIF) outcrops. A total of 10 motion detecting cameras were deployed during the reconnaissance survey in the locations shown in Figure 6. These cameras were retrieved after approximately two weeks. Videos were downloaded and examined for fauna recordings.

3.6. VERTEBRATE FAUNA SURVEY

3.6.1. SYSTEMATIC TRAPPING

Rapallo Environmental used a nested pitfall trap grid to survey the terrestrial fauna of the survey area. Each site consisted of:

- twenty Elliot traps;
- ten funnel traps;
- six regular bucket pitfall traps; and
- six bucket pitfall traps with narrowed entrances.

The trap configuration is illustrated in Figure 7.

Ten trap sites were deployed, two sites for each major habitat.

Each pitfall trap had a white polystyrene tray to provide shelter, and a moist sponge to prevent desiccation for any captures.

Funnel traps were covered with a sheet of foil insulation to shelter any captives from extreme daytime temperatures.

Table 6 shows the total number of trap nights by habitat type in the survey area fauna survey. Habitat codes are described in Section 4.2.

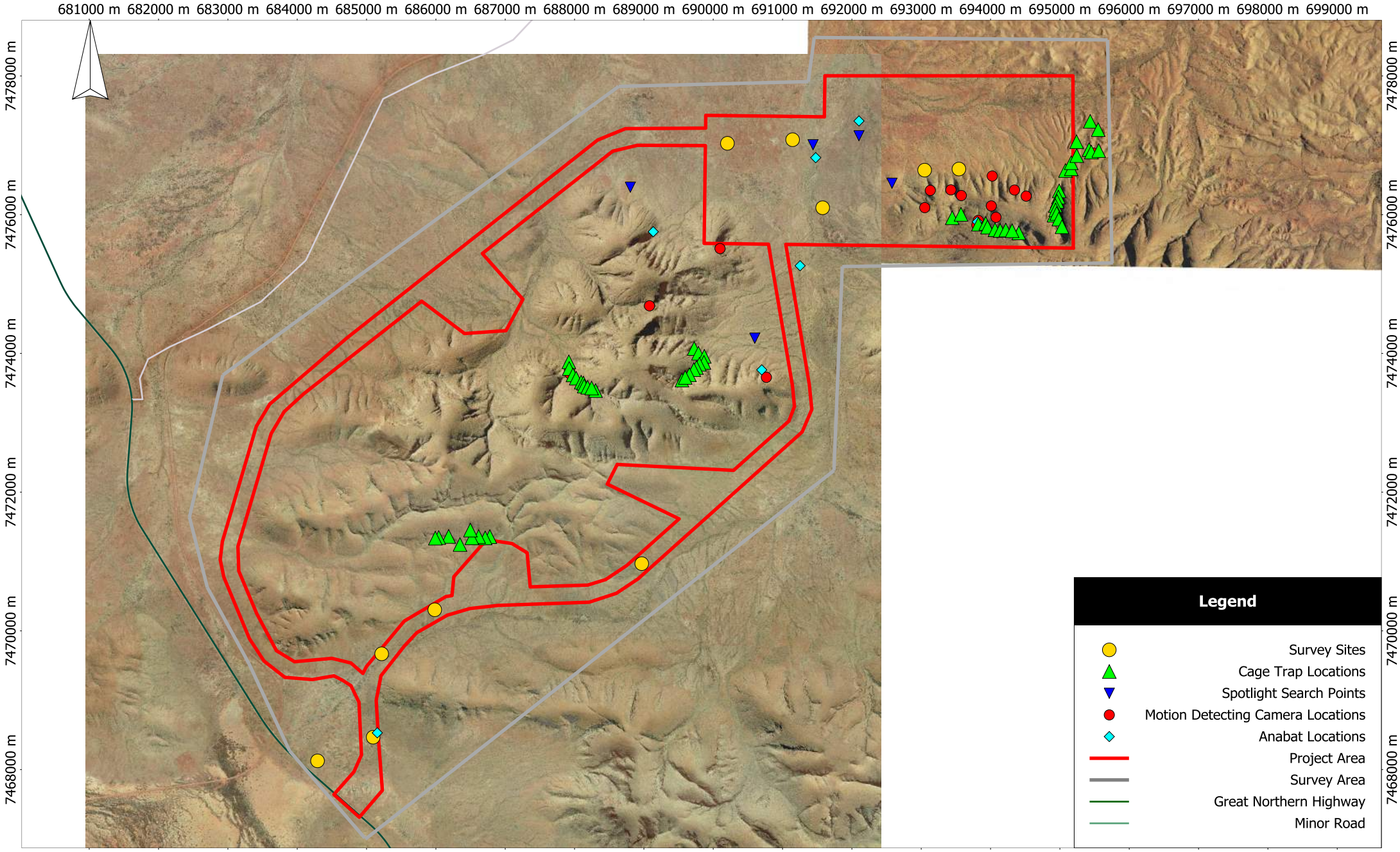
Table 6 Trap night summary by habitat and trap type for the Lamb Creek L2 Fauna Survey

Habitat Code	Pitfall Traps	Elliot Traps	Funnel Traps	Total Nights
SHET	168	280	140	588
MEAT	168	280	140	588
STABM	168	280	140	588
FLAGMA	180	300	150	630
SATOM	168	280	140	588
Total	**852**	**1420**	**710**	**2982**

Vertebrate fauna was identified and released each morning as the trap lines were cleared. If specimens could not be immediately identified they were placed in a calico bag and identified at the field camp. After identification the specimens were released near the site of capture when conditions permitted (i.e. nocturnal fauna were not released during midday heat).

The following data were recorded for each capture:

- trap site and trap number;
- species;
- number of animals;
- sex and reproductive condition; and
- age class (juvenile/adult).



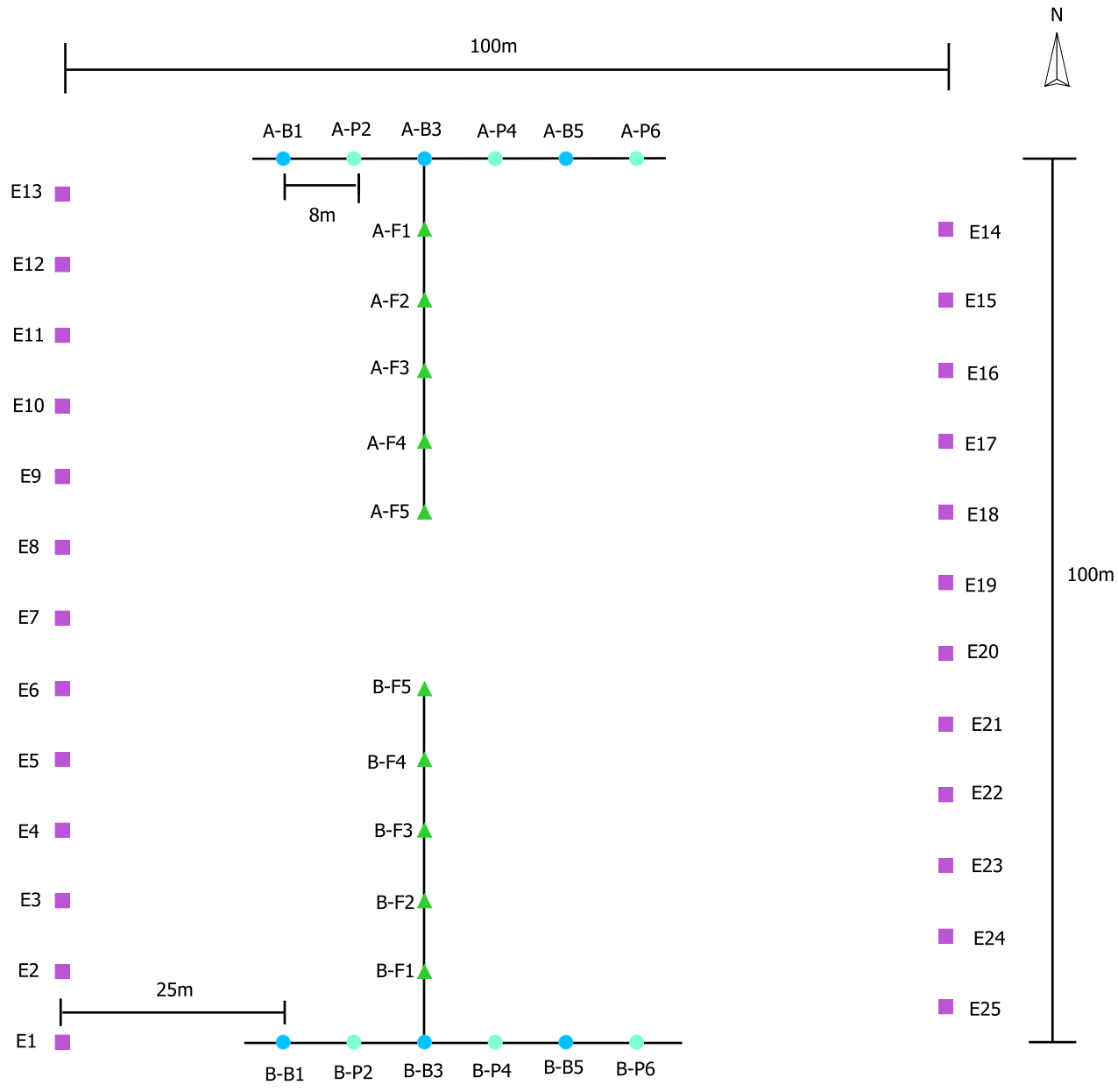
Rapallo

Original Size: A4 Scale: 1:70,000
Datum: MGA94
0 1 km

Process Minerals International

Figure 6

Lamb Creek Survey Sites and Equipment



Legend

- Buckets
- Elliots
- Funnels
- Invertebrate
- Pipes
- Motion Detecting Camera

Rapallo

Original Size: A4

Scale: 1:750

0 20 m

Process Minerals International

Figure 7

Lamb Creek Trap Layout

3.6.2. BIRD SURVEYS

Bird assemblages were assessed and compiled using a combination of trap site specific surveys and opportunistic observations.

Two hectare bird surveys, following Birds Australia guidelines, were completed each day between 6am and 9am when bird activity was peak and cryptic species were most detectable.

Records from each site were supplemented with opportunistic records. These records were collected at trap sites, during travel between trap sites and during day time forage surveys. Birds were identified by direct observation or by auditory survey. Road kill was examined whenever possible and species recorded where possible.

3.6.3. BAT SURVEYS

Bat surveys were conducted on the survey area using SM2BAT+ and ANABAT SD1 ultrasonic recorders. Both devices were placed in suitable locations on the survey area. Suitable locations included areas with caves, water or mature woodlands with hollow bearing trees.

Data collected on the ANABAT device was analysed by Dr. Kyle Armstrong of Specialised Zoological.

In addition, Rapallo deployed Harp Traps along potential fly-ways and next to water bodies. Traps were set prior to sun set and checked at the conclusion of spotlight activities each night. Harp traps were closed after being checked.

3.6.4. SPOTLIGHTING

Spotlight surveys were undertaken in each of the habitat types recorded on the survey area. In order to not disturb nocturnal fauna, spotlight surveys were not conducted at the systematic trap sites. Spotlight surveys were run over 30 minutes and were undertaken by a team of four ecologists.

Any terrestrial fauna or potential SRE's recorded during the searches were recorded using GPS locations. Habitat and time were noted if species of conservation significance were recorded during the survey.

3.6.5. HAND FORAGING AND HABITAT ASSESSMENT TRANSECTS

Transects were walked across the survey area to supplement data collected during other survey activities and to characterise and demarcate habitats. Additionally, they were used to survey habitats considered suitable for potential SREs.

Transects were plotted using data collected during the Reconnaissance Survey. They were designed to intercept several habitats at a time.

Each transect was walked by two ecologists. Each time the habitat type noticeably changed, the following data were collected to characterise the new habitat:

- GPS reading;
- soil type and characteristics;

- geology;
- landform;
- litter depth;
- evidence of disturbance (i.e. fire, grazing);
- understorey vegetation density and composition; midstorey vegetation density; canopy density and composition; and
- suitability for species of conservation significance.

During each transect, Rapallo staff would undertake foraging activities including lifting bark and old tin, rolling old logs and raking through sand and leaf litter.

The following data would be collected each time vertebrate fauna or potential SREs were encountered:

- GPS reading;
- species, sex, maturity; and
- habitat type.

If potential SREs were encountered, they were vouchered following guidelines released by the WAM (WAM 2008). Evidence of species of conservation significance was photographed if encountered.

3.6.6. MOTION DETECTING CAMERAS

Motion detecting cameras (MDCs) were deployed across the survey area in habitats with potential to support Northern Quolls. A total of 10 MDCs were deployed during the reconnaissance survey, these cameras were left for a period of two weeks before being collected and redeployed at an additional seven sites on the survey area for 6 days. Scoutguard motion detecting cameras were used for this survey. Each camera was programmed to record for 30 seconds at one minute intervals with detection sensitivity set to high.

Each camera was securely fastened at each location and focused onto a bait station. The bait used consisted of tinned cat food with high sardine content.

Data recorded from the MDCs has been included in the overall species list for the survey.

3.6.7. OPPORTUNISTIC RECORDS

While traversing the survey area, records were taken of all potential SRE invertebrates and their burrows. A brief habitat description was recorded, as well as GPS coordinates and site photos.

3.7. SRE SURVEY

Surveys for potential SRE specimens were in conjunction with sections 3.3.1, 3.6.2 and 3.6.5. Additional survey techniques, designed specifically for the detection of SRE's are described in section 3.7.1.

A total of 14 sites were foraged for SRE taxa (Figure 12). Litter samples were collected for later processing. At each forage site, SRE taxa were searched for by turning rocks, raking litter, raking under hummocks of *Triodia*, lifting bark and turning old logs. Clumps of vinous *Fiscus* sp. were targeted, when present, for potential SRE gastropods.

3.7.1. LEAF LITTER COLLECTION

Leaf litter was collected from 14 sites (Figure 12). The species of tree or shrub from under which leaf litter was collected was recorded. These sites were divided into the following landform types:

- south facing slopes/hillsides;
- creek lines;
- outcrops; and
- plains.

Leaf litter was collected in a twenty litre bucket and sifted using 1.5 millimetre sieves. The final mixture of organic matter was taken back to the Rapallo Environmental laboratory and run through either Tullgren Funnels or Winkler traps. Sifted samples were run for approximately 48 hours.

Specimens collected from the Tullgren Funnels and Winkler traps were sorted under a microscope at the Rapallo Environmental laboratory. Potential SRE taxa were separated from the bulk samples and vouchered for taxonomic identification according to WAM (2011) guidelines.

3.7.2. CATEGORIES OF SHORT-RANGE ENDEMISM

Currently, there is no accepted system to determine the likelihood that a species is an SRE. For the purposes of this report we have adopted the three-tier SRE likelihood system developed by (Phoenix Environmental Sciences 2012, Appendix 10), wherein species are categorised based on the different probabilities of short-range endemism: 'confirmed', 'likely' or 'potential' SRE (Table 2-1). These categories are dynamic and can change as knowledge of SRE status is updated.

Although the different categories of SRE-likelihood may help to set conservation priorities, SRE taxa of all categories should be assessed on their merit, in order to determine appropriate conservation measures that adhere to the Precautionary Principle within environmental impact assessments. That is, "where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason to postpone measures to prevent environmental degradation" (Environmental Protection Authority 2002).

3.7.3. TAXONOMIC IDENTIFICATION

All potential SRE taxa were sent off to taxonomic experts for identification before being vouchered in the WAM collection. The following taxonomists were involved with specimen identification:

- Dr Volker Framenau (Phoenix) Millipedes, centipedes, pseudoscorpions, spiders
- Dr Simon Judd (Phoenix) Slaters
- Dr Corey Whisson (WAM) Land snails
- Dr Erich Volschenk (Scorpion ID) Scorpions

3.8. TARGETED NORTHERN QUOLL SURVEY

A targeted survey for the Northern Quoll was conducted simultaneously with the fauna survey. The targeted Northern Quoll survey was designed following methods described in Northern Quoll Survey Guidelines (SEWPaC 2011). Potential trap sites were identified during the Reconnaissance Survey.

Six sites were selected for the targeted Northern Quoll survey. These sites consisted of deeply dissected gorges and along the face of rocky escarpments. Each trap site consisted of 10 cage traps deployed approximately 100 m apart. The distance between traps was extended slightly where suitable habitat was not continuous. Locations were recorded using a GPS for each cage trap.

Traps were set in locations that provided shade and were covered with a sheet of foil insulation or a hessian sack to shelter any captive animals from weather such as wind, rain and sunlight. Traps were baited using a mixture of peanut butter, rolled oats, honey and tinned sardines and were rebaited every second day.

Traps were set out for five nights on each line. Traps were cleared before 9 am each day. Each bait ball was replaced after two nights if no captures were recorded in a trap. Traps were moved if ants were active in the trapping area.

The following data was recorded if a capture occurred:

- date, trap number
- sex
- weight
- foot length
- head length and width

The reproductive status of each quoll was determined using diagnostics outlined in Oakwood (2000).

Following measurement all quolls were individually marked with a micro-chip inserted subcutaneously between the shoulder blades. This enabled swift identification of recaptured individuals without the need of handling them a second time.

A small (2 mm^2) piece of ear tissue was removed and stored in 100% ethanol for DNA analysis.

3.9. BIODIVERSITY ASSESSMENT AND SPECIES RICHNESS

3.9.1. SPECIES ACCUMULATION CURVE

Individual based rarefaction curves (species accumulation curves) were produced for each vertebrate fauna group. They were derived from data collected at systematic trap sites only.

Rarefaction curves enable evaluation of the sampling effort and can be used to predict the potential number of species found on a survey (Colwell 2000). EstimateS V8.02 was used to generate the species accumulation curves.

Curves were constructed by plotting individuals caught along the x-axis against Coleman rarefaction estimates along the y-axis. The data was sampled 10,000 times.

3.9.2. SPECIES RICHNESS

Data collected during systematic and standardised fauna surveys can be analysed by a series of models to determine site specific species richness. Such calculations are useful for determining the biodiversity of a survey area and the expected number of species (species richness). Inference derived from biodiversity calculations is constrained if there are limited regional calculations to compare the results to.

Species richness estimators are often influenced by sampling issues such as low sample size, small number of species dominating data sets or a high number of species recorded only once or twice. These issues are most easily overcome by using a combination of appropriate non-parametric species richness models and comparing the outputs against the Cole-rarefaction used as the estimator of species richness in this report.

The following species richness estimators were used to assess the biodiversity of the Lamb Creek survey area:

- ACE Mean;
- ICE Mean;
- Chao Mean;
- Jacknife Mean.

Species richness estimators were calculated for each major vertebrate fauna group.

3.10. SURVEY LIMITATIONS AND CONSTRAINTS

An assessment of the limitation of the survey has been displayed in Table 7 in accordance with Guidance Statement No. 56 (Environmental Protection Authority 2004).

Table 7 Summary of limitations experienced during the Survey

Aspect	Constraint	Comment
Experience of Consultants	No	All members of the survey team have experience in undertaking fauna surveys. At least one member of any field team group was extremely experienced with surveying for and identifying Pilbara fauna.
Scope	No	Scope and intensity of survey were suitable to achieve the survey aims.
Proportion of fauna identified, recorded and/or collected	No	High fauna abundance and diversity was recorded during the survey.
Information sources e.g. previously available information (whether historic or recent) vs. new data.	No	Extensive surveying has been undertaken in the Pilbara region including several surveys within 50 kilometers of the survey area within the previous five years.

Aspect	Constraint	Comment
Proportion of task achieved and further work may be required	No	All habitat areas were well surveyed and the timing was optimal for presence of most native species.
Timing, weather, seasons. Cycle	No	Only a single season of surveying was undertaken. This survey was completed at the end of the wet season. Warm days and availability of water would have positively affected the activity of most species.
Disturbances that affected the survey	Yes, Partial	Isolated storms during the survey period may have affected trap numbers on several nights.
Survey Intensity	No	Survey intensity was appropriate for the survey areas size and proportion of habitats.
Completeness of Survey	No	All landsystems and habitats in the survey area were adequately surveyed.
Resources	No	The survey was adequately resourced.
Access Problems and Remoteness	No	All areas were accessible by 4WD or quad bike.
Availability of contextual information within the region	No	There are numerous studies, completed within the last five years, on habitats found within the survey area.

3.11. SOURCES OF INFORMATION

The following literature sources have been used to determine nomenclature, taxonomy and fauna distribution patterns used in this report:

- **Mammals:** Van Dyck and Strahan (2008), Menkhorst and Knight (2011);
- **Bats:** Churchill (2008);
- **Reptiles:** Cogger (2000); Storr et al.(2002); Storr et al.(1999); Wilson and Swan (2008);
- **Amphibians:** Tyler et al. (2000), Tyler and Doughty (2009);
- **Birds:** Christidis and Boles (2008); Barrett (2003); Johnstone and Storr (1998 and 2004); Benshemesh (2000); Marchant and Higgins (1993);Garnett and Crowley (2000); Higgins (1999).

Nomenclature for herpetofauna and mammals follows that of the Western Australian Museum Reptile and Frog Checklist and Mammal Checklist (Western Australian Museum 2012c) except where indicated otherwise. Nomenclature for birds follow Christidis and Boles (2008), except where indicated otherwise.

4. RESULTS

4.1. DESKTOP SURVEY RESULTS

Desktop searches of the DEC Threatened and Priority Fauna database, SEWPaC's Protected Matters database, NatureMap, Birddata and the Western Australian Museum are detailed in Appendices 4-8. Table 8 details the results of these database searches.

A search of the WAM databases identified 18 SRE taxa that have the potential to occur in the survey area.

Data from regional literature sources has been collated and presented in Appendix IX.

A total of 16 species of conservation significance have been recorded within 50 kilometres of the survey area. Based on an analysis of regional literature sources and data collected on habitats form this survey, Rapallo anticipates that 11 of these species could occur on the project area.

4.2. HABITATS

Six habitats were identified on the project area as potentially being able to support varying faunal assemblages (Table 9). All habitats generally conformed to the vegetation communities described by Beard (1990) and land systems described by Van Vreeswyk *et al* (2004).

Table 8 List of Species of Conservation Significance that have been recorded within 50 kilometres of the Project Area

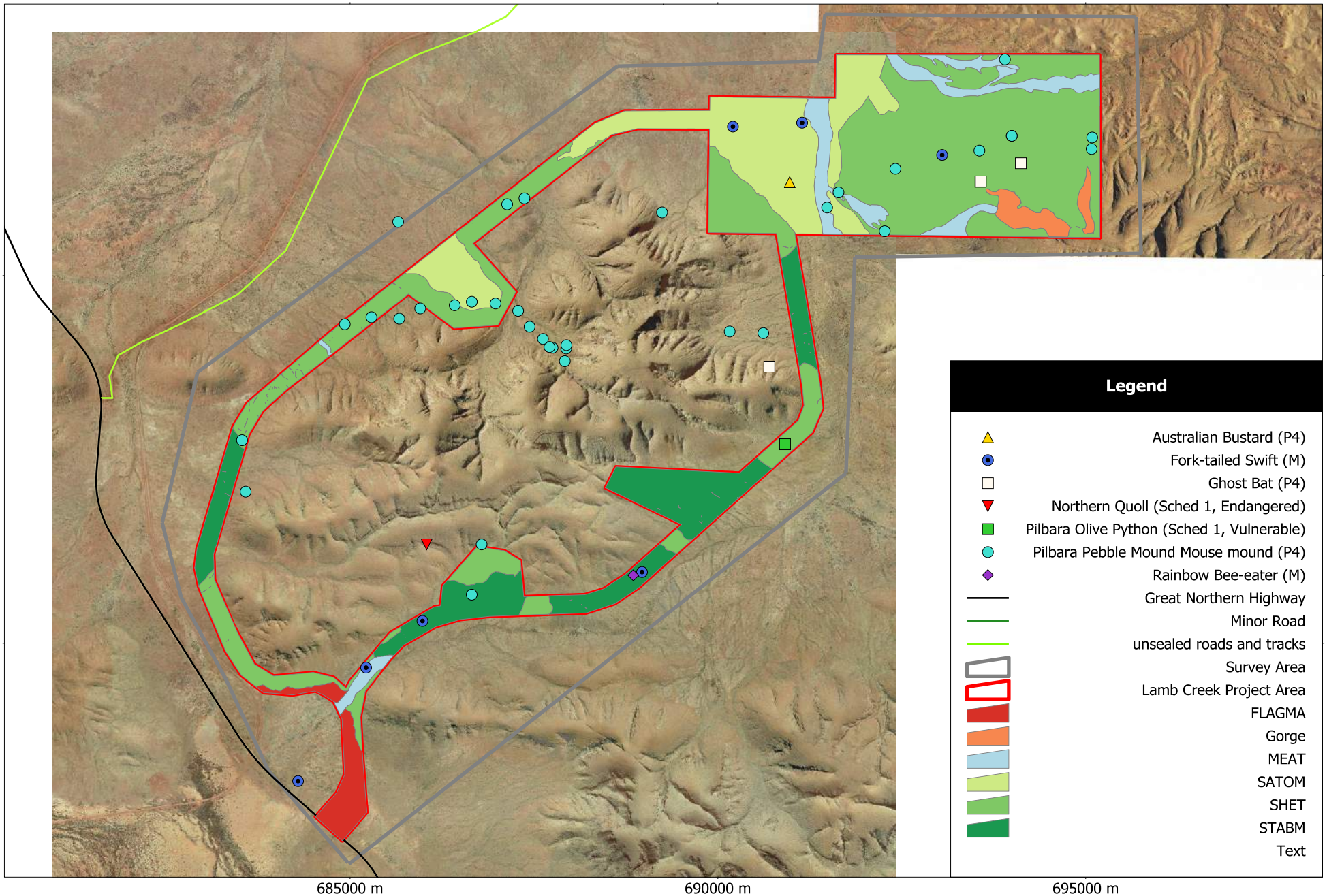
Species	Common Name	Conservation Category		Section	Likelihood of Occurrence
		State	Federal		
Pezoporus occidentalis	**Night Parrot**	Schedule 1 - Species rare or likely to become extinct	Critically Endangered	6.1	**LOW** - Lack of suitable habitat on the project area
Dasyurus hallucatus	**Northern Quoll**	Schedule 1 - Species rare or likely to become extinct	Endangered	6.2	**HIGH** – Suitable habitat occurs on the project area, one individual recorded in the survey area (Figure 8).
Rhinonicteris aurantius	**Orange Leaf-nosed Bat** (Pilbara Population)	Schedule 1 - Species rare or likely to become extinct	Vulnerable	6.3	**MEDIUM –** Suitable habitat near ore body and records from Rio Tinto Area C
Liasis olivaceus barroni	**Pilbara Olive Python**	Schedule 1 - Species rare or likely to become extinct	Vulnerable	6.4	**HIGH** – Suitable habitat occurs on the project area, one individual recorded in the project area (Figure 8).
Falco peregrinus	**Peregrine Falcon**	Schedule 4 - Other specially protected fauna	Not Listed	6.5	**HIGH** – Suitable habitat occurs in the north-east section project area
Ramphotyphlops ganei	**Blind Snake**	Priority 1 – Poorly known taxa	Not Listed	6.6	**MEDIUM** – May occur in moist gullies on the project area.
Psuedomys chapmani	**Western Pebble-mound Mouse**	Priority 4 - Taxa in need of monitoring	Not Listed	6.7	**HIGH** - Suitable habitat, several active Pebble-mounds recorded during survey (Figure 8).
Macroderma gigas	**Ghost Bat**	Priority 4 - Taxa in need of monitoring	Not Listed	6.8	**HIGH** – Suitable habitat present on project area and species was recorded during the survey (Figure 8).
Ardeotis australis	**Australian Bustard**	Priority 4 - Taxa in need of monitoring	Not Listed	6.9	**HIGH** - Suitable habitat occurs on the project area, species recorded during the survey

Species	Common Name	Conservation Category		Section	Likelihood of Occurrence
		State	Federal		
					(Figure 8).
Burhinus grallarius	**Bush Stone-curlew**	Priority 4 - Taxa in need of monitoring	Not Listed	6.10	**MEDIUM** - Suitable habitat occurs on the project area.
Falco hypoleucos	**Grey Falcon**	Priority 4 - Taxa in need of monitoring	Not Listed	6.11	**LOW** - Potential occasional visitor during irruptive events
Merops ornatus	**Rainbow Bee-eater**	Not Listed	Migratory - listed overfly/marine area	6.12	**HIGH** - Suitable habitat on the project area – recorded in one location on the project area during survey (Figure 8).
Ardea modesta	**Eastern Great Egret**	Not Listed	Migratory - wetland species	6.13	**LOW** - Lack of suitable habitat on the project area
Ardea ibis	**Cattle Egret**	Not Listed	Migratory - wetland species	6.14	**LOW** - Lack of suitable habitat on the project area
Charadrius veredus	**Oriental Plover**	Not Listed	Migratory - wetland species	6.15	**LOW** - Lack of suitable habitat on the project area
Apus pacificus	**Fork-tailed Swift**	Not Listed	Migratory - listed overfly/marine area	6.16	**HIGH** – Recorded at several locations during the survey (Figure 8).

Table 9 Habitats found on the project area

Habitat Name	Habitat Code	Land System	Habitat Description	Species of Conservation Significance that could use habitat
Acacia aptaneura over hummock grassland	SATOM	Boolgeeda, Newman	**Vegtation:** *Acacia aptaneura* and/or *Corymbia deserticola* low woodland over *Acacia elechantha* and mixed *Eremophila* species over *Triodia wiseana* very open hummock grassland **Geology, Soil, Landform:** Stony and loamy alluvial plains with occasional, very minor drainage channels	Australian Bustard, Bush Stone-curlew, Fork-tailed Swift, Rainbow Bee-eater,
Minor drainage with *Corymbia*, *Acacia*, *Gossypium* over *Triodia* hummock grassland	MEAT	Boolgeeda, Platform	**Vegtation:** *Corymbia hamersleyana* scattered low trees over *Gossypium robinsonii, Acacia elachantha* tall open shrubland over *Triodia wiseana* hummock grassland and *Eulalia aurea, Eragrostis eriopoda* very open tussock grassland. **Geology, Soil, Landform:** Sandy/stony alluvial drainage, well defined	Rainbow Bee-eater, Australian Bustard, Bush Stone-curlew, Fork-tailed Swift.
Eucalyptus leucophloia leucophloia woodland over mixed shrubs over *Triodia wiseana* grassland	SHET	Newman, Platform, McKay, Platform	**Vegtation:** *Eucalyptus leucophloia* subsp. *leucophloia*, low open woodland over mixed species (typically *Gossypium robinsonii*, *Acacia hilliana*, *Grevillea wickhamii*, *Keraudrenia nephrosperma*) scattered shrubs over *Triodia wiseana* hummock grassland. **Geology, Soil, Landform:** Plateaus, scree slopes, breakaways and minor drainage lines with exposed rock or stony soils	Western Pebble-mound Mouse, Ghost Bat, Pilbara Olive Python, Fork-tailed Swift, Rainbow Bee-eater.
Eucalyptus gamophylla woodland over hummock	STABM	Boolgeeda, Newman,	**Vegtation:** *Eucalyptus gamophylla* low open woodland over *Acacia elachantha* or *Acacia hilliana, Senna glutinosa* subsp. *pruinosa* open shrubland over *Triodia brizoides*,	Western Pebble-mound Mouse, Rainbow Bee-eater, Pilbara Olive Python, Fork-tailed Swift,

Habitat Name	Habitat Code	Land System	Habitat Description	Species of Conservation Significance that could use habitat
grassland			*Triodia wiseana* hummock grassland. **Geology, Soil, Landform:** Scree slopes and stony plains, adjacent to plateaus, with shallow stony soils and occasional, very minor drainage channels	Australian Bustard, Bush Stone-curlew.
Mulga groves	FLAGMA	Boolgeeda, Wannamunna	**Vegtation:** *Acacia aptaneura* low woodland over *Themeda triandra*, *Cymbopogon ambiguus*, *Chrysopogon fallax* open tussock grassland. **Geology, Soil, Landform:** Clay and loam floodplains	Australian Bustard, Rainbow Bee-eater, Bush Stone-curlew, Fork-tailed Swift.
Gorges	GORGE	Newman	**Vegtation:** Open woodland with *Ficus* sp., *Terminalia*, *Brachychiton* sp *Cymbopogon ambiguus*, *Eucalyptus leucophloia* subsp. *leucophloia* over mixed *Gossypium robinsonii*, *Grevillea wickhamii* and *Chrysopogon fallax*. **Geology, Soil, Landform:** Steep sided gorge incised into ironstone plateau	Pilbara Olive Python, Northern Quoll



Rapallo

Original size: A4 Scale: 1:70,000
Datum MGA94(50)

0 2 km

Process Minerals International

Figure 8

Lamb Creek Species of Conservation Significance

4.3. VERTEBRATE FAUNA SURVEY SUMMARY

A total of 8087 fauna records were made during the fauna survey of the Lamb Creek survey area representing 152 species.

4.4. MAMMALS

4.4.1. ASSEMBLAGE

Mammalian fauna was underrepresented for the Lamb Creek survey area with 164 individuals representing 22 species being recorded in total. Of these captures, seven bat species were recorded. Regionally, 42 species have been recorded within a 100km radius of the Lamb Creek project area including six species of conservation significance.

Systematic captures of small mammals were dominated by small Dasyurids which accounted for 64% of all systematic captures on the survey area. The most common species of mammal recorded during the survey was the Stripe-faced Dunnart (*Sminthopsis macroura*) with 35 individuals recorded during systematic trapping and one record from spotlighting surveys. This species was recorded across all habitat types surveyed on the project area.

Mammalian diversity and abundance were highest in the FLAGMA habitat type with six species being recorded while mammal diversity and abundance were lowest in the MEAT habitat type.

A singul record of the Northern Quoll was made from a motion detecting camera during the survey. It was recorded on a camera located in a gorge off the project area but within the survey area, encircled by the proposed haul roads. The Northern Quoll is listed as Endangered under the *EPBC Act* and as Schedule 1 - Species that are rare or likely to become extinct under the *WCA Act*. A single Northern Quoll scat was also found underneath a rocky overhang (Figure 8). Further information on the species is provided in section 6.2.

Several Ghost Bats (*Macroderma gigas*) were also recorded in the survey, including two sighting on the project area (Figure 8). This species is listed by DEC as Priority 4 - Taxa in need of monitoring. Seven individuals were recorded from two caves including one cave situated within the proposed impact area and one in the survey area. Further information on this species is presented in section 6.8.

Evidence the Western Pebble-mound Mouse, listed by DEC as Priority 4 - Taxa in need of monitoring, was also recorded in the survey area. Numerous pebble mounds were recorded across the project area (Figure 8). Further information on this species is presented in section 6.6.

Acoustic analysis of bat calls was conducted by Dr Kyle Armstrong of Specialised Zoological, the results are listed below in Table 11.

Three introduced mammal species were recorded during the survey; domesticated cattle, house mice, and wild dogs/dingoes. The abundance of introduced mammal species was low. The house mice were recorded on the FLAGMA floodplains while Cattle observations were confined to drainage related habitats. Only secondary signs of wild dogs/dingoes (tracks) were recorded.

Table 10 Mammal records from the Lamb Creek survey area

Common Name	Scientific Name	SATOM	MEAT	SHET	FLAGMA	STABM	QUOLL TRAPS	OPP	FORAGE/ SPOTLIGHTING /MDC	TOTAL
Echidna	*Tachyglossus aculeatus*								*	*****
Northern Quoll	*Dasyurus hallucatus*								**1,***	**1**
Little Red Kaluta	*Dasykaluta rosamondae*	15	1		1	3				**20**
Long-tailed Planigale	*Planigale ingrami*			4	2				1	**7**
Pilbara Ningaui	*Ningaui timealeyi*			6		5				**11**
Stripe-faced Dunnart	*Sminthopsis macroura*	4	4	2	14	11			1	**36**
Euro	*Macropus robustus*								10	**10**
Rothschild's Rock-wallaby	*Petrogale rothschildi*						2	(2)	1	**3(2)**
Ghost Bat	*Macroderma gigas*								7	**7**
Common Sheath-tailed Bat	*Taphozous georgianus*								20	**20**
Finlayson's Cave Bat	*Vespadelus finlaysoni*								4	**4**
Western Pebble-mound Mouse	*Pseudomys chapmani*								35*	**35***
Desert Mouse	*Pseudomys desertor*	2	1		2	1				**6**

Common Name	Scientific Name	SATOM	MEAT	SHET	FLAGMA	STABM	QUOLL TRAPS	OPP	FORAGE/ SPOTLIGHTING /MDC	TOTAL
Sandy Inland Mouse	*Pseudomys hermannsburgensis*	7	3	1	8	7				**26**
Common Rock Rat	*Zyzomys argurus*						1			**1**
House Mouse – Intr.	*Mus musculus*				2					**2**
Dingo/Dog	*Canis lupis dingo/familiaris*								*	*
Cattle – Intr.	*Bos taurus*							10		**10**
TOTAL NUMBERS		**28**	**9**	**13**	**29**	**27**	**3**	**10(2)**	**44**	**164(2)**

*Secondary signs – no individual animals trapped or observed in survey area

Table 11 Acoustic Analysis of bat calls from the Lamb Creek Survey area

Species	s,p[1]	Duration (msec)	Max Frequency (kHz)	Char frequency (kHz)
Gould's wattled bat	1,10	6.0 ± 1.3	39.6 ± 3.5	30.7 ± 0.7
Chalinolobus gouldii		4.2 – 7.6	34.6 – 44.9	29.9 – 31.9
Northern free-tailed bat	1,5	7.1 ± 1.7	31.7 ± 3.4	20.9 ± 2.1
Chaerephon jobensis		4.9 – 8.9	28.0 – 35.9	18.5 – 23.8
Yellow-bellied sheath-tailed bat	1,4	15.8 ± 2.6	20.9 ± 0.6	17.5 ± 0.2
Saccolaimus flaviventris		12.4 – 17.9	20.1 – 21.3	17.2 – 17.6
Little broad-nosed bat	1,11	5.9 ± 0.8	50.4 ± 5.8	36.1 ± 0.6
Scotorepens greyii		4.1 – 7.2	41.2 – 59.3	34.6 – 36.9
Common sheath-tailed bat	1,14	8.9 ± 1.5	27.4 ± 0.5	24.7 ± 0.3
Taphozous georgianus		6.6 – 10.5	26.9 – 28.7	24.2 – 25.2
Finlayson's cave bat	3,35	4.1 ± 1.0	72.5 ± 10.0	57.5 ± 1.3
Vespadelus finlaysoni		3.0 – 7.9	58.6 – 90.9	55.4 – 59.9

(Mean ± SD; range; [1] s,p: number of sequences measured, combined total number of pulses measured).

4.4.2. SPECIES ACCUMULATION CURVE AND SPECIES RICHNESS ESTIMATES

The species accumulation curve in Figure 9 indicates a flattening as it approaches the theoretical asymptote of 6.98 species. The geometry of the curve indicates few, if any trappable mammal species remain undetected in the habitat types surveyed in the survey area.

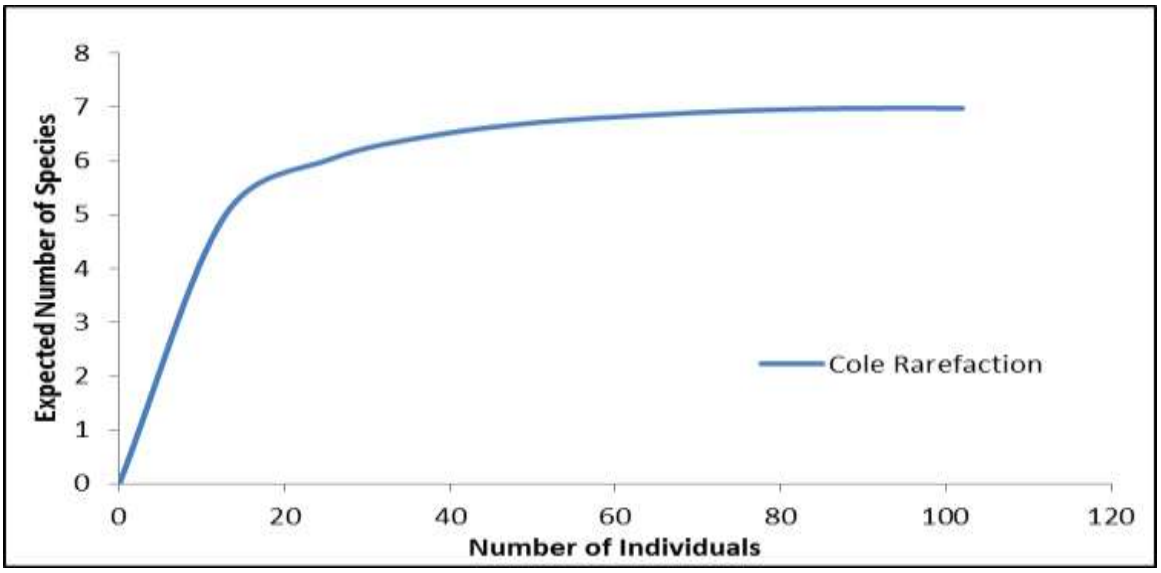


Figure 9 Individual based rarefaction curve for mammal species surveyed using systematic techniques

Based on the data collected during the survey and non-parametric analysis of species richness, between six and seven species could occur in the habitats in the survey area (Table 12).

Table 12 Observed and estimated non-volant mammal species richness

Type	Species Richness
Trapped Non-volant Mammal Species	7
ACE Mean	7
Jackknife1 Mean	7
ICE Mean	7
Chao1 Mean	7

4.5. REPTILES AND AMPHIBIANS

4.5.1. ASSEMBLAGE

Analysis of regional reports and databases indicate that 98 reptile species and five frog species could potentially occur within the project area at Lamb Creek.

Reptile records were high during the survey period with a total of 58 species observed from 782 records. The reptile assemblage comprised 13 species of Gecko, five species of Pygopods, 18 species of Skinks, six species of Agamids, seven Elapid species, seven Varanid species and two species of Pythons. Table 13 details the reptile species recorded by habitat during the survey.

The most common species recorded were *Ctenophorus caudicinctus* (n=108), with the majority of records coming from foraging and opportunistic recordings followed by *Lucasium stenodactylum* (n=107) which was predominantly found from systematic records. These species were recorded across all five habitat types that were systematically surveyed and foraged.

The majority of species records were from systematic surveys (n=449) with the remainder being found opportunistically (n=146) or while foraging/spotlighting (n=186).

Species richness for reptiles was generally consistent across the five habitat types surveyed. Reptile species richness was found to be highest in the MEAT (n=25) habitat type while reptile abundance was found to be highest across the SATOM habitat type (n=182). Reptile species richness was lowest on the STABM habitat type (n=21) with reptile abundance being lowest on the FLAGMA habitat type.

One reptile species of conservation significance was recorded during the survey. The Pilbara Olive Python is listed by DEC under the *Wildlife Conservation Act 1950* as Schedule 1 – Species that are rare or likely to become extinct. The species is also listed under the *EPBC Act* as Vulnerable. One opportunistic record of this species was made along the southern haul road option in the STABM habitat type. Further information on this species can be found in section 6.4.

Amphibian diversity was low across the whole survey area with only two species recorded during the survey. Of those two species only one, *Cyclorana maini*, was found to be abundant with over 800 individuals recorded during systematic surveys. Of these records, 706 were recorded from the FLAGMA habitat type. The second species recorded on the survey area, *Litoria rubella*, was found in much lower numbers during systematic surveys (n=2).

Table 14 details the amphibians recorded by habitat during the survey.

Table 13 Reptiles recorded from the Lamb Creek survey area.

Common Name	Scientific Name	SATOM	MEAT	SHET	FLAGMA	STABM	OPP	FORAGE/ SPOTLIGHTING	TOTAL
Clawless Gecko	*Crenadactylus ocellatus*		1						**1**
Fat-tailed Gecko	*Diplodactylus conspicillatus*			1					**1**
	Diplodactylus pulcher		1		1		1		**3**
	Diplodactylus savagei			2				1	**3**
	Gehyra punctata						(1)	60	**60(1)**
Tree Dtella	*Gehyra variegata*	17	2	5	2	2		2	**30**
Bynoe's Gecko	*Heteronotia binoei*	4	1	6	2	5			**18**
Sand-plain Gecko	*Lucasium stenodactylum*	46	20	2	5	9	25		**107**
	Lucasium wombeyi	7				1			**8**
Banded Knob-tailed Gecko	*Nephrurus wheeleri*							2	**2**
Marbled Velvet Gecko	*Oedura marmorata*						(1)	20	**20(1)**
Beaked Gecko	*Rhynchoedura ornata*	24	5	2	8	2	25		**66**
	Strophurus wellingtonae				1	1	2		**4**
	Delma elegans		1		1		1		**3**
	Delma nasuta			1	1				**2**
Excitable Delma	*Delma tincta*				1				**1**
Burtons Legless Lizard	*Lialis burtonis*	1	1	1					**3**
Western Hooded Scaly-	*Pygopus nigriceps*	1			1				**2**

Common Name	Scientific Name	SATOM	MEAT	SHET	FLAGMA	STABM	OPP	FORAGE/ SPOTLIGHTING	TOTAL
foot									
	Carlia munda	4	1		5	1			**11**
	Cryptoblepharus ustulatus						45		**45**
	Ctenotus duricola	1	2	6		1			**10**
Clay-soil Ctenotus	*Ctenotus helenae*	16	5		8	5			**34**
Leopard Ctenotus	*Ctenotus pantherinus*	24	4	3	3	3			**37**
	Ctenotus rubicundus		1	4		1			**6**
	Ctenotus rutilans			3		1			**4**
Rock Ctenotus	*Ctenotus saxatilis*	3	2	11	1	10			**27**
	Ctenotus schomburgkii	1	3						**4**
	Ctenotus uber					1			**1**
Spinifex Slender Bluetongue	*Cyclodomorphus melanops*	3			3				**6**
	Egernia cygnitos						1		**1**
	Egernia formosa						2	3	**5**
	Lerista muelleri	3				1			**4**
	Lerista zietzi							2	**2**
	Menetia greyii							2	**2**
	Morethia ruficauda subsp. *exquisita*			1			(1)	1	**2(1)**
Centralian Blue-tongue	*Tiliqua multifasciata*	1	1		3				**5**

Common Name	Scientific Name	SATOM	MEAT	SHET	FLAGMA	STABM	OPP	FORAGE/ SPOTLIGHTING	TOTAL
Long-nosed Dragon	*Amphibolurus longirostris*	1	4						**5**
Mulga Dragon	*Caimanops amphiboluroides*				1		1		**2**
	Diporiphora valens				2				**2**
Ring-tailed Dragon	*Ctenophorus caudicinctus*	8	2	8	3	17	20	50	**108**
Military Dragon	*Ctenophorus isolepis*	14	2		3	2	15	40	**76**
Dwarf Bearded Dragon	*Pogona minor*		1			1		1	**3**
Spiny-tailed Monitor	*Varanus acanthurus*		3	11					**14**
Short-tailed Pygmy Monitor	*Varanus brevicauda*	3	3			3			**9**
Bush's Pygmy Monitor	*Varanus bushi*	1					1		**2**
Perentie	*Varanus giganteus*						2	1	**3**
Yellow-spotted Monitor	*Varanus panoptes*						1		**1**
Pilbara Rock Monitor	*Varanus pilbarensis*						3		**3**
Black-headed Monitor	*Varanus tristis*		3	1			(1)		**4(1)**
Pygmy Python	*Antaresia perthensis*							1	**1**
Pilbara Olive Python	*Liasis olivaceus*						1		**1**
Yellow-faced Whipsnake	*Demansia psammophis*	1	1			1			**3**
Monk Snake	*Parasuta monachus*			2					**2**
Mulga Snake	*Pseudechis australis*		1	1	1				**3**
Mengden's Brown Snake	*Pseudonaja mengdeni*						(1)		**(1)**

Common Name	Scientific Name	SATOM	MEAT	SHET	FLAGMA	STABM	OPP	FORAGE/ SPOTLIGHTING	TOTAL
Ringed Brown Snake	*Pseudonaja modesta*					1			**1**
Rosen's Snake	*Suta fasciata*	1		1					**2**
Pilbara Bandy Bandy	*Vermicella snelli*			1					**1**
TOTAL		**182**	**70**	**73**	**56**	**69**	**146(5)**	**186**	**782(5)**

*Species records in parentheses were recorded during the reconnaissance survey.

Table 14 Amphibian records from the Lamb Creek survey area.

Common Name	Scientific Name	SATOM	MEAT	SHET	FLAGMA	STABM	OPP	FORAGE/ SPOTLIGHTING	TOTAL
Sheep Frog	*Cyclorana maini*	7	81	3	706	7			**804**
Desert Tree Frog	*Litoria rubella*		2				2		**4**
TOTAL		**7**	**83**	**3**	**706**	**7**	**2**		**808**

4.5.2. SPECIES ACCUMULATION CURVE AND SPECIES RICHNESS ESTIMATES

The reptile species accumulation curve shown in Figure 10 appears to be increasing as it approaches the theoretical asymptote. This indicates that several species may have remained undetected during the survey. The results of the asymptote calculation have potentially been influenced by a large number of species recorded either once or twice during the survey.

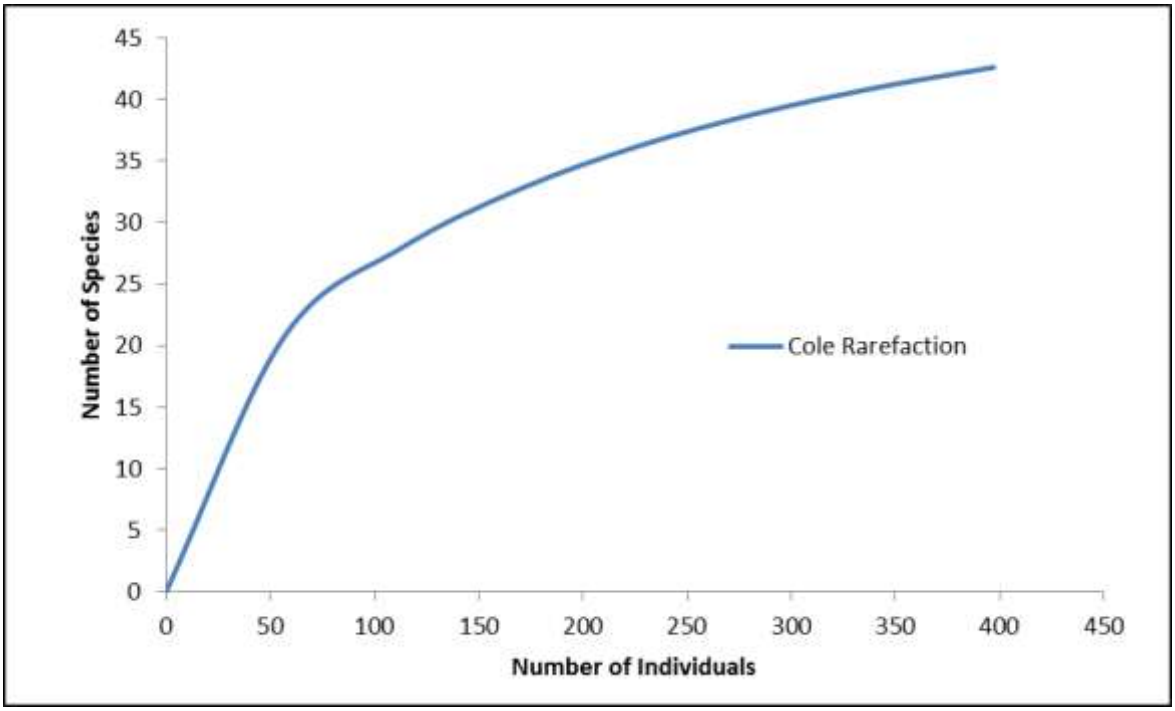


Figure 10 Individual based rarefaction curve (species accumulation curve) for reptile species surveyed using systematic techniques.

Based on observed data and non-paramentric estimators, between 49.63 and 57.06 species could occur in habitats on the survey area (Table 15).

Table 15 Observed and estimated reptile species richness

Type	Species Richness
Trapped reptile Species	44
ACE Mean	56.14
Jackknife1 Mean	53.63
ICE Mean	57.06
Chao1 Mean	49.63

4.6. BIRDS

4.6.1. ASSEMBLAGE

Avifauna was the most commonly observed fauna group during the survey with a total of 76 species recorded from 7145 records (Table 16). The majority of species were recorded during systematic surveys (n=67) while the remaining six species were recorded opportunistically or during spotlight surveys. Bird diversity was lower than expected as 148 species have been recorded within the region. However, suitable habitat for many of those species, namely waders and other aquatic birds, is lacking on the project area

The highest bird diversity (n=47) was recorded in the STABM habitat type while the bird abundance was highest in the FLAGMA habitat type. Avifauna abundance was highest in the FLAGMA habitat type due to several large flocks of irruptive species such as Budgerigars and Zebra Finches at the site. The lowest abundance and diversity was recorded in the SHET habitat type, probably reflecting this habitats low botanical diversity.

The most commonly recorded species during the survey were irruptive species such as the Budgerigar, Zebra Finch and Diamond Dove with flocks in excess of 100 regularly recorded. Generalist honeyeaters also dominated the bird assemblage (Table 16).

Three bird species of conservation significance were recorded during the survey. The Australian Bustard is listed by DEC as Priority 4 – Taxa in need of monitoring. Three records were made during the survey; an adult and chick were recorded at dusk within the impact area while the chick was recorded again the following day. It is likely that these were the same individuals that were recorded several nights later along an access road bordering the impact area.

The Fork-tailed Swift is listed under the *EPBC Act* as Migratory. This species was recorded at seven sites during systematic surveys and opportunistically across the survey area (Figure 8).

The Rainbow Bee-eater is listed under the *EPBC Act* as Migratory. One individual of this species was recorded during systematic surveys on the project area in the STABM habitat type (Figure 8).

Further information on the ecology and conservation significance of these species can be found in section 6.

Table 16 Avifauna records from the Lambs Creek survey area.

Common Name	Scientific Name	SATOM	MEAT	SHET	FLAGMA	STABM	FORAGE/ SPOTLIGHT	OPP	TOTAL
Common Bronzewing	*Phaps chalcoptera*		3	1		2			**6**
Crested Pigeon	*Ocyphaps lophotes*	13	5	2	3	21			**44**
Diamond Dove	*Geopelia cuneata*	40	200	12	169	27			**448**
Spinifex Pigeon	*Geophaps plumifera*							6	**6**
Tawny Frogmouth	*Podargus strigoides*						2		**2**
Spotted Nightjar	*Eurostopodus argus*							2	**2**
Australian Owlet-nightjar	*Aegotheles cristatus*							4	**4**
Fork-tailed Swift	*Apus pacificus*	25	5	2	100	10			**142**
White-faced Heron	*Ardea novaehollandiae*				1				**1**
Black-shouldered kite	*Elanus axillaris*		4			2			**6**
Black-breasted Buzzard	*Hamirostra melanosternon*							1	**1**
Whistling Kite	*Haliastur sphenurus*				2				**2**
Black Kite	*Milvus migrans*				3				**3**
Brown Goshawk	*Accipiter fasciatus*	1	1		1				**3**
Collared Sparrowhawk	*Accipiter cirrocephalus*				1				**1**
Spotted Harrier	*Circus assimilis*							4	**4**
Wedge-tailed Eagle	*Aquila audax*							2	**2**
Little Eagle	*Aquila morphnoides*	1							**1**
Australian Hobby	*Falco longipennis*							1	**1**

Common Name	Scientific Name	SATOM	MEAT	SHET	FLAGMA	STABM	FORAGE/ SPOTLIGHT	OPP	TOTAL
Brown Falcon	*Falco berigora*	4	1	5	3				**13**
Nankeen Kestrel	*Falco cenchroides*					1			**1**
Australian Bustard	*Ardeotis australis*							4	**4**
Little Button Quail	*Turnix velox*	9	26	4	7	4			**50**
Galah	*Cacatua roseicapilla*				1	6			**7**
Cockatiel	*Nymphicus hollandicus*	29	27	4	11				**71**
Australian Ringneck	*Platycercus zonarius*	2	2	2		6			**12**
Budgerigar	*Melopsittacus undulatus*	570	545	462	1106	460			**3143**
Horsfield's Bronze-cuckoo	*Chrysococcyx basalis*	1	1			2			**4**
Pallid Cuckoo	*Cuculus pallidus*	1	5	1	1	2			**10**
Boobook Owl	*Ninox novaeseelandiae*						1		**1**
Red-backed Kingfisher	*Todiramphus pyrrhopygius*	1		1	3	1			**6**
Rainbow Bee-eater	*Merops ornatus*					1			**1**
Western Bowerbird	*Ptilonorhynchus guttatus*					3			**3**
Variegated Fairy Wren	*Malurus lamberti*		1		8				**9**
Weebill	*Smicrornis brevirostris*	8	43	13	11	18			**93**
Western Gerygone	*Gerygone fusca*		3		5				**8**
Chestnut-rumped Thornbill	*Acanthiza uropygialis*				4				**4**
Inland Thornbill	*Acanthiza apicalis*		2		2				**4**
Red-browed Pardalote	*Pardalotus rubricatus*	1	2	2					**5**

Common Name	Scientific Name	SATOM	MEAT	SHET	FLAGMA	STABM	FORAGE/ SPOTLIGHT	OPP	TOTAL
Pied Honeyeater	*Certhionyx variegatus*	3						3	**6**
Singing Honeyeater	*Lichenostomus virescens*	19	19	5	19	13			**75**
Grey-headed Honeyeater	*Lichenostomus keartlandi*	21	20	12	2	25			**80**
White-plumed Honeyeater	*Lichenostomus ornatus*	5	16	1		1			**23**
White-fronted Honeyeater	*Prunella albifrons*	15	17	1		7			**40**
Yellow-throated Miner	*Manorina flavigula*	1	16	9		29			**55**
Spiny Cheeked Honeyeater	*Acanthagenys rufogularis*	15	14		22	5			**56**
Grey Honeyeater	*Conopophila whitei*	1			3				**4**
Crimson Chat	*Epthianura tricolor*	45	3	36	27	54			**165**
Black Honeyeater	*Certhionyx niger*	28	4	60	3	26			**121**
Brown Honeyeater	*Lichmera indistincta*		73	22		24			**119**
Black-chinned Honeyeater	*Melithreptus gularis*		6	2	2	9			**19**
Grey-crowned Babbler	*Pomatostomus temporalis*	5	3		19	6			**33**
Ground Cuckoo-shrike	*Coracina maxima*				2			2	**4**
Black-faced Cuckoo Shrike	*Coracina novaehollandiae*	2	9	2	11	5			**29**
White-winged Triller	*Lalage tricolor*	31	20	11	35	10			**107**
Rufous Whistler	*Pachycephala rufiventris*	4	13	3	14	6			**40**
Grey Shrike-thrush	*Colluricincla harmonica*					1			**1**
Crested Bellbird	*Oreoica gutturalis*	15	8	4	11	17			**55**
Masked Woodswallow	*Artamus personatus*	71	1	171	153	12			**408**
Black-faced Woodswallow	*Artamus cinereus*	6		1	33	3			**43**

Common Name	Scientific Name	SATOM	MEAT	SHET	FLAGMA	STABM	FORAGE/ SPOTLIGHT	OPP	TOTAL
Little Woodswallow	*Artamus minor*			1					**1**
Grey Butcherbird	*Cracticus torquatus*	1	1		2	1			**5**
Pied Butcherbird	*Cracticus nigrogularis*	4	1	1	2	4			**12**
Australian Magpie	*Cracticus tibicen*		2			5			**7**
Willie Wagtail	*Rhipidura leucophrys*	5	10	1	12	10			**38**
Australian Raven	*Corvus coronoides*	1							**1**
Little Crow	*Corvus bennetti*	1			1	2			**4**
Torresian Crow	*Corvus orru*	10	4		2	3			**19**
Magpie Lark	*Grallina cyanoleuca*	2							**2**
Hooded Robin	*Petroica cucullata*	1			7	10			**18**
Brown Songlark	*Cincloramphus cruralis*		1	1	2	1			**5**
Rufous Songlark	*Cincloramphus mathewsi*	6	1		12	2			**21**
Spinifexbird	*Eremiornis carteri*	12		4	6	3			**25**
Mistletoebird	*Dicaeum hirundinaceum*					2			**2**
Zebra Finch	*Taeniopygia guttata*	235	301	276	381	136			**1329**
Painted Finch	*Emblema pictum*		2	38	2	3			**45**
TOTAL		**1271(43)**	**1441(43)**	**1173(35)**	**2227(47)**	**1001(47)**	**3**	**29(6)**	**7145**

4.6.2. SPECIES ACCUMULATION CURVE AND SPECIES RICHNESS ESTIMATES

The species accumulation curve in Figure 11 shows that the curve fails to flatten as it reaches the theoretical asymptote. The geometry of the curve indicates that it is likely that further bird species remain undetected in the habitat types surveyed utilising 2 hectare bird surveys.

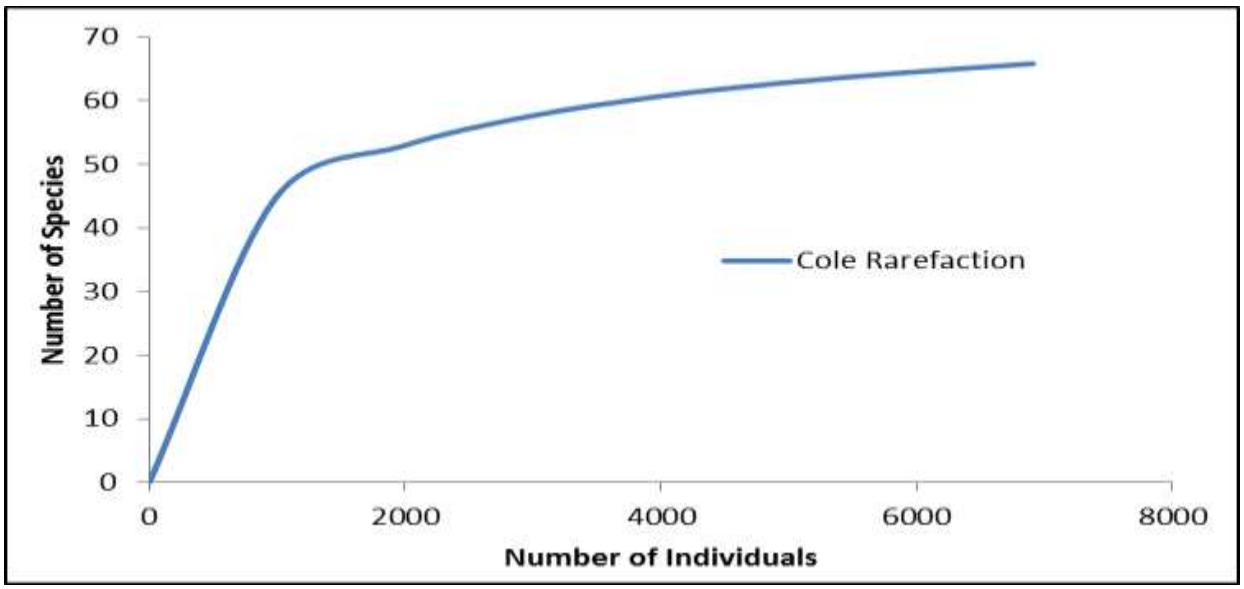


Figure 11 Individual based rarefaction curve (species accumulation curve) for bird species surveyed using utilising two hectare bird surveys.

The discrepancy between the number of species recorded during the two hectare bird surveys and the theoretical asymptote can be accounted for by the addition of opportunistic bird records. The total avian assemblage recorded during the survey of 76 species suggests that the combined datasets are close to the actual number of avian species utilising the survey area during the season.

Estimates of species richness for avifauna are prone to errors. The major cause of the error is the highly mobile or migratory nature of bird species. Thus, species richness calculations can only be used to deduce the survey effort at a seasonal time scale rather than an annual time scale.

Based on observed data and non-parametric estimators, between 77.5 and 99.37 species could occur in habitats on the project area, (Table 17).

Table 17 Observed and estimated avifauna species richness

Type	Species Richness
Recorded Avian Species	67
ACE Mean	81.63
Jackknife1 Mean	77.5
ICE Mean	79.55
Chao1 Mean	99.37

4.7. SHORT RANGE ENDEMICS

A total of 37 specimens were submitted for identification and assessment of SRE status with taxonomists of the WAM, Phoenix and Scorpion ID.

Nine mollusc specimens were submitted for identification. Taxonomic identifications suggest that the samples represented three species but none were found to be potential SRE taxa (Appendix 10).

The other 28 specimens comprised three spider species, including two mygalomorphs; four pseudoscorpion species; one centipede species, one millipede species, two slater species and 3 scorpion species.

Of the 14 taxa identified, 6 were identified as potential SRE and one was identified as a likely SRE (Appendix XII). Results of taxonomic identifications are summarised in Table 18 and discussed in detail in section .

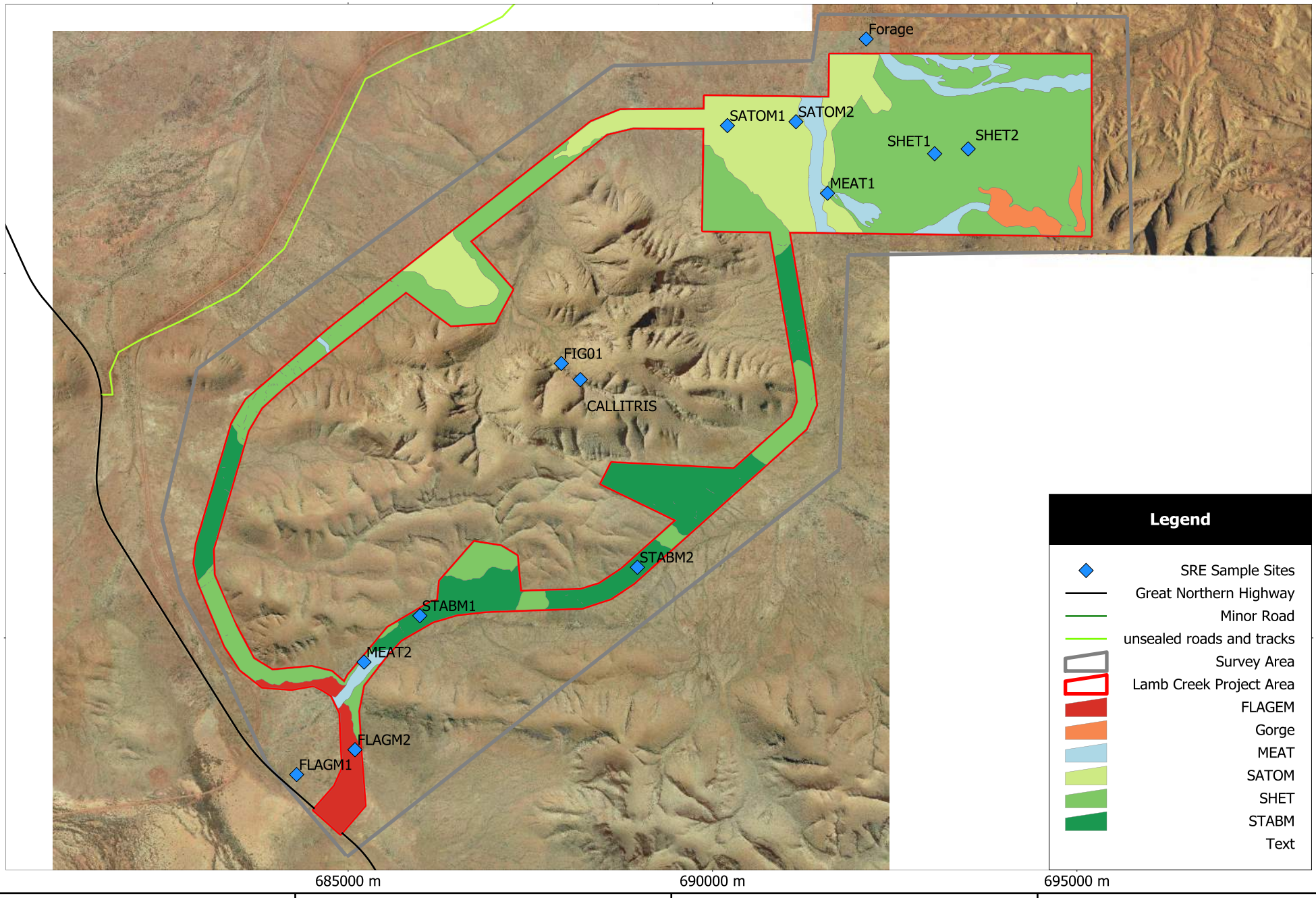
Table 18 Summary of the SRE status of taxa collected in the survey and submitted for identification

Higher taxon	Family	Species	SRE status	Remarks	Record Site
Mollusca	Bulimulidae	*Bothriembryon* sp. nov.	Not SRE	Undescribed widespread species	Gorge
	Pupillidae	*Pupoides beltianus*	Not SRE	Widespread species	STABM 2, Forage
		Gastrocopta cf. *mussoni*	Not SRE	Widespread species	Ficus, MEAT2
Araneomorphae (modern spiders)	Zodariidae	*Zodariidae* sp. indet.	Not SRE	Not SRE target group	SHET 2
Mygalomorphae (trapdoor spiders)	Barychelidae	*Aurecocrypta* 'MYG057'	Not SRE	Widespread in Pilbara	STABM1
		Synothele 'MYG255'	Potential	First record of species	STABM2
Pseudoscorpiones (pseudoscorpions)	Atemnidae	*Oratemnus* sp. indet.	Not SRE	Commonly collected in Pilbara, not considered SRE	FLAGMA2
	Cheiridiidae	*Cheiridiidae* sp. indet.	Not SRE	Commonly collected in Pilbara, not considered SRE	SHET2
	Chthoniidae	*Austrochthonius* 'pilbara'	Potential	Possibly representing species complex, under revision at WAM	STABM2
	Olpiidae	*Beierolpium* '8/2' *Beierolpium* sp. indet.	Not SRE	Commonly collected in Pilbara, not considered SRE	SHET1 & 2, STABM2

Chilopoda - Geophilomorpha (soil centipedes)	indet.	*Geophilomorpha* sp. indet.	Potential	Taxonomically poorly resolved	STABM2
Diplopoda - Spirobolida (millipedes)	Triguniulidae	*Austrostrophus* sp. indet.	Potential	May represent *Austrostrophus* 'DIP018', currently considered potential SRE	STABM2
Isopoda	Armadillidae	*Buddelundia* '13'	Potential	Possibly also found at Wonmunna mining lease	FLAGMA2
		Spherillo sp. indet.	Likely	Rarely found in the Pilbara	STABM2
Scorpiones (Scorpions)	Buthidae	*Lychas* 'harveyi'	Not SRE	Widespread in Pilbara	SHET, STABM1
		Lychas 'pilbara1'	Not SRE	Widespread in Pilbara	SHET, STABM1
	Urodacidae	*Urodacus* sp. indet	Potential SRE	Habitat may support SRE species.	FLAGMA 2

4.8. TARGETED NORTHERN QUOLL SURVEY

Three hundred cage trap nights were sampled during the Target Northern Quoll Survey, representing six sites of ten cages left open for 5 nights. No Northern Quolls were captured.



Rapallo

Original size: A4 Scale: 1:70,000
Datum MGA94(50)

0 2 km

Process Minerals International

Figure 12

Lamb Creek SRE Sample Sites

5. DISCUSSION

5.1. HABITATS

Flora surveys of the Lamb Creek project area conducted by Rapallo (2012) identified six vegetation associations. The vegetation associations roughly match the habitats identified in this survey, with some small variations. In total, six habitats were identified (Table 9). All habitats generally conformed to the habitats described by Beard (1990) and Van Vreeswyk et al. (2004).

The habitats of the project area were all typical of the Pilbara bio-region, especially its expression in the south eastern areas of the Pilbara and on the south eastern edge of the Hamersley Range. No Priority Ecological Communities (PEC) or Threatened Ecological Communities (TEC) occur within 50 km of the project area (DEC 2012b).

Low plains and alluvial deposits dominated the majority of the project area with *Eucalyptus* woodland over hummock grassland covering 46% of the project area (SATOM). The habitat type is considered to be wide spread throughout the Pilbara.

The south-western section of the haul road alignment consists of a broad shallow drainage valley that supports *Acacia aptaneura* low woodland over *Themeda triandra, Cymbopogon ambiguus, Chrysopogon fallax* open tussock grassland (FLAGMA). Several SRE specimens were collected from this habitat type. This habitat type occurs on approximately 3% of the Lamb Creek project area.

At the fringes of the valley, steep sided gullies and gorges associated with rocky breakaways and outcrops with *Eucalyptus leucophloia* subsp. *leucophloia* woodland over mixed shrubs over *Triodia wiseana* grassland becoming the dominant habitat type (GORGE, STABM and SHET). This habitat occurs on 25% of the project area. The remaining sections of the haul road are flat plains with alluvial deposits and dominant vegetation types include *Triodia* grassland, mixed acacia shrublands and mulga woodlands over perennial grasslands. Several SRE specimens, Western Pebble-mound Mouse mounds and a record of the Pilbara Olive Python were collected from these habitat types.

Defined, ephemeral drainage systems dissect the valley and plains along the haul road alignment (MEAT). Larger drainage systems support tall *Corymbia* trees (>10 meters) and thick *Acacia* shrublands. Some drainage systems, particularly the north-eastern portions of the project area have been heavily degraded by cattle grazing and weeds are present. Buffel grass (**Cenchrus ciliaris*), an introduced grass species, was present in much of the degraded areas and sparsely in some of the less impacted habitat areas.

5.2. MAMMALS

The mammal species recorded during the survey are typical of mammalian fauna assemblages in the Pilbara region.

A discussion of the regional mammal records and records collected during the survey are presented below. Appendix XI contains the data recorded using ANABAT software to record ultrasonic calls.

5.2.1. FAMILY DASYURIDAE (CARNIVOROUS MARSUPIALS)

Five species of the family Dasyuridae were recorded during the survey of the Lamb Creek project area. The family Dasyuridae comprised 64% of the total mammal captures on the survey area.

The Little Red Kaluta (*Dasykaluta rosamondae*) was recorded 20 times during the survey. This species is endemic to the Pilbara region and typically occurs amongst spinifex-hummock grasslands on sandy, stony or clay plains. This species has also been recorded in stony-hill country (Van Dyck & Strahan 2008; Menkhorst & Knight 2011)

The Long-tailed Planigale (*Planigale ingrami*) was recorded six times during the survey in the SHET and FLAGMA habitat types. The distribution of the species in the Pilbara is highly isolated from other northern populations (Van Dyck & Strahan 2008).

The Stripe-faced Dunnart (*Sminthopsis macroura*) was the most common species of mammal recorded during the survey with 36 individuals. This species is most commonly found on sandy substrates but is often found on cracking clay and stony plains with associated hummock and tussock grassland and arid shrublands (Menkhorst & Knight 2011).

The Northern Quoll (*Dasyurus hallucatus*) is listed as Endangered under the *EPBC Act*. In the Pilbara, Northern Quolls typically use a variety of rocky formations for denning and foraging (Van Dyck & Strahan 2008; Rapallo Environmental 2010). The Northern Quoll was not recorded in cage traps during the survey however an individual was recorded on a motion detecting camera during the survey. A Northern Quoll scat was also found underneath a rocky overhang. Subsequent trapping at this site did not reveal any further evidence of Northern Quolls. Further information on the ecology and conservation significance of this species can be found in Section 6.1.

5.2.2. FAMILY MACROPODIDAE

One species of kangaroo and one species of wallaby were recorded during the survey.

The Euro (*Macropus robustus*) was recorded several times during the survey, from direct opportunistic sightings and on a motion detecting cameras. This species is found throughout the Pilbara, with a wider distribution across almost all of Western Australia, excluding the Nullarbor and South-West regions (Van Dyck & Strahan 2008; Menkhorst & Knight 2011).The Euro typically shows preferences for rocky regions and outcrops but can occur in most habitat types. They are distinguished from other large kangaroo species by their shaggy coat; shorter, stockier proportions and bare rhinarium. Records of this species are common within 40 km of the project area (DEC 2012c).

Rothschild's Rock Wallaby (*Petrogale rothschildsii*) was recorded two times during the Targeted Northern Quoll Survey. Additional records were made of individuals on motion detecting cameras and while spotlighting. This species is a Pilbara endemic utilising rocky ridges of the Hamersley and Chichester ranges. Throughout Australia, rock wallabies have declined in abundance and distribution. Current data suggests this species has not suffered similar extensive declines (Van Dyck & Strahan 2008; Menkhorst & Knight 2011).

5.2.3. FAMILY MURIDAE (RODENTS)

Five species from the family Muridae were recorded during the survey. Four species were recorded during systematic trapping while evidence of a single species was recorded during foraging transects.

The Desert Mouse (*Pseudomys desertor*) is widely distributed across arid Australia and is locally common where it does occur. Like the Sandy Inland Mouse, populations are known to respond to large rainfall events, after which they can become extremely common (Dickman *et al.* 1999). This species is often recorded and there are several records within 40 km of the project area (DEC 2012c).

The Sandy Inland Mouse (*Pseudomys hermannsburgensis*) is a widely distributed rodent species that is characteristic of the arid interior. It is an irruptive species with populations responding to increased levels of seed produced after large rainfall events (Van Dyck & Strahan 2008).The species can become extremely common during such irruptive seasons (Dickman *et al.* 1999). In the Pilbara, The Sandy Inland Mouse is common and frequently recorded. It is well represented in regional records, being recorded several times within 40km of the project area (DEC 2012c).

The Common Rock Rat (*Zyzomys argurus*) is a wide ranging species that occurs in disjunct populations through northern Australia. This species is frequently recorded throughout the Pilbara and is well represented regionally, being recorded within 40 km of the project area (DEC 2012c). Although primarily found on rocky outcrops and in areas of complex rock formations, this species is reported to use extensive rocky plains and slopes between outcrops as either foraging habitat or during dispersal (Van Dyck & Strahan 2008). A single individual was recorded during the survey.

The Western Pebble Mound Mouse (*Pseudomys chapmani*) is listed by DEC as Priority 4- taxa in need of monitoring. This species builds large prominent mounds that were recorded at 35 locations during the survey, typically in the low sloping, stony foothills. Occupation of the mounds can be determined by the structure of the entrances. Most mounds located during the survey were deemed to be active. Further information on the ecology and conservation significance of this species is provided in Section 6.2.5.

The introduced House Mouse (*Mus musculus*) was recorded twice during the survey. Although typically found close to human habitation they are known to utilise most habitat types within Australia and are often found in remote locations.

5.2.4. FAMILY CANIDAE

Two species of Canid could potentially occur on the project area. The Red Fox (*Vulpes vulpes*) and the Dingo/Feral Dog (*Canis lupus dingo/familiaris*) are both found in the Pilbara and have been recorded within 40km of the project area however no individuals of either species were recorded during the survey.

5.2.5. FAMILY MEGADERMATIDAE

This family is represented in Australia by the Ghost Bat (*Macroderma gigas*). This species is currently listed as P4 – Taxa in need of monitoring under the *Wildlife Conservation Act, 1950*. It is the largest species of microbat in Australia and is highly predatory, taking a variety of vertebrate species including birds, reptiles, rodents and other bats (Churchill 2008). Five Ghost Bats were recorded on the project area from two roost caves, and one additional cave occupied by Ghost Bats was recorded in the central survey

area (Figure 8). There was no evidence of middens within either cave suggesting other roosts are located in the surrounding area.

5.2.6. FAMILY EMBALLONURIDAE

Twenty individuals of Common Sheath-tailed Bats (*Taphozous georgianus*) were recorded roosting in caves within the survey area. This widely distributed species does not hang when roosting like other bat species, but clings to the wall, propped up by its forearms. Consequently it is the only species to utilise fissures, vertical crevices and mine shafts (Van Dyck & Strahan 2008). This species is common and has been recorded within 40kms of the project area. As well as being frequently encountered on foraging transects, this species was recorded at four locations by the SM2+ bat recorder.

The Yellow-bellied Sheath-tailed Bat (*Saccolaimus flaviventris*) was recorded at four locations on the survey area. This species is widespread across tropical Australia with its range extending into southern temperate Australia during summer (Churchill 2008). This species was recorded at four locations during the survey by the SM2+ bat recorder.

5.2.7. FAMILY MOLOSSIDAE

The Northern Free-tailed Bat is a widespread species that utilises most habitats across northern Australia. This species is commonly recorded roosting in hollow tree spouts, often in large colonies. This species is one of the few Australia microbats that have an audible call. This species was recorded at one location during the survey by the SM2+ bat recorder.

5.2.8. FAMILY VESPERTILIONIDAE

Four individuals of the Inland Cave Bat (*Vespadelus finlaysoni*) were recorded roosting inside a cave on the project area. This species is widely distributed in arid and semi-arid Australia and are usually associated with rocky areas (Churchill 2008). Records of this species have been made within 40km of the project area. This species was also recorded at all locations sampled by the SM2+ bat recorder.

The Gould's Wattled Bat (*Chalinolobus gouldii*) was recorded in five locations on the survey area, this species is widespread and common across Australia occupying virtually habitats from tropical rainforest, alpine regions, deserts, woodlands and urban areas (Churchill 2008). This species was also recorded at one location sampled by the SM2+ bat recorder.

The Little Broad-nosed Bat (*Scotorepens greyii*) was recorded at four locations on the survey area. This species is found across northern Australia, through central Australia and into southern New South Wales (Churchill 2008). This species typically roosts in tree hollows and under bark but is also frequently found in abandoned dwellings (Van Dyck & Strahan 2008). This species was recorded at four locations during the survey by the SM2+ bat recorder.

5.3. REPTILES

5.3.1. FAMILIES GEKKONIDAE AND PYGOPODIDAE (GECKOS AND LEGLESS LIZARDS)

A total of 18 species of geckos and legless lizards from 334 records were made during the Lamb Creek survey. The total number of species captured represents 69% of the 26 species found within the region.

Three species of the genus *Diplodactylus* were recorded during the survey. *Diplodactylus conspicillatus* and *Diplodactylus savagei* were both recorded from the SHET habitat type with capture numbers of one and two respectively. *Diplodactylus pulcher* was recorded twice during the survey with one record coming from both the MEAT and FLAGMA habitat types.

The genus *Lucasium* was represented twice during the survey with large numbers (n=107) of *Lucasium stenodactylum* being recorded across all five habitat types found on the project area. *Lucasium wombeyi* was found to be less common on the project area (n=8) with records from the SATOM and STABM habitat types.

Two species of *Gehyra* were recorded during the survey; *Gehyra punctata* and *Gehyra variegata*. *Gehyra punctata* was the most abundant species recorded during spotlight surveys (n=60) with all records of this species coming from rocky outcrops and gorges during spotlight surveys rather than through systematic trapping. Conversely *G. variegata* was predominantly recorded during systematic surveys (n=30) with only two of those records coming from foraging surveys.

Several genera of gecko were represented by a single species during the survey; *Crenadactylus ocellatus*, *Heteronotia binoei*, *Rhynchoedura ornata*, *Nephrurus wheeleri*, *Oedura marmorata* and *Strophurus wellingtonae*.

Three of these species; *H. binoei* (n=18), *O. marmorata* (n=20) and *R. ornata* (n=66) can be considered common in the Pilbara region with numerous records of these species occurring within 40 km of the project area (DEC 2012c). *Oedura marmorata* is commonly found within rocky gorges, rocky outcrops, scree slopes and woodlands while *H. binoei* and *R. ornata* are commonly found within arid and semi-arid regions of Australia. Within the project area these species were found to be locally abundant within their preferred habitat types.

Strophurus wellingtonae was recorded four times during the survey with two systematic records and two spotlighting records. These records are a good example of a common species that is infrequently encountered in traps. This species was recorded in areas of Mulga/spinifex associations on heavy red soils, the habitat type it is known to favour (Wilson & Swan 2008). This species has been recorded within 40 km of the project area (DEC 2012c).

Nephrurus wheeleri was recorded once during spotlighting surveys from a deep narrow rock crevice in a creek bed with *Corymbia* and *Triodia* associations. Two individuals were found sheltering inside the narrow entrance. This species has two distinct populations with the Pilbara population preferring rocky ranges and outcrops with spinifex associations (Wilson & Swan 2008).This species has been recorded several times within 40 km of the project area.

A single record of *Crenadactylus ocellatus* was made during the survey from the MEAT habitat types. This monotypic genus is secretive and rarely found far from cover. It is a terrestrial generalist dwelling under rocks and surface litter (DEC 2012c). Records of this species have been made within 40 km of the project area (DEC 2012c).

The most commonly recorded Pygopod species during the survey were *Delma elegans* and *Lialis burtonis*. *Lialis burtonis* is a common species and is Australia's most widespread reptile species occurring in all habitat types except for high altitudes, cooler regions of the southern Australian mainland and Tasmania (Wilson & Swan 2008). During systematic surveys this species was recorded three times, once in each of the SATOM, MEAT and SHET habitat types.

Delma elegans was also recorded three times during the survey. Once from under woody debris around the campsite and twice during systematic surveys from the MEAT and FLAGMA habitat types. This species is restricted to the Pilbara region and is known to shelter in spinifex associations in rocky areas of the Hamersley Ranges and adjacent lowlands (Wilson & Swan 2008).

Delma nasuta and *Delma tincta* were recorded twice and once respectively during systematic surveys of the project area. *Delma nasuta* was recorded from the SHET and FLAGMA habitat types while *D. tincta* was recorded from the FLAGMA habitat type. Both these species are widespread across several habitat types in Western Australia (Wilson & Swan 2008). Both of these species have been previously recorded within 40 km of the project area (DEC 2012c).

A single species of the genus *Pygopus* was found during the survey, two records of *Pygopus nigriceps* were recorded from the SATOM and FLAGMA habitat types. This common species is widespread across Western Australia (Wilson & Swan 2008). Records of this species have been made previously within 40 km of the project area (DEC 2012c).

Delma pax was notably absent from the species record. This species is restricted to the Pilbara and is common in the region with several records within 40 km of the project area. This species is expected to occur on the project area as suitable habitat occurs within the boundaries of the tenement.

5.3.2. FAMILY SCINCIDAE (SKINKS)

A total of 208 skinks comprising 18 species were recorded during the survey of the Lamb Creek survey area.

The skink fauna of Lamb Creek was dominated by the ubiquitous *Ctenotus* skinks. This widespread radiation of skinks has colonised all arid and semi-arid habitats and most tropical and temperate habitats on mainlaind Australia (Wilson & Swan 2008). Records from this genus comprised 58% of all skink records found on the survey area.

The most abundant skink species recorded during the survey was *Cryptoblepharus ustulatus* (n=45). Opportunistic sightings of this species were commonly made during the checking of Northern Quoll cage traps. This species is exclusively found among rocky habitats in the Pilbara region.

Several species were notably absent from the species record for the Lamb Creek survey area. No members of the genus *Eremiascincus* were recorded during the survey. The Broad-banded Sandswimmer (*Eremiascincus richardsonii*) is typically found in areas with hard soils with some populations in the Pilbara inhabiting caves and gorges. The Narrow-banded Sandswimmer (*Eremiascincus fasciolatus*) is more typically found in areas of sandy soil dominated by spinifex (Cogger 2000). Suitable habitat for these species occurs on the project area and both species have been recorded within a 40 km radius of the project area (DEC 2012c).

5.3.3. FAMILY AGAMIDAE (DRAGONS)

Six out of the ten regionally recorded species of dragons were recorded during the survey from a total of 195 records.

The Ring-tailed Dragon (*Ctenophorus caudicinctus*) was the most ubiquitous species during the survey being recorded 108 times. This widespread and common species was mostly found on stony loam plains and stony hills. The Military Dragon (*Ctenophorus isolepis*), another widespread and common species

was also found in high numbers (n=76) on the survey area utilising similar habitats to *C. caudicinctus* however records show a preference to stony loam plains with no individuals being recorded on the SHET habitat type.

The Long-nosed Dragon (*Amphibolurus longirostris*) is a common and wide spread species ranging from western and central Western Australia through to central Northern Territory. Five records were made of this species on the survey area, predominantly from minor drainage lines in the MEAT habitat type. Records of this species occur within 40 km of the project area, it is usually found along gorges and *Eucalypt* lined watercourses (Wilson & Swan 2008).

Two species were recorded twice on the survey area; *Caimanops amphiboluroides*, *Diporiphora valens* and *Pogona minor*. *Caimanops amphiboluroides* was recorded from a systematic record from the FLAGMA habitat type and an opportunistic record of the species from the basecamp site located within the SATOM habitat type. A cryptic species, it is infrequently encountered in systematic surveys and if disturbed slides slowly from view making opportunistic records difficult to obtain. This species has been recorded within 40 km of the project area and is found in Mulga woodlands and shrublands on heavy stony soils (Wilson & Swan 2008). *Diporiphora valens* is a Pilbara endemic restricted to the arid interior of the Pilbara, the species is known to occur in shrublands and low woodlands over spinifex. Two records were made of this species from the FLAGMA habitat type, fitting the typical habitat preference detailed in Wilson and Swan (2008). This species has been recorded within 40 km of the project area (DEC 2012c).

Three records were made on the survey area of the Dwarf Beared Dragon (*Pogona minor*). Two of these records were systematic records with a single individual being recorded in both the MEAT and STABM habitat types along with a single opportunistic record of the species. *Pogona minor* occurs across a large area of the Australian mainland from central South Australia and southern Northern Territory across to coastal Western Australia and north into the Pilbara region. It is found in woodland and shrubland habitats and records have been made within 40 km of the project area.

5.3.4. FAMILY ELAPIDAE (FRONT FANGED LAND SNAKES)

A total of seven species of Elapid snake were encountered during surveys of the Lamb Creek survey area. The most common species recorded were the Mulga Snake (*Pseudechis australis*) and the Yellow-faced Whipsnake (*Demansia psammophis* subsp. *cupreiceps*) with three records for each species. All records of these species were made during systematic surveys. Records of *P. australis* were made from the MEAT, SHET and FLAGMA habitat types while the records of *D. psammophis cupreiceps* records were made from the SATOM, MEAT and STABM habitat types. *Pseudechis australis* is a large elapid snake capable of causing human fatalities and is a common and widespread species across a wide range of semi-arid and arid Australia while the *cupreiceps* subspecies of *D. psammophis* is found from the arid interior of Western Australia to the north-west coast of the state. Numerous records for both species have been found within 40 km of the project area.

Two capture records were recorded for both *Parasuta monachus* and *Suta fasciata*. *Parasuta monachus* has a narrow range within the Pilbara region and is usually found on hard red soils with *Acacia* woodland associations. The records for *P. monachus* were made from the SHET habitat type. *Suta fasciata* is found on stony soils supporting woodlands in the Pilbara region (Wilson & Swan 2008). The *S. fasciata* individuals were recorded from the SHET and SATOM habitat types. Records of *P. monachus* exist

within 40km of the project area however no records of *S. fasciata* have been made within 100km of the project area.

Mengden's Brown Snake (*Pseudonaja mengdeni*) was recorded once during the reconnaissance survey while placing a motion detecting camera in a rocky gorge. This individual had evidence of attempted predation around the tail. This species was not recorded during systematic surveys of the Lamb Creek survey area however records exist of this species being recorded within 40 km of the project area (DEC 2012c)

The Ringed Brown Snake (*Pseudonaja modesta*) was recorded once during systematic surveys from the STABM habitat type. This species is widespread across Australia being found from semi-arid to central arid regions. *P. modesta* records have been made within 40 km of the project area and suitable habitat exists within the tenement.

One record of the Pilbara Bandy-Bandy was made during systematic surveys. This species was recorded from the SHET habitat type. *V. snelli* is a cryptic species and is rarely encountered. *V. snelli* individuals feed exclusively on blind snakes of the genus Typhlopidae. This species is restricted to the Pilbara region of Western Australia. Records of this species have been made within 40 km of the project area (DEC 2012c).

5.3.5. FAMILY TYPHLOPIDAE (BLIND SNAKES)

No species of Typhlopid blind snakes were recorded during the survey however four species have been regionally recorded including the Priority 4 species; *Ramphotyphlops ganei*. Three species are Pilbara restricted; *Ramphotyphlops ammodytes, Ramphotyphlops grypus* and *Ramphotyphlops hammatus*. Suitable habitat occurs on the project area for all of these species to potentially occur.

5.3.6. FAMILY PYTHONIDAE (PYTHONS)

Two python species were recorded from single individuals encountered on the survey area. One record of *Antaresia perthensis* was made during spotlight surveys of a rocky gorge. This species, the world's smallest python; is restricted to the Pilbara region and inhabits rocky outcrops and woodlands. It is often associated with termite mounds (Wilson & Swan 2008). Records of this species exist within 40km of the project area.

The Pilbara Olive Python (*Liasis olivaceus* subsp. *barroni*) was opportunistically recorded once on the project area during the survey. An individual was found on the southern haul road option early in the morning. This individual was approximately three metres long and was found to be in good condition. The individual moved off in the direction of a nearby rocky escarpment. This species is state listed as Schedule 1 – Species that are rare or likely to be become extinct under the *Wildlife Conservation Act, 1950* and federally listed as Vulnerable under the *EPBC Act*. Habitat capable of supporting populations of *L. olivaceus* subsp. *barroni* occurs on the project area and records of this species have been recently made within 40 km of the project area.

Notable absentees from the species record include the Black-headed Python (*Aspidites melanocephalus*) and the Stimson's Python (*Antaresia stimsoni*). These species are commonly encountered in the Pilbara region. As suitable habitat for these species is located in the region, these two species are expected to occur on the project area.

5.3.7. FAMILY VARANIDAE (GOANNAS/MONITORS)

The genus *Varanus* was represented by 36 individuals comprising seven species on the Lamb Creek survey area. The most commonly recorded species was *Varanus acanthurus* with a total of 14 captures from the MEAT (n=3) and SHET (n=11) habitat types. This species is widespread across northern Australia commonly occurring in rocky ranges and on heavy to stony soils (Wilson & Swan 2008). This species has been recorded within a 40 km radius of the project area (DEC 2012c)

Varanus brevicauda, the worlds' smallest monitor, was recorded nine times during systematic surveys. This species is a very secretive and generally stays close to spinifex cover. *V. brevicauda* was recorded in three different habitat types with three individuals being recorded in each habitat type. *V. brevicauda* is a widespread species occurring across central and northern Western Australia and the southern half of the Northern Territory. Regional data shows that this species has been recorded within 40 km of the project area.

Varanus tristis was recorded four times during systematic surveys and once during the reconnaissance survey. The systematic records were from the MEAT (n=3) and SHET (n=1) habitat types while a single opportunistic record was made in a weathered conglomerate drainage system. *V. tristis* is widespread across Australia occurring in many different habitat types including the semi-arid and arid zones. This species has been recorded within 40 km of the project area.

Four species were recorded in low numbers on the survey area. *Varanus bushi*, *Varanus giganteus*, *Varanus panoptes* and *Varanus pilbarensis* were recorded two, three, one and three times respectively. *V. bushi* was systematically trapped once in the SATOM habitat type and opportunistically caught once in the MEAT habitat type. This species is a Pilbara endemic with a limited distribution, it is usually found in Mulga and *Eucalyptus* woodlands (Wilson & Swan 2008). Records of this species have been found within 40 km of the project area.

The Perentie (*Varanus giganteus*) was opportunistically recorded twice during the survey and also recorded once during spotlight surveys of the SHET habitat type. This species is Australia's largest goanna. The distribution of *V. giganteus* ranges from the Pilbara region through central Australia to central Queensland encompassing semi-arid and arid zones (Wilson & Swan 2008). This species has been regionally recorded within 40 km of the project area.

A single *Varanus panoptes* individual was recorded from the side of the southern haul road option in the STABM habitat type. This species has two disjunct populations, one in the Pilbara region and the other across most of Queensland and the northern half of the Northern Territory. In the Pilbara region it is found on riverine flats, woodlands and grasslands. The species has been recorded in the region within 40 km of the project area.

Varanus pilbarensis was opportunistically recorded three times during the survey. *V. pilbarensis* was exclusively encountered in rocky regions such as gorges, rocky outcrops and scree fields. This species is a Pilbara endemic and its distribution is limited by the above habitats. Regional data indicates this species has been recorded within 40 km of the project area.

5.4. AMPHIBIANS

Only two of the five amphibian species that are known to occur regionally were captured during the survey. The Sheep Frog (*Cyclorana maini*) being by far the most common with over 800 records.

Records of this species increased dramatically after several thunderstorms that occurred during the survey. *C. maini* was recorded across all the habitat types surveyed with the majority of records (n=706) coming from the FLAGMA habitat type. This species is common and widespread across Western Australia from the Pilbara region east through central Western Australia and into the Northern Territory. It is commonly found on flood plains and near ephemeral stream beds (Tyler & Doughty 2009). Records of this species have been made within 40 km of the project area (DEC 2012c) .

The Desert Tree Frog (*Litoria rubella*) was recorded four times during the survey, twice in the MEAT habitat type during systematic surveys and twice around the basecamp site in the SATOM habitat type. This species was only found after several thunderstorms that occurred during the survey. In Western Australia this species is found in the semi-arid and arid zones from the Pilbara north into the Kimberley (Tyler & Doughty 2009). This species is commonly found around areas of human habitation and has been recorded within 40 km of the project area.

The low diversity of amphibian fauna in the species records for Lamb Creek can possibly be attributed to climatic conditions during the survey as well as inappropriate habitats on the project area for several species. While several thunderstorms did occur it is possible that insufficient water was available to stimulate burrowing frog species in the Myobatrachidae family.

5.5. AVIFAUNA

Species diversity and abundance on the Lamb Creek survey area was affected by heavy wet season rains as well as cyclonic activity. Extra rainfall has led to a flow on effect, with high levels of seed, invertebrates and flowering trees and shrubs. This provides excellent breeding conditions for many species resulting in the abundance of several irruptive species during the survey. Irruptive species such as the Budgerigar (n=3143) and the Zebra Finch (n=1329) were the most common species recorded during the survey. Higher than normal numbers of uncommon nomadic and irruptive species were recorded during the survey, in particular honeyeater species that are infrequently recorded away from mass flowering events. White-fronted Honeyeater, Pied Honeyeater, Black-chinned Honeyeater and Grey Honeyeater were all recorded multiple times during the survey with many feeding in the flowering *Corymbia* sp. along drainage lines. Ground Cuckoo-shrike is another infrequently recorded nomadic species that was sighted several times during the survey.

Raptor species were common across the survey area with 11 species being recorded. The high diversity seen in raptors could be the result of increased prey abundance on the survey area brought on by good breeding conditions for many of the prey species.

The largest group of birds absent from the species record for the Lamb Creek survey area are the birds associated with wetlands and/or riparian habitats. Thirty wetland species have been recorded regionally, probably in ephemeral drainage systems located near the project area that become inundated in times of heavy rain. One wetland species, the White-faced Heron, was recorded flying over the southernmost end of the survey area, bordering the Great Northern Highway.

Three species of conservation significant birds were recorded during the survey. The Australian Bustard, listed by DEC as Priority 4 – Taxa in need of monitoring, displayed a preference for the SATOM habitat type of *Acacia aptaneura* and/or *Corymbia deserticola* low woodland over *Acacia elachantha* and mixed *Eremophila* species over *Triodia wiseana* very open hummock grassland.

The Fork-tailed Swift is listed under the *EPBC Act* as Migratory, this species was recorded flying over all the identified habitat types on the project area with the highest abundance (n=100) occurring over the FLAGMA habitat type of *Acacia aptaneura* low woodland over *Themeda triandra*, *Cymbopogon ambiguus*, *Chrysopogon fallax* open tussock grassland.

The Rainbow Bee-eater eater is listed under the *EPBC Act* as Migratory, one individual was recorded in the STABM habitat type of *Eucalyptus gamophylla* low open woodland over *Acacia elachantha* or *Acacia hilliana*, *Senna glutinosa* subsp. *pruinosa* open shrubland over *Triodia brizoides*, *Triodia wiseana* hummock grassland.

Regionally, a further eight species of conservation significance have been recorded however suitable habitat for these species does not occur on the project area making their presence at Lamb Creek unlikely.

5.6. INVERTEBRATES

5.6.1. ARANEAE – MYGALOMORPHAE (TRAPDOOR SPIDERS)

The Western Australian mygalomorph fauna is vast and many families and genera remain taxonomically poorly known (Phoenix Environmental Sciences 2012). A recent molecular study of Pilbara Mygalomorphae (Helix 2012) provided a new benchmark for diversity estimates in the Pilbara which by far exceeds the species richness of the region documented in during the DEC Pilbara Biological Survey (Durrant *et al.* 2010). Many of these genetic lineages are known from very restricted ranges only (Helix 2012; Phoenix 2012).

During the SRE survey, two mygalomorph spiders from STABM 1 and 2 were collected.

Both mygalomorph spiders collected during the survey belong to the family Barychelidae. Barychelid spiders vary in size and are distinguished by well-developed claw tufts and short terminal segment of the posterior lateral spinnerets (Raven 1994). They are a cryptic group with deep burrows (to 60cm) and well camouflaged and lack the thick trapdoor commonly associated with trapdoor spiders or the extensive webbing around the entrance associated with other mygalomorphs species.

The DEC Pilbara survey recovered four species of Barychelid trapdoor spiders in three genera, of which *Synothele* was with four species most diverse (Durrant *et al.* 2010). Molecular data suggests 20 different molecular lineages within the family indicate a much higher diversity in the region. As many of the known species have restricted ranges (Helix 2012) there is high potential for this genus to contain SRE species/morphospecies.

The mygalomorph specimens collected in the STABM2 pitfall traps during the survey was identified as *Aurecocrypta* 'MYG057'. This species is not uncommon throughout the Pilbara region of Western Australia (WAM 2012b)(WA Museum database). It is not an SRE.

The other mygalomorph specimen, collected at STABM1, was identified as *Synothele* 'MYG255'; a fairly large species within the genus. It is the first representative of this new morphospecies in the WA Museum reference collection. As this genus typically has restricted ranges in the Pilbara, this specimen is considered a potential SRE.

While there is no way to determine whether the species is an SRE from this single survey, the STABM habitat in which it was collected is widespread and continuous on and off the project area. Additionally, only small amounts of the habitat type will be impacted by the proposed project. If the species is an SRE, Rapallo believes there is a low risk of it being impacted by the proposed project.

5.6.2. PSEUDOSCORPIONES (FALSE SCORPIONS OF PSEUDOSCORPIONS)

Pseudoscorpiones superficially resemble scorpions but lack the tail or a sting of scorpions. Most species most species are less than 1 cm long. Pseudoscorpions can be found inhabiting a wide variety of habitats including leaf litter, soil, under the bark of trees, under stones, and in rock crevices (Harvey, Milledge, & Yen 1989). In Western Australia, 17 families of pseudoscorpions have been recorded to date (Harvey 2011). The group contains several SRE species.

Database results from WAM indicate that one SRE pseudoscorpion species has been recorded at Area C, within 15 km of the survey area. Eleven pseudoscorpion specimens were collected during the survey. They belong to four different families (Artemnidae, Chthoniidae and Olpiidae). Only one species, *Austrochthonius* 'pilbara', is considered a potential SRE.

The taxonomy of the group Artemnidae is unclear although current evidence suggests that most species are widespread. Similarly, specimens collected from the group Cheiridiidae are at present poorly known but initially data suggests that most species from this group are widespread. It is highly unlikely that species from this group would be SREs.

The Opliidae group contains some of the most frequently recorded species in xeric habitats in the Pilbara. Species from the genus *Beierolpiu,* such as those found at Lamb Creek, are generally considered widespread and thus not SRE species. Some genera and species in the Opliidae group however, may be considered range restricted, particularly subterranean species.

One species in the family Cthoniidae was collected during the survey. *Austrochthonius* 'pilbara', was collected in a litter sample from below a blue mallee at STABM2. The species is currently poorly defined and may consist of a group of species. It is currently considered a potential SRE. While the distribution of this species is unknown, the habitat in which it was found is widespread and continuous on and off the project area.

Other species of *Austrochthonius* occur in leaf litter and soil environments throughout much of southwestern Australia, as well as subterranean ecosystems in Cape Range and near Busselton (Harvey 1991; Harvey & Mould 2006). The taxonomy of the Western Australian species is not resolved. The deep genetic divergences within the genus demonstrated in recent molecular analyses are, unfortunately, not reflected in their morphology and thus species identification is extremely difficult. The genus *Austrochthonius* is currently under revision at the Western Australian Museum (M. Harvey personal communication).

5.6.3. CHILOPODA (CENTIPEDES)

The centipedes represent a diverse group of predatory arthropods ranging from about 4 to 300mm long. Each pair of legs is attached to a separate body segment which distinguishes this class from the millipedes (Diplopoda; two pairs of legs per segment) (Colloff *et al.* 2012).

All five orders of centipedes can be found in Australia of which two orders and one family are associated with relictual habitats and therefore potential SRE. Geophilomorpha, Lithobiomorpha and the Cryptopidae (within the Scolopendromorpha) are associated with relictual habitats such as moist and deep leaf litter. Geophilomorpha and Cryptopidae have also been found in subterranean environments in the Pilbara where they are limited to very small ranges (e.g. Edgecombe 2005).

No SRE centipedes have been recorded within 40 km of the project area according to the WAM database search. However, one centipede specimen was collected from a litter sample at STABM2 during the survey and submitted for identification. It was identified as belonging to the order Geophilomorpha and is considered a potential SRE.

The taxonomy of the Geophilomorpha is poorly resolved and it is currently impossible to identify the specimen beyond order level. Based on their high diversity in combination for the preference for moist, deep litter habitats, all undescribed representatives of the Geophilomorpha are here considered potential SREs. While the distribution of this species is unknown, the habitat in which it was found is widespread and continuous on and off the project area.

5.6.4. DIPLOPODA (MILLIPEDES)

Particular orders of Millipedes are one of the main target groups of SRE surveys, with SRE species frequently occurring in some groups. Within Western Australia SREs are particularly expected within the orders Sphaerotheriida (rolling millipedes) and Polydesmida, (Harvey 2002; Environmental Protection Authority 2009). A recent review of Australian *Atelomastix* (order Spirostreptida) found all of 29 species treated were SREs (Edward & Harvey 2010).

No SRE millipede species were reported in the WAM database searches. However, one millipede specimen was collected in the STABM2 blue mallee leaf litter sample during the survey. It has been identified as *Austrostrophus* sp. indet., a member of the Triguniulidae family and a potential SRE.

The millipede family Triguniulidae represents a conspicuous element of the Southeast Asian and Indonesian faunas where 21 genera are recognised (Hoffman 2003). In Australia, however, the group has few representatives, including two monotypic genera from WA, *Austrostrophus* and *Speleostrophus* (Hoffman 1994, 2003). *Speleostrophus nesiotes*, endemic to caves on Barrow Island is the only Australian native millipede on a State endangered list (Mesibov 2006).

The genus *Austrostrophus* was described only fairly recently and includes a single species, *A. stictopygus* (Hoffman 2003). At the time of its description, *A. stictopygus* was thought to have a very narrow distribution and was only known from the Burrup Peninsula. Recent surveys as part of resource developments in the Pilbara have shown that the species is widespread throughout the region (Harvey *et al.* 2011) .

The specimen submitted for identification was a juvenile and could not be identified to species level. It is possible that it represents a second undescribed species known in addition to *A. stictopygus*, namely *Austrostrophus* 'DIP018' collected from two localities in the southeastern Pilbara and currently considered a potential SRE. Consequently, *Austrostrophus* sp. indet. from Lamb Creek is considered a potential SRE. While the distribution of this species is unknown, the habitat in which it was found is widespread and continuous on and off the project area.

5.6.5. ISOPODA (SLATERS)

Due to their reduced dispersal ability and narrow habitat preferences, slaters are one of the target groups of SRE surveys (Harvey 2002). The WAM database search recorded no slaters within 40 km of the project area. Two slater specimens were collected in litter samples at FLAGMA2 and STABM2 (Figure 12). These have been identified as two different species. One is a potential SRE and the other is a likely SRE.

The specimen collected in a litter sample from below a strap-leaved *Acacia* sp. at FLAGMA2 (Figure 12) was identified as *Buddelundia* '13', a member of the Armadillidae. The genus is currently under taxonomic revision by S. Judd. Species of *Buddelundia* often have a very wide distribution and are not expected to have many SRE species (S. Judd personal communication in Phoenix Environmental 2012).

However, *Buddelundia* '13' represents a small species-complex that is restricted to the Pilbara. This species was previously collected at the Wonmunna mining lease 80 km west of Newman (Phoenix Environmental Sciences 2011). However, the single specimen collected here is not fully mature so a determination is tentative. It is considered a potential SRE (S. Judd personal communication in Phoenix Environmental 2012). While the taxonomic resolution and distribution of this species is unknown, the habitat in which it was found is widespread and continuous on and off the project area.

The second isopod specimen was collected in the blue mallee sample at STABM2. The specimen is only tentatively associated with the genus *Spherillo*. It almost certainly belongs to a different, unnamed genus (S. Judd personal communication in Phoenix Environmental 2012). There have been very few specimens of this genus collected in the Pilbara, but species diversity appears high. This genus was also collected at Wonmunna (Phoenix Environmental Sciences 2011) but both clearly represent different species. It is extremely rare to find these armadillids among the epigean isopods of the Pilbara and they are therefore considered likely SREs (S. Judd personal communication in Phoenix Environmental 2012). This specimen was collected in a habitat that is widely distributed and continuous on and off the project area.

5.6.6. SCORPIONES

Thirteen scorpion samples were collected during the Lamb Creek fauna survey. The bulk of the samples were from the family Buthidae in the genus *Lychas.* This genus is widespread across the Australian mainland and is also distributed throughout Africa, eastern Asia and India. Two morpho-species were identified from the collected samples. *Lychas* 'harveyi' is a widespread species, particularly in the Pilbara where it is one of the most common scorpion species (Phoenix Environmental 2012). The nine specimens were identified as belonging to this morpho-species and were collected from all habitat types surveyed. *Lychas* 'pilbara1' is a widespread species that was recorded in the SATOM, SHET and MEAT habitat types. Although widely distributed throughout the Pilbara this species is not common and seldom collected. Neither *Lychas* species is regarded as an SRE species.

A single specimen of the genus *Urodacus* was collected from the FLAGMA2 site. *Urodacus* is an endemic genus that is highly diverse. The 23 species that are currently described may represent as little as 20% of the actual diversity within the genus. The Pilbara Biological Surveys recorded one formally described species and 9 undescribed species. Unfortunately certain identification of scorpions from this genus can only be made from adult male individuals. Consequently the specimen recorded from Lamb creek can only be recorded as *Urodacus* sp. indet owing to the immature life-stage of the sample collected. Further specimens are necessary to determine identification and SRE status of this species.

Given the relictual nature of the Wannamunna land system where this speciemen was collected it is possible that this species may represent a SRE species.

5.6.7. HABITAT ASSOCIATION

Four potential and one likely SRE species have been recorded in the STABM habitat type, which is described as *Eucalyptus gamophylla* low open woodland over *Acacia elachantha* or *Acacia hilliana*, *Senna glutinosa* subsp. *pruinosa* open shrubland over *Triodia brizoides, Triodia wiseana* hummock grassland. It is located on the Boolgeeda land system which covers a very large area of the Pilbara (approximately 7,748 km^2). This vegetation type is distributed over approximately 46% of the project area and is continuous with similar habitat in adjacent off footprint areas.

The other potential SRE species was collected at FLAGMA2. Despite being in flat, relatively open areas, both of these sites were noticeably wetter than the other foraging sites with traplines becoming inundated during rain, particularly STABM2.

The FLAGM2 trapping/litter site is located in the Wannamunna land system which comprises only a small portion (approximately 3%) of the project area near the intersection of the proposed haul road and the Great Northern Highway. The Wannamunna land system is a relatively uncommon land system with high conservation and pastoral value that supports the majority of the priority flora species recorded in Rapallo's flora survey (Rapallo Environmental 2012) and 'at risk' ecological communities 'Grove/inter-grove mulga, eastern Hamersley Range' and 'Valley floor mulga' mentioned in Kendrick (2002). Presence of a potential SRE species further supports the ecological value of this land system.

Recommendations regarding the management of habitats for SREs are presented in Section 7.

6. SPECIES OF CONSERVATION SIGNIFICANCE

Database searches for the area surrounding the haul road alignment indicate that 16 fauna species of conservation significance have been recorded in the region. Seven of these species were recorded within the habitats of the project area during surveys. Their locations are mapped in Figure 8. Based on an analysis of habitats recorded during the survey, an additional three species may occasionally use habitats of the project area (Table 9).

6.1. NIGHT PARROT – *PEZOPORUS OCCIDENTALIS*

The Night Parrot is listed under the *Wildlife Conservation Act 1950* as Schedule 1 – Fauna that are rare or likely to become extinct and under the *EPBC Act* as Critically Endangered and Migratory.

This enigmatic species was once relatively common throughout the arid zone but has declined in the last 80 years with the increase in pastoral activities in arid and semi-arid Australia. Although previously wide-ranging this species is known now from a few recent sightings and specimens. Sightings are centred on the Boulia region in western Queensland and the Fortescue Marsh in the Pilbara (Johnstone & Storr 1998).

Practically nothing is known about the biology of this species, although it is known to be highly nomadic. Recent records have corresponded with rainfall events and abundant food resources (Johnstone & Storr 1998).

There is one record of a Night Parrot located approximately 60 km northeast of the project area, at Mingawirriewirrie (Minga) Well. Pastoral activities across the region have decreased within the previous 20 years. As such there are potentially suitable areas of habitat for this species to use on the project area. While it is considered unlikely that the species is found on the project area, the possibility cannot be completely discounted; however it is acknowledged that sightings of this species are extremely rare.

6.2. NORTHERN QUOLL – *DASYURUS HALLUCATUS*

The Northern Quoll is listed under the *Wildlife Conservation Act 1950* as Schedule 1 – Fauna that are rare or likely to become extinct and under the *EPBC Act* as Endangered.

The Northern Quoll is a large omnivorous marsupial that was historically distributed throughout the northern areas of Australia (Van Dyke and Strahan, 2008). It has suffered wide-spread and drastic population reductions, a trend linked to altered fire regimes, habitat degradation, predation and competition from feral animals and poisoning resulting from consumption of cane toads (Braithwaite & Griffiths 1994; Oakwood 2000). Today the species distribution is confined to several isolated pockets of northern Queensland, the plateaus of Arnhem Land, the eastern Kimberley, offshore islands and the Pilbara (Van Dyke and Strahan, 2008). The Pilbara and offshore islands may represent the last populations free of cane toads.

There is limited data on the species ecology, especially the Pilbara populations. Most of the data from the Pilbara has been collected in relation to mineral development. Based on this data, it appears that the species is less likely to use riparian habitats containing hollows, as has been observed in other populations. The Pilbara populations seem closely tied to rocky habitats that contain caves and crevices. Rapallo (2010) reported extremely high densities associated with rocky mesas 20 kilometres to the east

of Port Hedland. This population appeared to avoid the surrounding hummock grassland plains and only occasionally use riparian habitats.

The project area and surrounds contain features such as gorges, rocky outcroppings, caves and overhangs as well as fig trees that appear to be suitable habitat to support Northern Quolls. However, the survey area appears to be only sparsely populated by Northern Quolls and there are very few records within 50 kilometres of the project area. Two observations were also recorded at Phil's Creek, 40 km west of Lamb Creek in habitats similar to those of the project area (Rapallo Environmental 2012)

A single record of the Northern Quoll was made during the survey from a motion detecting camera (Table 4). This camera was located in the central survey area but outside of the project footprint, along a gorge that is ringed by the proposed haul road. An old scat was also located within the same area ringed by the haul road.

Given the survey effort used to detect the presence of the species (182 MDC Camera nights and 300 cage trap nights), it would appear that there are no large populations of the species on the project area. Rapallo has deployed MDCs in similar habitats 300 kilometres to the WNW of the project area (Rapallo 2011). MDCs at these sites had a success rate of 59% and an average detection length of 2.8 days before Northern Quolls were detected. This survey had a detection rate of 0.5% on the MDCs.

Based on the survey effort used, Rapallo believes it is unlikely that an extensive population of Northern Quolls populates the project area, or habitats adjacent to it. It is more likely that the individual recorded during the survey is a dispersing individual. If there are permanent populations, they appear to be very sedentary based on the results of the camera and cage trap surveys.

Further recommendations relating to the Northern Quoll, including management and mitigation measures, are presented in section 7.

6.3. ORANGE LEAF-NOSED BAT – *RHINONICTERIS AURANTIA*

The Pilbara population of the Orange Leaf-nosed Bat is listed under the *Wildlife Conservation Act 1950* as Schedule 1 – Fauna that are rare or likely to become extinct and under the *EPBC Act* as Vulnerable.

The Orange Leaf-nosed Bat is an endemic species distributed across the top end of the Northern Territory and the Kimberley (Kulzer *et al.* 1970), with relict populations in the Pilbara region (Churchill 2008). They are considered to be the only remaining representatives of a diverse group that was present in the Miocene, and the species itself is thought to be old following the discovery of three – five million year old fossil material in the Riversleigh World Heritage Area (Archer, Hand, & Godthelp 1991).

The Orange Leaf-nosed Bat is unable to enter torpor (daily hibernation) to conserve heat. This species is susceptible to suffering exhaustion and hypothermia when exposed to cool roost temperatures (Kulzer *et al.* 1970). Orange Leaf-nosed Bats have one of the highest rates of pulmocutaneous water loss recorded for a mammal when exposed to low humidity (Baudinette *et al.* 2000). Consequently, during the dry season, they are restricted to relatively deep subterranean roosts that are able to provide a stable, warm and humid environment (Churchill, Helman, & Hall 1988; Armstrong 2007; Churchill 2008) . These suitable roosts are uncommon in the landscape although some underground mine workings in the Pilbara provide additional habitat (Armstrong, 2007).

As the Orange Leaf-nosed Bat has been recorded in close proximity to Lamb Creek (at mine site Area C), it is possible that this species may occur in or near the project area. Although no evidence of Pilbara Leaf-nosed Bats was detected during the survey it is possible that the deep clefts in the cliffs in the north-east of the project area may lead to sufficiently deep caves. These clefts were not explored due to unstable geology. Although no permanent water sources are in the immediate area, the surrounding region has not been surveyed and a bore dam within a few kilometres would provide adequate permanent water for Pilbara Leaf-nosed Bats.

6.4. PILBARA OLIVE PYTHON – *LIASIS OLIVACEUS* SUBSP. *BARRONI*

The Pilbara Olive Python is listed under the *Wildlife Conservation Act 1950* as Schedule 1 – Fauna that are rare or likely to become extinct and under the *EPBC Act* as Vulnerable. It is a subspecies of the Olive Python that is found only in the Pilbara region of Western Australia. It can grow up to five meters in length and will use rocky hills and gorges associated with creek-lines as habitat. Records of the species are generally associated with permanent water sources.

Some evidence suggests that it is more common than was once thought in the Pilbara, though it remains listed. Development of mines and associated infrastructure and a decline in some target prey species may be having a negative impact on the species abundance and distribution. Cats and foxes may also have a negative impact upon the species, predating upon hatchlings and juveniles.

One Pilbara Olive Python was observed during the survey (Figure 8). It was recorded crossing stony plains between the Hamersley massive and Lamb Creek. The rocky hills, gorges and drainages of the project area are highly suitable for the species. There are likely to be other individuals on the project area.

The proposed project is likely to have an impact on local populations of the species. Further recommendations regarding the species are presented in Section 7.

6.5. PEREGRINE FALCON - *FALCO PEREGRINUS*

The Peregrine Falcon is listed as Schedule 4 - Other Specially Protected Fauna The species was not listed in the DEC Threatened Fauna search undertaken for the area. The Peregrine Falcon experienced a large population decline as a result of reduced breeding success caused by herbicide and pesticide use. Since the banning of such chemicals the population has stabilised and expanded. In Western Australia, populations are stable in areas with granite outcrops and cliffs (Johnstone & Storr 1998). In the absence of such habitats, the species has been known to use nests of species from the family Corvidae and occasionally hollows for nesting (Marchant & Higgins 1993).

The species may occasionally hunt over the project area. The presence of rocky outcrops means that there is potential for the species to nest in or near the project area, but no nests were observed. The project is unlikely to have a significant impact on the species through removal of foraging habitat as it is contiguous with vast areas of similarly habitat.

6.6. *RAMPHOTYPHLOPS GANEI*

Ramphotyphlops ganei is classified as Priority 1 – Poorly known taxa. It is a relatively large and robust blind snake, growing to approximately 33cm long and 1.5cm thick. They can be distinguished by other Pilbara blind snakes by their large and robust size, scalation (mid-body scales 24 rows), snout shape

(rounded from above and in profile) and length of nasal cleft in the 2nd upper labial scale (extends vertically to top of head) (Plate 9) (Wilson & Swan 2008).

This species was first collected in 1985 and first described in 1998. Very little is known about its ecology. Only 28 records of the species have been made in the Pilbara (DEC 2012c). This species appears to be restricted to the Pilbara, recorded from Pannawonica, throughout the Hamersley Ranges through to Newman, and north to the edge of the Chichester Range, south of Port Hedland. Wilson and Swan (2008), report that this species may be associated with moist gorges and gullies but recent records from areas of snake-wood and acacia scrub indicate that this may not be the case.

There are two records of this species within 20 km of the project area listed on NatureMap (DEC 2012c). This species is usually recorded through pit fall trapping, of which there were 10 arrays of 20 pit falls across five suitable habitat types. No *R. ganei* were recorded during the survey but, habitat of moderate suitability, such as drainages and outcroppings, are present in the project area. Thus the habitat has moderate potential to support *R. ganei*.

6.7. WESTERN PEBBLE-MOUND MOUSE – *PSEUDOMYS CHAPMANI*

The Western Pebble-mound Mouse is listed as Priority 4 - Taxa in need of monitoring by the DEC. It is endemic to Western Australia and is noted for the large mounds of pebbles constructs around burrow systems. Dormant and extinct mounds displaying these characteristics suggest the species was once distributed south into the Murchison. Its current distribution is limited to the Pilbara and northern Gascoyne regions of Western Australia (Van Dyck & Strahan 2008).

The species is communal with up to ten individuals living in an active burrow system at any one time. The pebble mounds around the burrows are roughly similar throughout their distribution with pebbles ranging between 0.5 and 3.5 centimetres in width. The mound area generally varies with mound age but mounds 4m in diameter have been reported.

Numerous mounds attributed to the species were recorded during the survey. The majority of mounds were active (Figure 8). This species is likely to be impacted by the project due to the abundance of active mounds throughout the project area. It will be difficult to avoid all active mounds.

6.8. GHOST BAT –*MACRODERMA GIGAS*

The Ghost Bat is classified by DEC as Priority 4 - taxa in need of monitoring. The Ghost Bat is the largest Australian microbat species. Weighing an average 105 grams they are almost twice the weight of the next largest microbat (Churchill 2008). They are the only strictly carnivorous bat in Australia, feeding on frogs, birds, reptiles, mammals (including other bats) and large insects. Prey is caught and carried to an established feeding site (rock overhang or small cave). These sites are easily recognised by the accumulation of prey remains on the floor. Searching for these sites is one way of determining the presence of Ghost Bats. They can also be detected by searching large caves, mines and deep rock fissures for day roosting sites (Churchill 2008). As this species does not use echolocation to hunt for prey like other microbats, consequently they are difficult to detect using ANABAT.

Ghost Bats have a widespread but patchy distribution across a diverse range of habitats (Van Dyck & Strahan 2008). The exact reason for their decline is unknown, although this species is sensitive to disturbance. Genetic studies have shown that this species is highly reliant on a few maternity sites and thus highly susceptible to swift decline if these sites are compromised.

There are several small cave systems within the survey area that are likely to be used as roosts by Ghost Bats. Ghost bats were observed roosting in two caves in the project area (Figure 8) and one in the survey area. Five Ghost Bats were observed in one cave and two in the other. Ghost Bats may also forage in other habitats in the project area. Several potential caves were observed on the project area but were not searched due to inaccessibility or safety issues (unstable rocks). One roost cave containing two Ghost Bats is located on the proposed impact area, inside the proposed ore body. The other is adjacent in the area of hills ringed by haul road. Fencing can adversely affect bats when it is initially erected. Any fencing of the project area to limit stock movements through the area may cause direct mortalities through striking of the fence line. Noise and vehicle movements would also impact caves as constant disturbance through noise or vibration can cause bat species to abandon caves. It is highly likely mining operations in the area would impact the local Ghost Bat population in the short term, resulting in the abandonment of those caves whilst mining operations occur. Measures to mitigate the impact of such activities are discussed in Section 7.

6.9. AUSTRALIAN BUSTARD – *ARDEOTIS AUSTRALIS*

The Australian Bustard is classified as Priority 4 – Taxa in need of monitoring by DEC. Garnett and Crowley (2000) list the species as near threatened.

The species is widely distributed but has suffered massive historical population declines. It is particularly vulnerable to intensive agricultural practices and fox predation (Garnett & Crowley 2000). The species uses a wide variety of grass habitats; including tussock grasslands, *Triodia* and grassy woodlands. They can also use chenopod flats and have been reported in modified habitats such as golf courses. The species feeds on a variety of insects (particularly stick insects) and fruit (Johnstone & Storr 1998).

The project area contains suitable habitats for the species. Two Australian Bustards were recorded on two separate evenings during the survey (Figure 8). The species is highly mobile and there is a low risk of long term detrimental impacts to the Pilbara population as a result of the proposed project.

6.10. BUSH STONE-CURLEW – *BURHINUS GRALLARIUS*

The Bush Stone-curlew is listed as Priority 4 – taxa in need of monitoring by DEC. Garnett and Crowley (2000) list the species as near threatened. The species is associated with lightly wooded areas where there is an abundance of fallen logs and leaf litter. Once distributed in all but the most arid areas of Australia, the species has suffered large range contractions and population declines. It is particularly vulnerable to feral animal predation but has also suffered from land clearing and altered fire regimes (Johnstone & Storr 1998).

Whilst not common, the species is still moderately abundant throughout the Pilbara. It uses tussock grassland plains and shrub lands of *Acacia* as well as ephemeral drainage systems.

This species was not recorded during the survey. However, the habitats of the project area are potentially suitable for the species. The species is highly mobile and there are large areas of suitable habitat throughout the Pilbara. While the project may have a localised impact on the species, it is unlikely to have a long term impact on the regional population of the species.

6.11. GREY FALCON - *FALCO HYPOLEUCOS*

The Grey Falcon is listed by the DEC as Priority 4 - Taxa in need of monitoring. The Grey Falcon's total population estimated at fewer than 5,000 individuals and 1,000 pairs (Garnett & Crowley 2000).Garnett and Crowley (2000) list it as Near Threatened and if any decline is detected the species will need to be reclassified as Vulnerable. The species is generally found north of 26°S (Gascoyne, Lake Carnegie and Warburton) (Johnstone & Storr 1998), but have been infrequently sighted from the Murchison northward (Birddata, 2012). There are an estimated 50 pairs in South Australia and consistently few sightings across the country (Garnett & Crowley 2000). However, it continues to be seen throughout its range (Reid & Fleming 1992), and evidence for general decline across arid zone is lacking (Garnett & Crowley 2000).

The distribution of the Grey Falcon is centred on inland drainage systems where there is an average annual rainfall of less than 500 mm. There it frequents timbered lowland plains, particularly *Acacia* shrublands that are crossed by tree-lined watercourses. It also hunts far out into treeless areas and frequents tussock grassland and open woodland, especially in winter (Olsen & Olsen 1986).

The nearest records for the species are within 20 km from the project area. The project is inside the species' core distribution and contains habitats that are suitable for its use, including areas with large eucalypts near dry watercourses. The Grey Falcon may occur in the project area; however, it is unlikely to nest there due to limited availability of water. The project may impact the species if large eucalypts are removed or if significant watercourse alterations are undertaken.

6.12. RAINBOW BEE-EATER – *MEROPS ORNATUS*

The Rainbow Bee-eater *Merops ornatus* is listed as a Migratory Terrestrial Species under the *EPBC Act*. The Rainbow Bee-eater prefers open or lightly timbered areas, often near water. This species has been recorded in dry open sclerophyll forest, open woodlands and shrublands, including mallee, spinifex tussock grassland with scattered trees, chenopod shrubland with scattered trees and riparian or littoral assemblages. It is often seen around disturbed areas such as quarries, road cuttings and mines where exposed bare soil provides suitable breeding sites (Marchant & Higgins 1993). The Rainbow Bee-eater is a migratory bird and moves north from the southern areas of Australia during winter (Johnstone & Storr 1998).

One individual was recorded during the survey. There is suitable habitat across the project area. The species is highly mobile and there is a low risk of long term detrimental impacts to the Pilbara population as a result of the proposed project.

6.13. EASTERN GREAT EGRET – *ARDEA MODESTA*

The Eastern Great Egret can be found throughout Australia, with the exception of the arid regions. It is listed under the *EPBC Act* as both a Migratory Marine and Migratory Wetland species. The Eastern Great Egret inhabits terrestrial wetlands, estuarine, littoral habitats and grasslands. It prefers permanent water bodies on floodplains and the shallows of deep permanent lakes (Marchant & Higgins 1993), though it can be seen on any watered area including damp grasslands (Johnstone & Storr 1998). The species may be recorded on the project area after wide-spread flooding, but it is unlikely to use the area regularly. It was not recorded during the fauna survey.

6.14. CATTLE EGRET - *ARDEA IBIS*

The Cattle Egret is listed as a Migratory Wetland species under the *EPBC Act*. In Western Australia the Cattle Egret is common in areas of medium to high rainfall. The Cattle Egret uses grasslands, woodlands and wetlands, and is not common in arid areas (Johnstone & Storr 1998). The species may be recorded on the project area after wide-spread flooding, but it is unlikely to use the area regularly. It was not recorded during the fauna survey.

6.15. ORIENTAL PLOVER – *CHARADRIUS VEREDUS*

The Oriental Plover is listed as a Migratory Wetland species under the *EPBC Act*. It moves south from breeding grounds in Mongolia and China to spend winters (southern summer) in Indonesia, Australia and sometimes New Zealand. It is found inland, generally in open grassland in arid or semi-arid climates and may be found in estuarine or littoral environments. The Oriental Plover prefers flat inland plains sparsely vegetated with short grass and hard bare ground such as claypans, playing fields, lawns and cattle camps (Marchant & Higgins 1993). The species was not recorded during the fauna survey.

6.16. FORK-TAILED SWIFT – *APUS PACIFICUS*

The Fork-tailed Swift is listed under the *EPBC Act* as a Migratory Marine species. It breeds in north-east and mid-east Asia and winters in Australia and southern New Guinea. It is a visitor to most parts of Western Australia, arriving in the Kimberley in late September, in the Pilbara and Eucla by November and in the south-west land division by mid-December. The species generally returns to its breeding grounds by April. It ranges from common in the Kimberley; uncommon to moderately common in the north-west, west and south-eastern coasts and rare or scarce elsewhere (Johnstone & Storr 1998).

Fork-tailed Swifts were recorded across all five habitat types in the project area. Flocks of approximately 100 individuals were recorded at one location. This irruptive species is likely to be a transient user of the habitats in the project area following the significant rainfall that occurred in the project area in the months preceding the survey.

7. MANAGEMENT AND MITIGATION

While most birds, larger mammals and reptiles will able to avoid the impact of clearing for the project, smaller mammals, reptiles and burrowing frogs will be unavoidably killed by the large machinery used for vegetation removal and ground preparation, or by exposure to predators. All fauna are at risk of impacts from habitat impacts, disturbance, introduction of non-native predators, and vehicle impacts.

In order to minimise the project's impacts on vertebrate and SRE invertebrate fauna, a series of general recommendations are given below.

7.1. SENSITIVE HABITAT AREAS

Two habitats have been identified as supporting a disproportionate high number of species of conservation significance, the FLAGMA habitat type which falls within the Wannamunna land system and the STABM habitat type which falls within the Boolgeeda land system.

The Boolgeeda land system is relatively extensive throughout the Pilbara. Species of conservation significance that are found within the STABM habitat type are likely to found elsewhere in the same habitats of the local area. Rapallo recommends that, where possible, these habitats should be avoided. Mine site planning should recognise the value of this habitat in the local area and where possible, infrastructure should be placed away from the habitat type.

Rapallo recommends avoiding disturbance in FLAGMA habitat type of the Wannamunna land system. If disturbance cannot be avoided, Rapallo recommends consulting the DEC to determine the most effect mitigation measures.

7.2. SENSITIVE HABITAT FEATURES

Direct records of species of conservation significance were collected from several habitat features. Such features include caves and gorges. These features should be avoided to ensure long term persistence of these species during and after the operation of the mine.

If sensitive caves or habitat features cannot be avoided, Rapallo recommends consulting the DEC to determine the most effective mitigation measures.

Data on these features are provided in Appendix X.

7.3. MANAGEMENT AND MITIGATION RECOMMENDATIONS

Specific management measures should be developed as further mine site planning is undertaken. However the following, broad measures are recommended to reduce impact on species of conservation significance, specifically the Northern Quoll and Pilbara Olive Python:

- speed limits along haul roads that intersect habitats likely to support species of conservation significance;
- signage delineating zones of conservation significant species and/or their habitat;
- sensitive habitats and habitat features to be marked out to reduce risk of accidental damage;

- man-made water bodies (i.e. turkey nests) to be located away from high traffic areas (as such features often attract the Pilbara Olive Python);
- provide trained fauna handling personnel to supervise clearing works so that slow moving fauna such as the Pilbara Olive Python can be captured and relocated.

7.4. GROUND DISTURBANCE AND REHABILITATION MANAGEMENT

Before any large-scale clearing is undertaken, the following measures should be implemented:

- avoid unnecessary clearing of vegetation, i.e. beyond that strictly required;
- avoid clearing or disturbing habitats that support populations of significant fauna;
- avoid excessive disturbance and clearing around creeks or minor drainage channels;
- progressively rehabilitate cleared areas such as laydown sites, access tracks and grid lines where these are no longer required;
- avoid direct impacts (clearing and grading) to active nests and large trees, particularly those associated with watercourses as a variety of birds use these habitats; and
- wind-rows of topsoil, log debris and leaf litter formed during clearing should be retained to provide for rehabilitation, and they create extremely good micro-habitat for a range of fauna, particularly reptiles.

Most habitats found within the proposed project area are also found outside the project area. The level of impact caused by the project could be reduced by increasing the health of other similar habitats. This could be done by:

- undertaking weed control projects;
- fencing off vulnerable habitats; and
- implementing fire management plans to reduce the risk of large high intensity wildfires.

7.5. AVOIDANCE AND MINIMISATION OF IMPACTS TO SREs

Distribution of possible SRE taxa suggests that they are associated with sheet flow and minor drainage areas on plains. Impacts to SRE taxa could be avoided and minimised through the following measures:

- protect creek line habitats and minimise clearing near creek lines, drainage lines and sheet flows;
- limit the number of access tracks across creek lines and drainage;
- manage and exclude impacts from areas where potential SRE's have been found wherever possible; and
- fire management to ensure long term viability of habitats that are recognised to support potential SRE's on the project area.

7.6. NOISE, VIBRATION AND LIGHT MANAGEMENT

Noise, vibration and altered light regimes can impact the behaviour of conservation significant species and SRE taxa. Equipment and infrastructure (i.e. processing plants) should be located in areas/habitats

deemed as low risk for species of conservation significance and possible SRE's (i.e. not adjacent to creek lines, drainage, and very moist habitats)

7.7. ENVIRONMENTAL AWARENESS AND EDUCATION PROGRAM

Environmental awareness and education programs for on-site personnel should be designed to achieve the following:

- encourage a culture of environmental consciousness on site by increasing the awareness of the environmental commitments of the project;
- display appropriate signage on site e.g. litter management, speed restrictions, species of conservation significance; and
- set site and targeted habitat speed limits on site especially in areas where species of conservation significance are regularly reported.

7.8. INVASIVE SPECIES MANAGEMENT PROGRAM

As the project falls within an active cattle station, the project area is susceptible to carrying a heavy weed load and supporting non-native predators. Such species have negative impacts on the Northern Quoll and other species of conservation significance. Rapallo recommends implementing an invasive species management program. Such a program may offset the localised impacts of the proposed mining project. An invasive species management program could include:

- weed control program;
- rubbish disposal procedures should be applied, especially for food refuse, in order to discourage scavenging by crows, dogs, foxes and feral cats. Large numbers of these animals can have an adverse impact on other fauna, humans and infrastructure; and
- feral animal control program.

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APPENDICES

Appendix I: State and Federal Conservation Codes

Western Australian *Wildlife Conservation Act 1950* - Fauna

Priority 1	Taxa with few, poorly known populations on threatened lands. Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
Priority 2	Taxa with few, poorly known populations on conservation lands. Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
Priority 3	Taxa with several, poorly known populations, some on conservation lands. Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
Priority 4:	Taxa in need of monitoring. Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation land.

Western Australian Wildlife Conservation Act 1950-Flora

Declared Rare Flora R	Taxa, which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such.
Declared Rare Flora X	Taxa which have not been collected or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such.
Priority 1	Taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, eg road verges, urban areas, farmland, active mining leases etc, or the plants are under threat, eg from disease, grazing by feral animals etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
Priority 2	Taxa which are known from one or a few (generally <5) populations at least some of which are not believed to be under immediate threat) i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need for further study.
Priority 3	Taxa which are known from several populations, and the taxa are not believed to be under immediate threat (i.e. not currently endangered), either due to the

	number of known populations (generally > 5), or known populations being large and either widespread or protected. Such taxa and under consideration for declaration as 'rare flora' but are in need of further study.
Priority 4	Taxa which are considered to have been adequately surveyed and which, whilst being rare, are not commonly threatened by any identifiable factors. These taxa require monitoring every 5-10 years.

Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999

Extinct	A native species is eligible to be included in the *extinct* category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
Endangered	A native species is eligible to be included in the *endangered* category at a particular time if, at that time: (a) it is not critically endangered; and (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
Vulnerable	A native species is eligible to be included in the *vulnerable* category at a particular time if, at that time: (a) it is not critically endangered or endangered; and (b) it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

Appendix II: Scientific License

DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Enquiries: 17 DICK PERRY AVE, KENSINGTON, WESTERN AUSTRALIA
Telephone: 08 9334 0333
Facsimile: 08 9334 0242

Correspondence: **Locked Bag 30**
Bentley Delivery Centre WA 6983

NO. SF008562
PERSON NO. 159889

DATE OF ISSUE 03/04/2012
VALID FROM 03/04/2012
DATE OF EXPIRY 19/08/2012

LICENSING OFFICER

(CHRIS JAMES)

LICENSEE: MR CJ JACKSON
ADDRESS SENIOR ECOLOGIST
RAPALLO
PO BOX 8190
SUBIACO EAST WA 6008

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WILDLIFE CONSERVATION REGULATIONS 1970

Regulation 17:- Licence to Take Fauna for Scientific Purposes

FURTHER CONDITIONS (OF LICENCE NUMBER SF008562)

1. The licensee shall take fauna only in the manner stated on the endorsed Regulation 17 licence application form and endorsed related correspondence.

2. Except in the case of approved lethal traps, the licensee shall ensure that measures are taken in the capture and handling of fauna to prevent injury or mortality resulting from that capture or handling. Where traps or other mechanical means or devices are used to capture fauna these shall be deployed so as to prevent exposure of trapped animals to ants and debilitating weather conditions and inspected at regular intervals throughout each day of their use. At the conclusion of research all markers etc and signs erected by the licensee and all traps shall be removed, all pitfalls shall be refilled or capped and the study area returned to the condition it was in prior to the research/capture program. During any break in research, cage traps should be removed and pitfalls either removed, capped or filled with sand.

3. No collecting is to be undertaken in areas where it would impinge on pre-existing scientific research programs.

4. Any form of colour marking of birds or bats shall only be undertaken in accordance with the requirements of the Australian Bird and Bat Banding Scheme.

5. Any inadvertently captured specimen of fauna which is declared as likely to become extinct, rare or otherwise in need of special protection is to be released immediately at the point of capture. Where such a specimen is injured or deceased, the licensee shall contact Department of Environment and Conservation licensing staff at Kensington (08 9423 2434) for advice on disposal. Records are to be kept of any fauna so captured and details included in the report required under further condition 6 below.

6. Within one month of the expiration of this licence, the holder shall submit an electronic return detailing the locality, site, geocode, date and number of each species captured, sighted or vouchered during the currency of the licence, into the Department of Environment and Conservation Fauna Survey Database (DECFSD). A copy of any paper, report or thesis resulting from the research shall on completion be lodged with the Director General. If a renewal of this licence is required, the licensee shall submit a written progress report for activities undertaken during this licence period prior to the expiry of this licence.

7. Not more than ten specimens of any one protected species shall be taken and removed from any location less than 20km apart. Where exceptional circumstances make it necessary to take large series in order to obtain adequate statistical data the collector will proceed with circumspection and justify their actions to the Director General in advance.

8. All holotypes and syntypes and a half share of paratypes of species or subspecies permitted to be permanently taken under this licence shall be donated to the Western Australian Museum. Duplicates (one pair in each case) of any species collected which represents a significant extension of geographic range shall be donated on request to the Western Australian Museum.

9. To prevent any unnecessary collecting in this State, all specimens and material collected under the authority of this license shall, on request, be loaned to the Western Australian Museum. Also, the unused portion or portions of any specimen collected under the authority of this license shall be offered for donation to the Western Australian Museum or made available to other scientific workers if so required.

Appendix III: Threatened Fauna Database Search Results

NAME	SOURCE_CODE	SOURCE_ID	NAME_ID	FAMILY	GENUS	SPECIES	AUTHOR	VERNACULAR	KINGDOM	CONSERVATION	CLASS	DAY	MONTH	YEAR	LOCALITY_NAM	SITE_NAME
Dasyurus hallucatus	FAUNASURVEY	213076	24093	Dasyuridae	Dasyurus	hallucatus	Gould	Northern Quoll	Animalia	T	MAMMAL	11	08	2010	JUNA DOWNS	KDD06
Dasyurus hallucatus	FAUNASURVEY	160003	24093	Dasyuridae	Dasyurus	hallucatus	Gould	Northern Quoll	Animalia	T	MAMMAL	25	06	2010	NEWMAN	HDNQ5
Dasyurus hallucatus	FAUNASURVEY	160001	24093	Dasyuridae	Dasyurus	hallucatus	Gould	Northern Quoll	Animalia	T	MAMMAL	23	06	2010	NEWMAN	HDNQ5
Dasyurus hallucatus	FAUNASURVEY	160002	24093	Dasyuridae	Dasyurus	hallucatus	Gould	Northern Quoll	Animalia	T	MAMMAL	24	06	2010	NEWMAN	HDNQ5
Rhinonicteris aurantius	FAUNASURVEY	213488	24179	Hipposideridae	Rhinonicteris	aurantius	Gray	Orange Leafnosed-bat	Animalia	T	MAMMAL	10	08	2010	JUNA DOWNS	KDDBAT01
Rhinonicteris aurantius	FAUNASURVEY	213492	24179	Hipposideridae	Rhinonicteris	aurantius	Gray	Orange Leafnosed-bat	Animalia	T	MAMMAL	10	08	2010	JUNA DOWNS	KDDBAT01
Rhinonicteris aurantius	FAUNASURVEY	213487	24179	Hipposideridae	Rhinonicteris	aurantius	Gray	Orange Leafnosed-bat	Animalia	T	MAMMAL	10	08	2010	JUNA DOWNS	KDDBAT01
Rhinonicteris aurantius	FAUNASURVEY	213486	24179	Hipposideridae	Rhinonicteris	aurantius	Gray	Orange Leafnosed-bat	Animalia	T	MAMMAL	10	08	2010	JUNA DOWNS	KDDBAT01
Rhinonicteris aurantius	FAUNASURVEY	213491	24179	Hipposideridae	Rhinonicteris	aurantius	Gray	Orange Leafnosed-bat	Animalia	T	MAMMAL	10	08	2010	JUNA DOWNS	KDDBAT01
Rhinonicteris aurantius	FAUNASURVEY	213490	24179	Hipposideridae	Rhinonicteris	aurantius	Gray	Orange Leafnosed-bat	Animalia	T	MAMMAL	10	08	2010	JUNA DOWNS	KDDBAT01
Rhinonicteris aurantius	FAUNASURVEY	213489	24179	Hipposideridae	Rhinonicteris	aurantius	Gray	Orange Leafnosed-bat	Animalia	T	MAMMAL	10	08	2010	JUNA DOWNS	KDDBAT01
Rhinonicteris aurantius	TFAUNA	16475	24179	Hipposideridae	Rhinonicteris	aurantius	Gray	Orange Leafnosed-bat	Animalia	T	MAMMAL	22	11	2006	NEWMAN	The R-Deposit project area is north west of Newman at the Area C mine site
Rhinonicteris aurantius	TFAUNA	16397	24179	Hipposideridae	Rhinonicteris	aurantius	Gray	Orange Leafnosed-bat	Animalia	T	MAMMAL	05	03	2008	NEWMAN	Jinayri mining lease
Leggadina lakedownensis	WAMSPECIMENS	M47912	24217	Muridae	Leggadina	lakedownensis	Watts	Short-tailed Mouse	Animalia	4	MAMMAL	27	09	1997	JUNA DOWNS	
Leggadina lakedownensis	WAMSPECIMENS	M47777|24217|14/06/1997	24217	Muridae	Leggadina	lakedownensis	Watts	Short-tailed Mouse	Animalia	4	MAMMAL	14	06	1997	NEWMAN	WEST ANGELES
Leggadina lakedownensis	WAMSPECIMENS	M47672|24217|14/06/1997	24217	Muridae	Leggadina	lakedownensis	Watts	Short-tailed Mouse	Animalia	4	MAMMAL	14	06	1997	NEWMAN	WEST ANGELES
Leggadina lakedownensis	WAMSPECIMENS	M47673|24217|13/06/1997	24217	Muridae	Leggadina	lakedownensis	Watts	Short-tailed Mouse	Animalia	4	MAMMAL	13	06	1997	NEWMAN	WEST ANGELES
Macroderma gigas	TFAUNA	16396	24180	Megadermatidae	Macroderma	gigas	(Dobson)	Ghost Bat	Animalia	4	MAMMAL	05	03	2008	NEWMAN	Jinayri mining lease
Macroderma gigas	FAUNASURVEY	299488	24180	Megadermatidae	Macroderma	gigas	(Dobson)	Ghost Bat	Animalia	4	MAMMAL	09	04	2011	NEWMAN	Site x
Macroderma gigas	WAMSPECIMENS	M48755|24180|00/01/2001	24180	Megadermatidae	Macroderma	gigas	(Dobson)	Ghost Bat	Animalia	4	MAMMAL		01	2001	NEWMAN	
Macroderma gigas	WAMSPECIMENS	M49657|24180|//	24180	Megadermatidae	Macroderma	gigas	(Dobson)	Ghost Bat	Animalia	4	MAMMAL				NEWMAN	NEAR WEST ANGELAS HILL
Macroderma gigas	TFAUNA	15843	24180	Megadermatidae	Macroderma	gigas	(Dobson)	Ghost Bat	Animalia	4	MAMMAL	05	11	2007	NEWMAN	south east of Minga well, Mulga Downs Station, Cloudbreak Project Area
Macroderma gigas	FAUNASURVEY	299490	24180	Megadermatidae	Macroderma	gigas	(Dobson)	Ghost Bat	Animalia	4	MAMMAL	09	04	2011	NEWMAN	Site x
Macroderma gigas	TFAUNA	3001	24180	Megadermatidae	Macroderma	gigas	(Dobson)	Ghost Bat	Animalia	4	MAMMAL	02	09	1998	NEWMAN	West Angela Hill. Cave AA1.
Macroderma gigas	TFAUNA	16395	24180	Megadermatidae	Macroderma	gigas	(Dobson)	Ghost Bat	Animalia	4	MAMMAL	05	03	2008	NEWMAN	Jinayri mining lease
Macroderma gigas	TFAUNA	16394	24180	Megadermatidae	Macroderma	gigas	(Dobson)	Ghost Bat	Animalia	4	MAMMAL	05	03	2008	NEWMAN	Jinayri mining lease
Macroderma gigas	WAMSPECIMENS	M48754|24180|00/01/2001	24180	Megadermatidae	Macroderma	gigas	(Dobson)	Ghost Bat	Animalia	4	MAMMAL		01	2001	NEWMAN	
Pseudomys chapmani	TFAUNA	5318	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	01	01	1994	KARIJINI	Mt Meharry
Pseudomys chapmani	TFAUNA	5327	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	01	01	1994	KARIJINI	Munjina Gorge
Pseudomys chapmani	TFAUNA	5255	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	29	07	1991	JUNA DOWNS	Road near Mt Windell (Karijini Dr?)
Pseudomys chapmani	FAUNASURVEY	210857	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	28	03	2011	JUNA DOWNS	KDD14
Pseudomys chapmani	WAMSPECIMENS	M36741	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	29	07	1991	JUNA DOWNS	
Pseudomys chapmani	TFAUNA	5266	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	01	01	1994	JUNA DOWNS	S of Munjina Gorge
Pseudomys chapmani	FAUNASURVEY	213452	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	19	08	2010	JUNA DOWNS	KDD14
Pseudomys chapmani	WAMSPECIMENS	M18346|24233|18/09/1979	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	18	09	1979	NEWMAN	
Pseudomys chapmani	TFAUNA	5329	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	01	01	1994	NEWMAN	
Pseudomys chapmani	FAUNASURVEY	299503	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	18	03	2011	NEWMAN	Site x
Pseudomys chapmani	FAUNASURVEY	340813	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	22	08	2011	NEWMAN	Site x
Pseudomys chapmani	TFAUNA	5280	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	07	03	1992	NEWMAN	Packsaddle Plots 1/1 & 1/2
Pseudomys chapmani	WAMSPECIMENS	M16827|24233|13/12/1979	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	13	12	1979	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M55090|24233|07/05/2004	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	07	05	2004	NEWMAN	WEST ANGELES
Pseudomys chapmani	TFAUNA	5319	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	01	01	1994	NEWMAN	
Pseudomys chapmani	TFAUNA	16412	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	05	02	2008	NEWMAN	Area C South Flank Deposit
Pseudomys chapmani	FAUNASURVEY	299497	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	15	03	2011	NEWMAN	Site x
Pseudomys chapmani	FAUNASURVEY	210858	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	28	03	2011	NEWMAN	KDD19
Pseudomys chapmani	TFAUNA	11793	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	12	05	2006	NEWMAN	Marillana PMN15
Pseudomys chapmani	FAUNASURVEY	303083	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	27	05	2011	NEWMAN	KDC01
Pseudomys chapmani	WAMSPECIMENS	M52486|24233|29/05/1998	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	29	05	1998	NEWMAN	
Pseudomys chapmani	TFAUNA	16413	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	05	02	2008	NEWMAN	Area C South Flank Deposit
Pseudomys chapmani	WAMSPECIMENS	M47173|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M55289|24233|31/05/2004	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	31	05	2004	NEWMAN	PACKSADDLE RANGE
Pseudomys chapmani	WAMSPECIMENS	M47171|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M47640|24233|12/06/1997	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	12	06	1997	NEWMAN	WEST ANGELES
Pseudomys chapmani	FAUNASURVEY	344487	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	12	04	2011	NEWMAN	SFJ07P
Pseudomys chapmani	FAUNASURVEY	210860	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	30	03	2011	NEWMAN	KDDSRE33
Pseudomys chapmani	FAUNASURVEY	344488	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	06	11	2011	NEWMAN	SFJ07P
Pseudomys chapmani	WAMSPECIMENS	M52598|24233|13/05/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	13	05	1996	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M47159|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	FAUNASURVEY	210859	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	30	03	2011	NEWMAN	KDDSRE33
Pseudomys chapmani	TFAUNA	5908	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	01	05	2001	NEWMAN	Hamersley Range on sandy alluvial plain. Proposed Hope Downs rail corridor (HAE3)
Pseudomys chapmani	TFAUNA	11795	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	12	05	2006	NEWMAN	Marillana PMN16
Pseudomys chapmani	WAMSPECIMENS	M47168|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M52577|24233|09/05/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	09	05	1996	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M47153|24233|22/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	22	03	1996	NEWMAN	MINING LEASE
Pseudomys chapmani	WAMSPECIMENS	M47155|24233|20/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	20	03	1996	NEWMAN	MINING LEASE
Pseudomys chapmani	WAMSPECIMENS	M47152|24233|22/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	22	03	1996	NEWMAN	MINING LEASE
Pseudomys chapmani	TFAUNA	16480	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	22	11	2006	NEWMAN	The R-Deposit project area is north west of Newman at the Area C mine site
Pseudomys chapmani	TFAUNA	11798	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	13	05	2006	NEWMAN	Marillana PMN21
Pseudomys chapmani	WAMSPECIMENS	M47166|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M47174|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	FAUNASURVEY	344489	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	08	11	2011	NEWMAN	SFJ07P
Pseudomys chapmani	FAUNASURVEY	299504	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	19	03	2011	NEWMAN	Site x
Pseudomys chapmani	WAMSPECIMENS	M16833|24233|07/12/1979	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	07	12	1979	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M50682|24233|05/03/1998	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	05	03	1998	NEWMAN	HAMERSLEY IRON`S YANDI
Pseudomys chapmani	WAMSPECIMENS	M50681|24233|05/03/1998	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	05	03	1998	NEWMAN	HAMERSLEY IRON`S YANDI
Pseudomys chapmani	FAUNASURVEY	210861	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	30	03	2011	NEWMAN	KDDSRE34
Pseudomys chapmani	WAMSPECIMENS	M62205|24233|00/04/2006	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		04	2006	NEWMAN	NORTH NEWMAN
Pseudomys chapmani	TFAUNA	11794	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	12	05	2006	NEWMAN	Marillana PMN17
Pseudomys chapmani	WAMSPECIMENS	M47162|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M16832|24233|13/12/1979	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	13	12	1979	NEWMAN	
Pseudomys chapmani	TFAUNA	11799	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	11	05	2006	NEWMAN	Marillana PMN4
Pseudomys chapmani	WAMSPECIMENS	M50683|24233|04/03/1998	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	04	03	1998	NEWMAN	HAMERSLEY IRON`S YANDI
Pseudomys chapmani	WAMSPECIMENS	M52581|24233|10/05/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	10	05	1996	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M18242|24233|18/06/1979	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	18	06	1979	NEWMAN	
Pseudomys chapmani	FAUNASURVEY	299510	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	09	04	2011	NEWMAN	Site x
Pseudomys chapmani	FAUNASURVEY	344491	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	06	11	2011	NEWMAN	SFJ08P
Pseudomys chapmani	WAMSPECIMENS	M47169|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	FAUNASURVEY	299511	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	09	04	2011	NEWMAN	Site x
Pseudomys chapmani	FAUNASURVEY	340814	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	22	08	2011	NEWMAN	Site x
Pseudomys chapmani	WAMSPECIMENS	M52583|24233|10/05/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	10	05	1996	NEWMAN	
Pseudomys chapmani	TFAUNA	5282	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	09	05	1996	NEWMAN	Boundary Ridge, plots P2/1 & 2/2
Pseudomys chapmani	FAUNASURVEY	340816	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	22	08	2011	NEWMAN	Site x
Pseudomys chapmani	WAMSPECIMENS	M47161|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	FAUNASURVEY	299499	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	16	03	2011	NEWMAN	Site x
Pseudomys chapmani	WAMSPECIMENS	M18249|24233|18/06/1979	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	18	06	1979	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M47156|24233|23/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	23	03	1996	NEWMAN	MINING LEASE
Pseudomys chapmani	WAMSPECIMENS	M47170|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	

Pseudomys chapmani	WAMSPECIMENS	M47918|24233|01/10/1997	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	01	10	1997	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M47158|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	FAUNASURVEY	299508	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	19	03	2011	NEWMAN	Site x
Pseudomys chapmani	TFAUNA	16414	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	05	02	2008	NEWMAN	Area C South Flank Deposit
Pseudomys chapmani	TFAUNA	11797	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	12	05	2006	NEWMAN	Marillana PMN119
Pseudomys chapmani	FAUNASURVEY	344490	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	09	11	2011	NEWMAN	SFJ07P
Pseudomys chapmani	FAUNASURVEY	299505	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	19	03	2011	NEWMAN	Site x
Pseudomys chapmani	WAMSPECIMENS	M47157|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M47664|24233|19/06/1997	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	19	06	1997	NEWMAN	WEST ANGELES
Pseudomys chapmani	WAMSPECIMENS	M16825|24233|12/12/1979	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	12	12	1979	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M47167|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M52578|24233|09/05/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	09	05	1996	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M18251|24233|15/06/1979	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	15	06	1979	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M55086|24233|05/05/2004	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	05	05	2004	NEWMAN	WEST ANGELES
Pseudomys chapmani	WAMSPECIMENS	M47165|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	TFAUNA	11792	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	12	05	2006	NEWMAN	Marillana PMN18
Pseudomys chapmani	WAMSPECIMENS	M52544|24233|13/05/1992	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	13	05	1992	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M52501|24233|13/05/1992	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	13	05	1992	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M50916|24233|13/06/1997	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	13	06	1997	NEWMAN	WEST ANGELES
Pseudomys chapmani	WAMSPECIMENS	M46335|24233|24/05/1995	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	24	05	1995	NEWMAN	
Pseudomys chapmani	TFAUNA	5247	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	15	12	1979	NEWMAN	West Angelas (=Mt Meharry) - Iron Mine
Pseudomys chapmani	WAMSPECIMENS	M18345|24233|17/09/1979	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	17	09	1979	NEWMAN	
Pseudomys chapmani	TFAUNA	16481	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	22	11	2006	NEWMAN	The R-Deposit project area is north west of Newman at the Area C mine site
Pseudomys chapmani	WAMSPECIMENS	M47163|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M50680|24233|05/03/1998	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	05	03	1998	NEWMAN	HAMERSLEY IRON`S YANDI
Pseudomys chapmani	TFAUNA	16479	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	22	11	2006	NEWMAN	The R-Deposit project area is north west of Newman at the Area C mine site
Pseudomys chapmani	WAMSPECIMENS	M47164|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	FAUNASURVEY	299509	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	07	04	2011	NEWMAN	Site x
Pseudomys chapmani	TFAUNA	16478	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	22	11	2006	NEWMAN	The R-Deposit project area is north west of Newman at the Area C mine site
Pseudomys chapmani	WAMSPECIMENS	M52542|24233|13/05/1992	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	13	05	1992	NEWMAN	
Pseudomys chapmani	TFAUNA	5281	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	10	02	1993	NEWMAN	The Governor, plots 1/3 & 1/4
Pseudomys chapmani	FAUNASURVEY	303084	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	13	09	2011	NEWMAN	KOC01P
Pseudomys chapmani	WAMSPECIMENS	M18977|24233|10/12/1980	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	10	12	1980	NEWMAN	YANDICOOGINA CREEK
Pseudomys chapmani	TFAUNA	5250	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	10	12	1980	NEWMAN	Yandicoogina , Marillana Stn
Pseudomys chapmani	WAMSPECIMENS	M52496|24233|16/09/1991	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	16	09	1991	NEWMAN	
Pseudomys chapmani	FAUNASURVEY	340824	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	22	08	2011	NEWMAN	Site x
Pseudomys chapmani	FAUNASURVEY	299501	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	17	03	2011	NEWMAN	Site x
Pseudomys chapmani	TFAUNA	11796	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	12	05	2006	NEWMAN	Marillana PMN18
Pseudomys chapmani	WAMSPECIMENS	M47154|24233|20/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	20	03	1996	NEWMAN	MINING LEASE
Pseudomys chapmani	FAUNASURVEY	299500	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	16	03	2011	NEWMAN	Site x
Pseudomys chapmani	FAUNASURVEY	299498	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	16	03	2011	NEWMAN	Site x
Pseudomys chapmani	WAMSPECIMENS	M18250|24233|15/06/1979	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	15	06	1979	NEWMAN	
Pseudomys chapmani	WAMSPECIMENS	M47172|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	FAUNASURVEY	344492	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	03	11	2011	NEWMAN	SFJOPP
Pseudomys chapmani	WAMSPECIMENS	M47160|24233|00/03/1996	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL		03	1996	NEWMAN	
Pseudomys chapmani	FAUNASURVEY	299506	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	19	03	2011	NEWMAN	Site x
Pseudomys chapmani	WAMSPECIMENS	M52498|24233|19/09/1991	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	19	09	1991	NEWMAN	
Pseudomys chapmani	TFAUNA	16483	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	22	11	2006	NEWMAN	The R-Deposit project area is north west of Newman at the Area C mine site
Pseudomys chapmani	TFAUNA	11800	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	11	05	2006	NEWMAN	Marillana PMN11
Pseudomys chapmani	WAMSPECIMENS	M55092|24233|07/05/2004	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	07	05	2004	NEWMAN	WEST ANGELES
Pseudomys chapmani	TFAUNA	11791	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	12	05	2006	NEWMAN	Marillana
Pseudomys chapmani	WAMSPECIMENS	M52543|24233|13/05/1992	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	13	05	1992	NEWMAN	
Pseudomys chapmani	TFAUNA	16482	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	22	11	2006	NEWMAN	The R-Deposit project area is north west of Newman at the Area C mine site
Pseudomys chapmani	FAUNASURVEY	344486	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	10	11	2011	NEWMAN	SFJ07P
Pseudomys chapmani	TFAUNA	5246	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	13	12	1979	NEWMAN	West Angelas (=Mt Meharry) - Iron Mine
Pseudomys chapmani	WAMSPECIMENS	M55097|24233|07/05/2004	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	07	05	2004	NEWMAN	WEST ANGELES
Pseudomys chapmani	TFAUNA	16427	24233	Muridae	Pseudomys	chapmani	Kitchener	Western Pebble-mound Mouse	Animalia	4	MAMMAL	17	03	2008	NEWMAN	Area C mine

Appendix IV: DEC Threatened Ecological Communities Search Results

DEPARTMENT OF ENVIRONMENT AND CONSERVATION

THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES INFORMATION

CONDITIONS IN RESPECT OF SUPPLY OF INFORMATION

1. All requests for data are to be made in writing to the Director General, Department of Environment and Conservation Attention: Species and Communities Branch

2. The data supplied may not be supplied to other organisations, nor be used for any purpose other than for the project for which they have been provided, without the prior written consent of the data custodian (Val English), Species and Communities Branch.

3. Specific locality information for threatened and priority ecological communities (TECs/PECs) is regarded as confidential, and should be treated as such by receiving organisations. Specific locality information for TECs/PECs may not be used in public reports without the written permission of the Director General, Department of Environment and Conservation. Publicly available reports may only show generalised locations (ie buffer locations). The TEC database manager is to be contacted for guidance on the presentation of TEC/PEC information.

4. Note that the Department of Environment and Conservation respects the privacy of private landowners who may have threatened and priority ecological communities on their property. Locations of TECs/PECs identified in the data as being on private property should be treated in confidence, and contact with property owners made through the Department of Environment and Conservation.

5. Receiving organisations should note that while every effort has been made to prevent errors and omissions in the data provided, they may be present. The Department of Environment and Conservation accepts no responsibility for this.

6. Receiving organisations must also recognise that the Threatened Ecological Communities database is subject to continual updating and amendment, and such considerations should be taken into account by the user.

7. It should be noted that the supplied data do not necessarily represent a comprehensive listing of the threatened and priority ecological communities of the area in question. Its comprehensiveness is dependant on the amount of survey carried out within the specified area. Private property has been relatively little surveyed. The receiving organisation should employ a consultant, if there is any likelihood of the presence of any threatened or priority ecological community, to undertake a survey of the area under consideration.

8. Acknowledgment of the Department of Environment and Conservation as source of the data is to be made in any published material. Copies of all such publications are to be forwarded to the Department of Environment and Conservation, Attention: Manager, Species and Communities Branch.

Threatened and Priority Ecological Community buffers in WA

UNDER NO CIRCUMSTANCES IS THIS DATA TO BE PROVIDED TO ANY THIRD PARTIES, for more details see conditions for the supply of this information.

Citation

Title: Threatened and Priority Ecological Community buffers in WA

Custodian: Department of Environment & Conservation

Description

Abstract: Ecological communities throughout WA that are "Presumed Totally Destroyed", "Critically Endangered", "Endangered", "Vulnerable", "Priority 1-5", "Lower Risk" and "Not evaluated". Communities are based on various life-forms including plants, invertebrates and micro-organisms.

Geographical Bounding Box

North: -14.788854

South: -35.005719

East: 128.870214

West: 113.765525

Data Currency and Status

Beginning Date: 1/1/94

Ending Date: current

Maintenance/Update: As requested

Access

Stored Data Format: ESRI shapefile

Coordinate System: GCS_GDA_1994

Access Constraints:	Digital data is only available with written permission of the custodian. In addition, some occurrence data eg. location of sites on private land, is password restricted.

Data Quality

Positional Accuracy:	Point location data within occurrences usually from GPS fix, usually within 100 metres. Some digitized from hard copy.
Attribute Accuracy:	Not documented.
Logical Consistency:	Not documented.
Completeness:	Information on specific communities was obtained from regional, subregional or specific habitat surveys of floristic communities, invertebrate communities, wetland assemblages and communities of micro-organisms.

Attributes List:

Name	Description
BDY_ID	Associated boundary polygon unique identifier
OCC_UNIQUE	Unique occurrence identifier
COM_ID	Shortened community name identifier
COM_NAME	Community name
CT_DESC	State listed Category of Threat
S_ID_COUNT	Number of Site IDs within a buffer
FIRST_S_ID	First site identifier
LAST_S_ID	Last site identifier
BUFFER	Buffer radius from site ID or boundary in metres

General Information:

Priority Ecological Communities	■ There are 284 known PECs and subtypes , 271 (~95%) of these on the TEC/PEC database ■ The location of priority communities is good, but not complete across the state ■ There is a formal list of PECs at http://www.dec.wa.gov.au/content/view/849/2017/ ■ Many PECs are awaiting endorsement as TECs
buffers	■ The buffer radius around each occurrence of a TEC or PEC is included to help ensure that developments with potential to impact groundwater or surface water are picked up. ■ For wetland TEC or PECs we seek to include an area within the buffer zone that is intended to help protect groundwater and surface water. The area required to protect different types of wetlands from a variety of hydrological impacts will, of course, differ.

- For upland TEC or PECs that are believed not to be groundwater dependent, the buffer area radius encompasses the TEC or PEC site location recorded in the TEC database, and extends at least to the furthest point in the occurrence. This is to ensure that the 'buffer' area encompasses at least the entire TEC or PEC. This means that some linear occurrences may need a larger buffer radius to encompass the entire occurrence.
- Occurrences with a buffer distance of 0 are no longer extant.

Contact Information

Contact Organisation:	**Department of Environment & Conservation**
Contact Position:	**TEC Database Administrator - Species and Communities Branch**
Mail Address:	**Locked Bag 104, Bentley Delivery Centre**
Suburb/Locality:	**Kensington**
Country/State:	**WA**
Postcode:	**6983**
Telephone:	**(08) 9334 0116**
Fax:	**(08) 9334 0300**
Email:	**communities.data@dec.wa.gov.au**

Metadata Information

Metadata Date: **current**

Appendix V: SEWPaC Environmental Reporting Tool Search Results

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

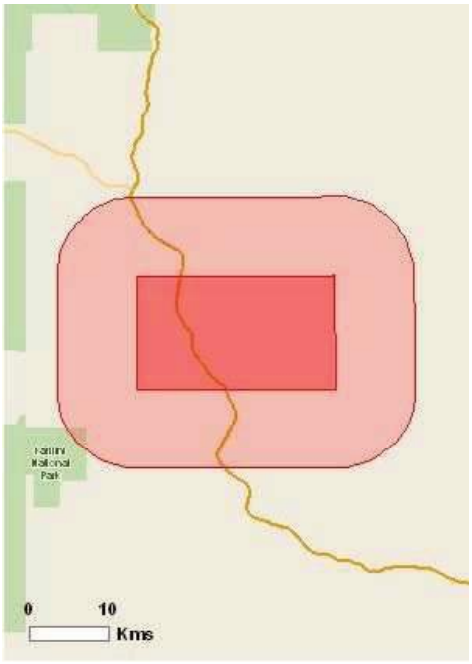
Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

Report created: 12/04/12 12:31:56

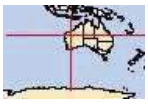
Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 10.0Km



Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	None
Threatened Species:	6
Migratory Species:	8

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage/index.html

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at http://www.environment.gov.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	5
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

Place on the RNE:	None
State and Territory Reserves:	1
Regional Forest Agreements:	None
Invasive Species:	4
Nationally Important Wetlands:	None

Details

Matters of National Environmental Significance

Threatened Species		[Resource Information]
Name	Status	Type of Presence
BIRDS		
Pezoporus occidentalis		
Night Parrot [59350]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
MAMMALS		
Dasyurus hallucatus		
Northern Quoll [331]	Endangered	Species or species habitat likely to occur within area
Rhinonicteris aurantia (Pilbara form)		
Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat likely to occur within area
PLANTS		
Lepidium catapycnon		
Hamersley Lepidium, Hamersley Catapycnon [9397]	Vulnerable	Species or species habitat likely to occur within area
Thryptomene wittweri		
Mountain Thryptomene [16645]	Vulnerable	Species or species habitat likely to occur within area
REPTILES		
Liasis olivaceus barroni		
Olive Python (Pilbara subspecies) [66699]	Vulnerable	Species or species habitat may occur within area

Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat may occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Migratory Terrestrial Species		
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Pezoporus occidentalis		
Night Parrot [59350]	Endangered	Species or species habitat likely to occur within area
Migratory Wetlands Species		
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Charadrius veredus		
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat may occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves [Resource Information]

Name	State
Karijini	WA

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit,

Name	Status	Type of Presence
Mammals		
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat likely to occur within area

Coordinates

-22.76596 118.93221,-22.89802 118.93459,-22.89802 118.70497,-22.76715 118.70497,
-22.76715 118.92983,-22.76596 118.92983,-22.76596 118.93221

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Department of Environment, Climate Change and Water, New South Wales
-Department of Sustainability and Environment, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment and Natural Resources, South Australia
-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts
-Environmental and Resource Management, Queensland
-Department of Environment and Conservation, Western Australia
-Department of the Environment, Climate Change, Energy and Water
-Birds Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-SA Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Atherton and Canberra

-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
-State Forests of NSW
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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Appendix VI: NatureMap Search Results

NatureMap
Mapping Western Australia's biodiversity

Lamb Creek Fauna

Created By Guest user on 30/04/2012

Kingdom	Animalia
Current Names Only	Yes
Core Datasets Only	Yes
Method	'By Circle'
Centre	118°18' 52'' E,22°26' 29'' S
Buffer	40km
Group By	Species Group

Species Group	Species	Records
Amphibian	5	173
Bird	156	2881
Mammal	25	279
Reptile	91	917
TOTAL	**277**	**4250**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Amphibian					
1.	25375	*Cyclorana maini (Sheep Frog)*			
2.	25392	*Litoria rubella (Little Red Tree Frog)*			
3.	25422	*Neobatrachus aquilonius (Northern Burrowing Frog)*			
4.	25432	*Pseudophryne douglasi (Gorge Toadlet)*			
5.	25445	*Uperoleia russelli (Northwest Toadlet)*			
Bird					
6.	24559	*Acanthagenys rufogularis (Spiny-cheeked Honeyeater)*			
7.	24260	*Acanthiza apicalis (Broad-tailed Thornbill)*			
8.	24261	*Acanthiza chrysorrhoa (Yellow-rumped Thornbill)*			
9.	24264	*Acanthiza robustirostris (Slaty-backed Thornbill)*			
10.	24265	*Acanthiza uropygialis (Chestnut-rumped Thornbill)*			
11.	25535	*Accipiter cirrocephalus (Collared Sparrowhawk)*			
12.	25536	*Accipiter fasciatus (Brown Goshawk)*			
13.	25755	*Acrocephalus australis (Australian Reed Warbler)*			
14.	25544	*Aegotheles cristatus (Australian Owlet-nightjar)*			
15.	24301	*Aegotheles cristatus subsp. cristatus*			
16.	25647	*Amytornis striatus (Striated Grasswren)*			
17.	24539	*Amytornis striatus subsp. striatus*		P4	
18.	24540	*Amytornis striatus subsp. whitei*			
19.	24312	*Anas gracilis (Grey Teal)*			
20.	24316	*Anas superciliosa (Pacific Black Duck)*			
21.	24599	*Anthus australis subsp. australis*			
22.	24285	*Aquila audax (Wedge-tailed Eagle)*			
23.	24341	*Ardea pacifica (White-necked Heron)*			
24.	24610	*Ardeotis australis (Australian Bustard)*		P4	
25.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
26.	24352	*Artamus cinereus subsp. melanops*			
27.	24355	*Artamus minor (Little Woodswallow)*			
28.	24356	*Artamus personatus (Masked Woodswallow)*			
29.	24318	*Aythya australis (Hardhead)*			
30.	24359	*Burhinus grallarius (Bush Stone-curlew)*		P4	
31.	25715	*Cacatua roseicapilla (Galah)*			
32.	24726	*Cacatua roseicapilla subsp. roseicapilla*			
33.	25716	*Cacatua sanguinea (Little Corella)*			
34.	25600	*Centropus phasianinus (Pheasant Coucal)*			
35.	24563	*Certhionyx niger (Black Honeyeater)*			
36.	24564	*Certhionyx variegatus (Pied Honeyeater)*			
37.	24377	*Charadrius ruficapillus (Red-capped Plover)*			
38.	24321	*Chenonetta jubata (Australian Wood Duck)*			
39.	24431	*Chrysococcyx basalis (Horsfield's Bronze Cuckoo)*			
40.	24434	*Chrysococcyx osculans (Black-eared Cuckoo)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
41.	24833	*Cincloramphus cruralis (Brown Songlark)*			
42.	24834	*Cincloramphus mathewsi (Rufous Songlark)*			
43.	24288	*Circus approximans (Swamp Harrier)*			
44.	24289	*Circus assimilis (Spotted Harrier)*			
45.	25582	*Climacteris melanura (Black-tailed Treecreeper)*			
46.	24395	*Climacteris melanura subsp. wellsi*			
47.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
48.	24613	*Colluricincla harmonica subsp. rufiventris*			
49.	24361	*Coracina maxima (Ground Cuckoo-shrike)*			
50.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
51.	24363	*Coracina novaehollandiae subsp. subpallida*			
52.	24416	*Corvus bennetti (Little Crow)*			
53.	25593	*Corvus orru (Torresian Crow)*			
54.	24418	*Corvus orru subsp. cecilae (Western Crow)*			
55.	24671	*Coturnix pectoralis (Stubble Quail)*			
56.	25701	*Coturnix ypsilophora (Brown Quail)*			
57.	24420	*Cracticus nigrogularis (Pied Butcherbird)*			
58.	25595	*Cracticus tibicen (Australian Magpie)*			
59.	25596	*Cracticus torquatus (Grey Butcherbird)*			
60.	24424	*Cracticus torquatus subsp. torquatus*			
61.	24435	*Cuculus pallidus (Pallid Cuckoo)*			
62.	24322	*Cygnus atratus (Black Swan)*			
63.	25547	*Dacelo leachii (Blue-winged Kookaburra)*			
64.	25673	*Daphoenositta chrysoptera (Varied Sittella)*			
65.	24606	*Daphoenositta chrysoptera subsp. pileata (Varied Sittella)*			
66.	24325	*Dendrocygna eytoni (Plumed Whistling Duck)*			
67.	25607	*Dicaeum hirundinaceum (Mistletoebird)*			
68.	24470	*Dromaius novaehollandiae (Emu)*			
69.	24631	*Emblema pictum (Painted Finch)*			
70.	25578	*Ephippiorhynchus asiaticus (Black-necked Stork)*			
71.	24570	*Epthianura tricolor (Crimson Chat)*			
72.	24837	*Eremiornis carteri (Spinifex-bird)*			
73.	24379	*Erythrogonys cinctus (Red-kneed Dotterel)*			
74.	24368	*Eurostopodus argus (Spotted Nightjar)*			
75.	25621	*Falco berigora (Brown Falcon)*			
76.	25622	*Falco cenchroides (Australian Kestrel)*			
77.	25623	*Falco longipennis (Australian Hobby)*			
78.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
79.	25727	*Fulica atra (Eurasian Coot)*			
80.	25730	*Gallirallus philippensis (Buff-banded Rail)*			
81.	24401	*Geopelia cuneata (Diamond Dove)*			
82.	25585	*Geopelia striata (Peaceful Dove)*			
83.	24403	*Geopelia striata subsp. placida*			
84.	24404	*Geophaps plumifera (Spinifex Pigeon)*			
85.	25530	*Gerygone fusca (Western Gerygone)*			
86.	24271	*Gerygone fusca subsp. fusca*			
87.	24443	*Grallina cyanoleuca (Magpie-lark)*			
88.	24293	*Haliaeetus leucogaster (White-bellied Sea-Eagle)*			
89.	24295	*Haliastur sphenurus (Whistling Kite)*			
90.	24297	*Hamirostra melanosternon (Black-breasted Buzzard)*			
91.	25734	*Himantopus himantopus (Black-winged Stilt)*			
92.	24491	*Hirundo neoxena (Welcome Swallow)*			
93.	25562	*Ixobrychus flavicollis (Black Bittern)*			
94.	24572	*Lacustroica whitei (Grey Honeyeater)*			
95.	24367	*Lalage tricolor (White-winged Triller)*			
96.	24575	*Lichenostomus keartlandi (Grey-headed Honeyeater)*			
97.	24578	*Lichenostomus penicillatus (White-plumed Honeyeater)*			
98.	24581	*Lichenostomus virescens (Singing Honeyeater)*			
99.	25661	*Lichmera indistincta (Brown Honeyeater)*			
100.	24582	*Lichmera indistincta subsp. indistincta*			
101.	24326	*Malacorhynchus membranaceus (Pink-eared Duck)*			
102.	25651	*Malurus lamberti (Variegated Fairy-wren)*			
103.	24544	*Malurus lamberti subsp. assimilis*			
104.	25652	*Malurus leucopterus (White-winged Fairy-wren)*			
105.	24548	*Malurus leucopterus subsp. leucopterus*		T	
106.	25654	*Malurus splendens (Splendid Fairy-wren)*			
107.	24583	*Manorina flavigula (Yellow-throated Miner)*			
108.	25665	*Melithreptus gularis (Black-chinned Honeyeater)*			
109.	24736	*Melopsittacus undulatus (Budgerigar)*			
110.	24598	*Merops ornatus (Rainbow Bee-eater)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
111.	24654	*Microeca fascinans subsp. assimilis*			
112.	25542	*Milvus migrans (Black Kite)*			
113.	25545	*Mirafra javanica (Horsfield's Bushlark)*			
114.	24737	*Neophema bourkii (Bourke's Parrot)*			
115.	24819	*Ninox connivens subsp. connivens (Barking Owl)*			
116.	25748	*Ninox novaeseelandiae (Boobook Owl)*			
117.	25564	*Nycticorax caledonicus (Rufous Night Heron)*			
118.	24742	*Nymphicus hollandicus (Cockatiel)*			
119.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
120.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
121.	24624	*Pachycephala rufiventris subsp. rufiventris*			
122.	24627	*Pardalotus rubricatus (Red-browed Pardalote)*			
123.	25682	*Pardalotus striatus (Striated Pardalote)*			
124.	24628	*Pardalotus striatus subsp. murchisoni*			
125.	24648	*Pelecanus conspicillatus (Australian Pelican)*			
126.	24658	*Petroica cucullata (Hooded Robin)*			
127.	24659	*Petroica goodenovii (Red-capped Robin)*			
128.	24667	*Phalacrocorax sulcirostris (Little Black Cormorant)*			
129.	25699	*Phalacrocorax varius (Pied Cormorant)*			
130.	24409	*Phaps chalcoptera (Common Bronzewing)*			
131.	24593	*Phylidonyris albifrons (White-fronted Honeyeater)*			
132.	24841	*Platalea flavipes (Yellow-billed Spoonbill)*			
133.	24842	*Platalea regia (Royal Spoonbill)*			
134.	24751	*Platycercus zonarius subsp. zonarius*			
135.	24843	*Plegadis falcinellus (Glossy Ibis)*			
136.	25703	*Podargus strigoides (Tawny Frogmouth)*			
137.	24683	*Pomatostomus superciliosus (White-browed Babbler)*			
138.	25706	*Pomatostomus temporalis (Grey-crowned Babbler)*			
139.	24684	*Pomatostomus temporalis subsp. rubeculus*			
140.	24771	*Porzana tabuensis (Spotless Crake)*			
141.	24390	*Psophodes occidentalis (Western Wedgebill)*			
142.	24757	*Ptilonorhynchus maculatus subsp. guttatus (Western Bowerbird)*			
143.	24278	*Pyrrholaemus brunneus (Redthroat)*			
144.	24451	*Rhipidura fuliginosa subsp. alisteri*			
145.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
146.	24454	*Rhipidura leucophrys subsp. leucophrys*			
147.	30948	*Smicrornis brevirostris (Weebill)*			
148.	24522	*Sterna bergii (Crested Tern)*			
149.	24529	*Sterna leucoptera (White-winged Black Tern)*			
150.	24329	*Stictonetta naevosa (Freckled Duck)*			
151.	25656	*Stipiturus ruficeps (Rufous-crowned Emu-wren)*			
152.	25705	*Tachybaptus novaehollandiae (Australasian Grebe)*			
153.	24331	*Tadorna tadornoides (Australian Shelduck)*			
154.	30870	*Taeniopygia guttata (Zebra Finch)*			
155.	30871	*Taeniopygia guttata subsp. castanotis*			
156.	24844	*Threskiornis molucca (Australian White Ibis)*			
157.	24845	*Threskiornis spinicollis (Straw-necked Ibis)*			
158.	24308	*Todiramphus pyrrhopygia (Red-backed Kingfisher)*			
159.	25549	*Todiramphus sanctus (Sacred Kingfisher)*			
160.	24851	*Turnix velox (Little Button-quail)*			
161.	25577	*Vanellus miles (Masked Lapwing)*			
Mammal					
162.	25454	*Canis lupus*			
163.	24181	*Chaerephon jobensis (Northern Freetail-bat)*			
164.	24186	*Chalinolobus gouldii (Gould's Wattled Bat)*			
165.	24091	*Dasykaluta rosamondae (Little Red Kaluta)*			
166.	24093	*Dasyurus hallucatus (Northern Quoll)*		T	
167.	24135	*Macropus robustus subsp. erubescens (Euro)*			
168.	24136	*Macropus rufus (Red Kangaroo)*			
169.	24182	*Mormopterus beccarii (Beccari's Freetail-bat)*			
170.	24223	*Mus musculus (House Mouse)*			
171.	24095	*Ningaui timealeyi (Pilbara Ningaui)*			
172.	24194	*Nyctophilus geoffroyi (Lesser Long-eared Bat)*			
173.	24144	*Petrogale rothschildi (Rothschild's Rock-wallaby)*			
174.	24101	*Planigale ingrami (Long-tailed Planigale)*			
175.	24233	*Pseudomys chapmani (Western Pebble-mound Mouse)*		P4	
176.	24237	*Pseudomys hermannsburgensis (Sandy Inland Mouse)*			
177.	24173	*Pteropus scapulatus (Little Red Flying-fox)*			
178.	24174	*Saccolaimus flaviventris (Yellow-bellied Sheathtail-bat)*			
179.	24200	*Scotorepens greyii (Little Broad-nosed Bat)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
180.	24116	*Sminthopsis macroura (Stripe-faced Dunnart)*			
181.	24117	*Sminthopsis ooldea (Ooldea Dunnart)*			
182.	24175	*Taphozous georgianus (Common Sheathtail-bat)*			
183.	24176	*Taphozous hilli (Hill's Sheathtail-bat)*			
184.	24157	*Trichosurus vulpecula subsp. arnhemensis (Northern Brushtail Possum)*			
185.	24205	*Vespadelus finlaysoni (Finlayson's Cave Bat)*			
186.	24248	*Zyzomys argurus (Common Rock-rat)*			
Reptile					
187.	25332	*Acanthophis wellsi (Pilbara Death Adder)*			
188.	30833	*Amphibolurus longirostris*			
189.	25318	*Antaresia perthensis (Pygmy Python)*			
190.	25241	*Antaresia stimsoni subsp. stimsoni*			
191.	25331	*Brachyurophis approximans*			
192.	25015	*Carlia munda*			
193.	25017	*Carlia triacantha*			
194.	24919	*Crenadactylus ocellatus subsp. horni*			
195.	30893	*Cryptoblepharus buchananii*			
196.	30892	*Cryptoblepharus ustulatus*			
197.	24865	*Ctenophorus caudicinctus subsp. caudicinctus*			
198.	24876	*Ctenophorus isolepis subsp. isolepis*			
199.	24882	*Ctenophorus nuchalis (Central Netted Dragon)*			
200.	24886	*Ctenophorus reticulatus (Western Netted Dragon)*			
201.	25036	*Ctenotus duricola*			
202.	25041	*Ctenotus grandis subsp. grandis*			
203.	25043	*Ctenotus grandis subsp. titan*			
204.	25044	*Ctenotus hanloni*			
205.	25045	*Ctenotus helenae*			
206.	25060	*Ctenotus pantherinus subsp. acripes*			
207.	25064	*Ctenotus pantherinus subsp. ocellifer*			
208.	25065	*Ctenotus pantherinus subsp. pantherinus*			
209.	25072	*Ctenotus rubicundus*			
210.	25071	*Ctenotus rutilans*			
211.	25073	*Ctenotus saxatilis (Rock Ctenotus)*			
212.	25074	*Ctenotus schomburgkii*			
213.	25089	*Cyclodomorphus melanops subsp. elongatus*			
214.	25090	*Cyclodomorphus melanops subsp. melanops*			
215.	24997	*Delma butleri*			
216.	24998	*Delma elegans*			
217.	25000	*Delma haroldi*			
218.	25001	*Delma nasuta*			
219.	25002	*Delma pax*			
220.	25004	*Delma tincta*			
221.	25295	*Demansia psammophis subsp. cupreiceps*			
222.	25297	*Demansia rufescens (Rufous Whipsnake)*			
223.	24926	*Diplodactylus conspicillatus (Fat-tailed Gecko)*			
224.	24940	*Diplodactylus pulcher*			
225.	24944	*Diplodactylus savagei*			
226.	24899	*Diporiphora valens*			
227.	25092	*Egernia depressa (Pygmy Spiny-tailed Skink)*			
228.	25094	*Egernia formosa*			
229.	25109	*Eremiascincus richardsonii (Broad-banded Sand Swimmer)*			
230.	25301	*Furina ornata (Moon Snake)*			
231.	24956	*Gehyra pilbara*			
232.	24958	*Gehyra punctata*			
233.	24959	*Gehyra variegata*			
234.	24961	*Heteronotia binoei (Bynoe's Gecko)*			
235.	24962	*Heteronotia spelea (Desert Cave Gecko)*			
236.	25135	*Lerista flammicauda*			
237.	30929	*Lerista jacksoni*			
238.	25155	*Lerista muelleri*			
239.	25183	*Lerista zietzi*			
240.	25005	*Lialis burtonis*			
241.	25238	*Liasis olivaceus subsp. barroni*		T	
242.	30933	*Lucasium stenodactylum*			
243.	30934	*Lucasium wombeyi*			
244.	25184	*Menetia greyii*			
245.	25187	*Menetia surda subsp. surda*			
246.	25193	*Morethia ruficauda subsp. exquisita*			
247.	24972	*Nephrurus wheeleri subsp. cinctus*			
248.	24976	*Oedura marmorata (Marbled Velvet Gecko)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
249.	25254	*Parasuta monachus*			
250.	24907	*Pogona minor subsp. minor*			
251.	25199	*Proablepharus reginae*			
252.	25261	*Pseudechis australis (Mulga Snake)*			
253.	25263	*Pseudonaja modesta (Ringed Brown Snake)*			
254.	25264	*Pseudonaja nuchalis (Gwardar)*			
255.	25009	*Pygopus nigriceps*			
256.	25270	*Ramphotyphlops ammodytes*			
257.	25277	*Ramphotyphlops grypus*			
258.	25279	*Ramphotyphlops hamatus*			
259.	25288	*Ramphotyphlops waitii*			
260.	24982	*Rhynchoedura ornata (Beaked Gecko)*			
261.	24927	*Strophurus elderi*			
262.	24932	*Strophurus jeanae*			
263.	24949	*Strophurus wellingtonae*			
264.	25269	*Suta fasciata (Rosen's Snake)*			
265.	25202	*Tiliqua multifasciata (Central Blue-tongue)*			
266.	25209	*Varanus acanthurus (Spiny-tailed Monitor)*			
267.	25210	*Varanus brevicauda (Short-tailed Pygmy Monitor)*			
268.	30825	*Varanus bushi (Pilbara Mulga Monitor)*			
269.	25211	*Varanus caudolineatus*			
270.	25212	*Varanus eremius (Pygmy Desert Monitor)*			
271.	25215	*Varanus gilleni (Pygmy Mulga Monitor)*			
272.	25218	*Varanus gouldii (Bungarra or Sand Monitor)*			
273.	25222	*Varanus panoptes subsp. panoptes*			
274.	25223	*Varanus panoptes subsp. rubidus*			
275.	25224	*Varanus pilbarensis (Pilbara Rock Monitor)*			
276.	25227	*Varanus tristis subsp. tristis (Racehorse Monitor)*			
277.	25311	*Vermicella snelli*			

Conservation Codes
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

[1] For NatureMap's purposes, species flagged as endemic are those whose records are wholely contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

Appendix VII: Birdlife Australia Birdata Search Results

Bird list for one degree square containing the point 118.83503, -22.82911

Common Name	Scientific Name
Emu	*Dromaius novaehollandiae*
Stubble Quail	*Coturnix pectoralis*
Brown Quail	*Coturnix ypsilophora*
Plumed Whistling-Duck	*Dendrocygna eytoni*
Freckled Duck	*Stictonetta naevosa*
Black Swan	*Cygnus atratus*
Australian Wood Duck	*Chenonetta jubata*
Pink-eared Duck	*Malacorhynchus membranaceus*
Grey Teal	*Anas gracilis*
Pacific Black Duck	*Anas superciliosa*
Hardhead	*Aythya australis*
Australasian Grebe	*Tachybaptus novaehollandiae*
Common Bronzewing	*Phaps chalcoptera*
Crested Pigeon	*Ocyphaps lophotes*
Spinifex Pigeon	*Geophaps plumifera*
Diamond Dove	*Geopelia cuneata*
Peaceful Dove	*Geopelia striata*
Tawny Frogmouth	*Podargus strigoides*
Spotted Nightjar	*Eurostopodus argus*
Australian Owlet-nightjar	*Aegotheles cristatus*
Australasian Darter	*Anhinga novaehollandiae*
Little Pied Cormorant	*Microcarbo melanoleucos*
Great Cormorant	*Phalacrocorax carbo*
Little Black Cormorant	*Phalacrocorax sulcirostris*
Pied Cormorant	*Phalacrocorax varius*
Australian Pelican	*Pelecanus conspicillatus*
Black-necked Stork	*Ephippiorhynchus asiaticus*
Black Bittern	*Ixobrychus flavicollis*
White-necked Heron	*Ardea pacifica*
Eastern Great Egret	*Ardea modesta*
White-faced Heron	*Egretta novaehollandiae*
Little Egret	*Egretta garzetta*
Nankeen Night-Heron	*Nycticorax caledonicus*
Glossy Ibis	*Plegadis falcinellus*
Australian White Ibis	*Threskiornis molucca*
Straw-necked Ibis	*Threskiornis spinicollis*
Royal Spoonbill	*Platalea regia*
Yellow-billed Spoonbill	*Platalea flavipes*
Black-shouldered Kite	*Elanus axillaris*
Letter-winged Kite	*Elanus scriptus*
Square-tailed Kite	*Lophoictinia isura*
Black-breasted Buzzard	*Hamirostra melanosternon*
White-bellied Sea-Eagle	*Haliaeetus leucogaster*
Whistling Kite	*Haliastur sphenurus*
Black Kite	*Milvus migrans*

Brown Goshawk	*Accipiter fasciatus*
Collared Sparrowhawk	*Accipiter cirrocephalus*
Spotted Harrier	*Circus assimilis*
Swamp Harrier	*Circus approximans*
Wedge-tailed Eagle	*Aquila audax*
Little Eagle	*Hieraaetus morphnoides*
Nankeen Kestrel	*Falco cenchroides*
Brown Falcon	*Falco berigora*
Australian Hobby	*Falco longipennis*
Peregrine Falcon	*Falco peregrinus*
Buff-banded Rail	*Gallirallus philippensis*
Spotless Crake	*Porzana tabuensis*
Eurasian Coot	*Fulica atra*
Australian Bustard	*Ardeotis australis*
Bush Stone-curlew	*Burhinus grallarius*
Black-winged Stilt	*Himantopus himantopus*
Black-fronted Dotterel	*Elseyornis melanops*
Red-kneed Dotterel	*Erythrogonys cinctus*
Little Button-quail	*Turnix velox*
Gull-billed Tern	*Gelochelidon nilotica*
Galah	*Eolophus roseicapillus*
Little Corella	*Cacatua sanguinea*
Cockatiel	*Nymphicus hollandicus*
Australian Ringneck	*Barnardius zonarius*
Budgerigar	*Melopsittacus undulatus*
Bourke's Parrot	*Neopsephotus bourkii*
Pheasant Coucal	*Centropus phasianinus*
Horsfield's Bronze-Cuckoo	*Chalcites basalis*
Pallid Cuckoo	*Cacomantis pallidus*
Southern Boobook	*Ninox novaeseelandiae*
Eastern Barn Owl	*Tyto javanica*
Blue-winged Kookaburra	*Dacelo leachii*
Red-backed Kingfisher	*Todiramphus pyrrhopygius*
Sacred Kingfisher	*Todiramphus sanctus*
Rainbow Bee-eater	*Merops ornatus*
Black-tailed Treecreeper	*Climacteris melanura*
Spotted Bowerbird	*Ptilonorhynchus maculatus*
Western Bowerbird	*Ptilonorhynchus guttatus*
Splendid Fairy-wren	*Malurus splendens*
White-winged Fairy-wren	*Malurus leucopterus*
Variegated Fairy-wren	*Malurus lamberti*
Rufous-crowned Emu-wren	*Stipiturus ruficeps*
Striated Grasswren	*Amytornis striatus*
Redthroat	*Pyrrholaemus brunneus*
Weebill	*Smicrornis brevirostris*
Western Gerygone	*Gerygone fusca*
Slaty-backed Thornbill	*Acanthiza robustirostris*
Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*
Chestnut-rumped Thornbill	*Acanthiza uropygialis*
Inland Thornbill	*Acanthiza apicalis*

Red-browed Pardalote	*Pardalotus rubricatus*
Striated Pardalote	*Pardalotus striatus*
Pied Honeyeater	*Certhionyx variegatus*
Singing Honeyeater	*Lichenostomus virescens*
Grey-headed Honeyeater	*Lichenostomus keartlandi*
Grey-fronted Honeyeater	*Lichenostomus plumulus*
White-plumed Honeyeater	*Lichenostomus penicillatus*
Yellow-throated Miner	*Manorina flavigula*
Spiny-cheeked Honeyeater	*Acanthagenys rufogularis*
Grey Honeyeater	*Conopophila whitei*
Crimson Chat	*Epthianura tricolor*
Black Honeyeater	*Sugomel niger*
Brown Honeyeater	*Lichmera indistincta*
Black-chinned Honeyeater	*Melithreptus gularis*
Grey-crowned Babbler	*Pomatostomus temporalis*
White-browed Babbler	*Pomatostomus superciliosus*
Chiming Wedgebill	*Psophodes occidentalis*
Varied Sittella	*Daphoenositta chrysoptera*
Ground Cuckoo-shrike	*Coracina maxima*
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*
White-winged Triller	*Lalage sueurii*
Rufous Whistler	*Pachycephala rufiventris*
Grey Shrike-thrush	*Colluricincla harmonica*
Crested Bellbird	*Oreoica gutturalis*
Masked Woodswallow	*Artamus personatus*
Black-faced Woodswallow	*Artamus cinereus*
Little Woodswallow	*Artamus minor*
Grey Butcherbird	*Cracticus torquatus*
Pied Butcherbird	*Cracticus nigrogularis*
Australian Magpie	*Cracticus tibicen*
Grey Fantail	*Rhipidura albiscapa*
Willie Wagtail	*Rhipidura leucophrys*
Little Crow	*Corvus bennetti*
Torresian Crow	*Corvus orru*
Magpie-lark	*Grallina cyanoleuca*
Red-capped Robin	*Petroica goodenovii*
Hooded Robin	*Melanodryas cucullata*
Horsfield's Bushlark	*Mirafra javanica*
Australian Reed-Warbler	*Acrocephalus australis*
Rufous Songlark	*Cincloramphus mathewsi*
Brown Songlark	*Cincloramphus cruralis*
Spinifexbird	*Eremiornis carteri*
Welcome Swallow	*Hirundo neoxena*
Fairy Martin	*Petrochelidon ariel*
Tree Martin	*Petrochelidon nigricans*
Mistletoebird	*Dicaeum hirundinaceum*
Zebra Finch	*Taeniopygia guttata*
Star Finch	*Neochmia ruficauda*
Painted Finch	*Emblema pictum*
Australasian Pipit	*Anthus novaeseelandiae*

Crow & Raven species

Appendix VIII: Western Australian Museum Short Range Endemic Search Results

PHYLUM	CLASS	ORDER	INFRAORDER	FAMILY	GENUS	SPECIES	AUTHORITY	COUNTRY	SITE	LATITUDE	LONGITUDE	LATDEC	LONGDEC
Arthropoda	Arachnida	Scorpiones		Buthidae	Lychas	`pilbara1`		Australia	Hamersley Range	22°07`56.82"S	117°55`08.68"E	-22.1325	117.919
Arthropoda	Arachnida	Scorpiones		Buthidae	Lychas	`pilbara1`		Australia	Area C, 83.6 km NW. of Newman	22°59`30"S	118°57`33"E	-22.9917	118.959
Arthropoda	Arachnida	Scorpiones		Buthidae	Lychas	`pilbara1`		Australia	Area C, 74.1 km NW. of Newman	22°55`04"S	119°11`21"E	-22.9178	119.189
Arthropoda	Arachnida	Scorpiones		Buthidae	Lychas	`pilbara1`		Australia	Area C, 85.8 km NW. of Newman	22°53`47"S	119°03`43"E	-22.8964	119.062
Arthropoda	Arachnida	Scorpiones		Buthidae	Lychas	`pilbara1`		Australia	Area C, 85.8 km NW. of Newman	22°53`47"S	119°03`43"E	-22.8964	119.062
Arthropoda	Arachnida	Scorpiones		Buthidae	Lychas	`pilbara1`		Australia	Area C, 90.6 km NW. of Newman	22°53`56"S	119°00`07"E	-22.8989	119.002
Arthropoda	Arachnida	Scorpiones		Buthidae	Lychas	`pilbara1`		Australia	Area C, 89.5 km NW. of Newman	22°58`41"S	118°57`49"E	-22.9781	118.964
Arthropoda	Diplopoda	Polydesmida		Paradoxosomati	Antichiropus	`Area C`		Australia	Area C, ca. 120 km NNW. Newman, site 12-12N	22°55`00.5"S	118°54`37.7"E	-22.9168	118.91
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	API Hardey, 78.5 km WNW of Paraburdoo	22°51`10"S	116°59`52"E	-22.8528	116.998
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 83.1 km NW. of Newman	22°58`30"S	119°02`16"E	-22.975	119.038
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 82.7 km NW. of Newman	22°53`57"S	119°05`58"E	-22.8992	119.099
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 74.1 km NW. of Newman	22°55`04"S	119°11`21"E	-22.9178	119.189
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 89.6 km NW. of Newman	23°00`04"S	118°56`52"E	-23.0011	118.948
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 83.9 km NW. of Newman	22°59`35"S	119°00`57"E	-22.9931	119.016
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 87.2 km NW. of Newman	22°59`21"S	118°58`56"E	-22.9892	118.982
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 84.7 km NW. of Newman	22°54`21"S	119°01`44"E	-22.9058	119.029
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 74.1 km NW. of Newman	22°55`04"S	119°11`21"E	-22.9178	119.189
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 85.2 km NW. of Newman	23°00`13"S	118°59`39"E	-23.0036	118.994
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 89 km NW. of Newman	22°57`23"S	118°59`00"E	-22.9564	118.983
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 74.1 km NW. of Newman	22°55`04"S	119°11`21"E	-22.9178	119.189
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 93.1 km NW. of Newman	23°00`00"S	118°54`47"E	-23	118.913
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 83.6 km NW. of Newman	22°59`30"S	118°57`33"E	-22.9917	118.959
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 75.8 km NW. of Newman	22°54`21"S	119°10`48"E	-22.9058	119.18
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 75.8 km NW. of Newman	22°54`34"S	119°10`33"E	-22.9094	119.176
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 82.7 km NW. of Newman	22°57`49"S	119°02`50"E	-22.9636	119.047
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 74.1 km NW. of Newman	22°55`04"S	119°11`21"E	-22.9178	119.189
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Area C, 93.7 km NW. of Newman	22°59`55"S	118°54`27"E	-22.9986	118.908
Arthropoda	Arachnida	Scorpiones		Urodacidae	Urodacus	`firetail`		Australia	Hamersley Range	22°06`55.54"S	117°52`36.92"E	-22.1154	117.877
Arthropoda	Arachnida	Araneae	Araneomorphae	Hersiliidae	Tamopsis	gracilis	Baehr & Baehr, 1993	Australia	gorge SW. of Mt Robinson	23°08`S	118°54`E	-23.1333	118.9
Arthropoda	Arachnida	Araneae	Araneomorphae	Hersiliidae	Tamopsis	gracilis	Baehr & Baehr, 1993	Australia	Mt Elvire Station, site ME 8	29°26`55"S	119°34`56"E	-29.4486	119.582
Arthropoda	Arachnida	Araneae	Araneomorphae	Zodariidae	Spinasteron	waldockae	Baehr, 2003	Australia	Angelas [= West Angelas]	23°11`S	118°47`E	-23.1833	118.783
Arthropoda	Arachnida	Araneae	Araneomorphae	Zodariidae	Spinasteron	waldockae	Baehr, 2003	Australia	Roy Hill Station, Fortescue River, Ponderumba	22°37`19"S	119°57`27"E	-22.6219	119.957
Arthropoda	Arachnida	Araneae	Araneomorphae	Zodariidae	Spinasteron	waldockae	Baehr, 2003	Australia	Hope Downs Station	23°01`48"S	119°01`16"E	-23.03	119.021
Arthropoda	Arachnida	Araneae	Araneomorphae	Zodariidae	Spinasteron	waldockae	Baehr, 2003	Australia	gorge SW. of Mt Robinson	23°08`S	118°54`E	-23.1333	118.9
Arthropoda	Arachnida	Opiliones	Laniatores	Assamiidae	Dampetrus	`near isolatus`		Australia	Area C, ca. 80 km NW. of Newman	22°55`36"S	118°58`22"E	-22.9267	118.973
Arthropoda	Arachnida	Araneae	Mygalomorphae	Actinopodidae	Missulena	`MYG044`		Australia	Hamersley Range, Weeli Wolli Creek region, Ar	22°55`33.0"S	119°02`16.4"E	-22.9258	119.038
Arthropoda	Arachnida	Araneae	Mygalomorphae	Actinopodidae	Missulena	`MYG044`		Australia	Hamersley Range, Weeli Wolli Creek region, Ar	22°55`52.9"S	119°02`49.2"E	-22.9314	119.047
Arthropoda	Arachnida	Araneae	Mygalomorphae	Actinopodidae	Missulena	`MYG044`		Australia	Hamersley Range, Weeli Wolli Creek region, Ar	22°55`52.9"S	119°02`50.0"E	-22.9314	119.047
Arthropoda	Arachnida	Araneae	Mygalomorphae	Actinopodidae	Missulena	`MYG044`		Australia	Hamersley Range, Weeli Wolli Creek region, Ar	22°55`53.8"S	119°02`50.4"E	-22.9316	119.047
Arthropoda	Arachnida	Araneae	Mygalomorphae	Barychelidae	Aurecocrypta	`chichester? (female)`		Australia	Koodaideri, 105.7 km NW. of Newman	22°34`34"S	119°08`23"E	-22.5761	119.14
Arthropoda	Arachnida	Araneae	Mygalomorphae	Barychelidae	Synothele	`MYG055`		Australia	Southern Flank, 72 km NW. of Newman	23°00`10"S	119°08`20"E	-23.0028	119.139
Arthropoda	Arachnida	Araneae	Mygalomorphae	Barychelidae	Synothele	`MYG055`		Australia	Southern Flank, 72 km NW. of Newman	23°00`10"S	119°08`22"E	-23.0028	119.139
Arthropoda	Arachnida	Araneae	Mygalomorphae	Idiopidae	Aganippe	`MYG083`		Australia	Hamersley Range, Weeli Wolli Creek region, Ar	22°55`30.9"S	119°02`15.7"E	-22.9252	119.038
Arthropoda	Arachnida	Araneae	Mygalomorphae	Idiopidae	Aganippe	`MYG083`		Australia	Hamersley Range, Weeli Wolli Creek region, Ar	22°55`30.9"S	119°02`15.7"E	-22.9252	119.038
Arthropoda	Arachnida	Araneae	Mygalomorphae	Idiopidae	Aganippe	`MYG083`		Australia	5.5 km NE. of Giles Point, Pilbara survey sit	23°12`48.8"S	119°12`08.5"E	-23.2136	119.202
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG001 group female`		Australia	Area C, 92.1 km NW. of Newman	23°00`39"S	118°55`05"E	-23.0108	118.918
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG001 group female`		Australia	Area C, 88.4 km NW. of Newman	22°53`56"S	119°01`50"E	-22.8989	119.031
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG001 group female`		Australia	Area C, 103.4 km NW. of Newman	22°59`29"S	118°48`24"E	-22.9914	118.807
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG001 group female`		Australia	Area C, 103.6 km NW. of Newman	22°59`04"S	118°48`28"E	-22.9844	118.808
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG001 group female`		Australia	Area C, 103.6 km NW. of Newman	22°59`05"S	118°48`30"E	-22.9847	118.808
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG001 group female`		Australia	Mt Webber	21°31`37.92"S	119°18`50.00"E	-21.5272	119.314
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG001 group female`		Australia	Area C, 87.3 km NW. of Newman	23°00`40"S	118°58`15"E	-23.0111	118.971
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG001 group female`		Australia	Area C, 87.3 km NW. of Newman	23°00`39"S	118°58`14"E	-23.0108	118.971
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG001 group female`		Australia	Area C, 87.3 km NW. of Newman	23°00`38"S	118°58`15"E	-23.0106	118.971
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG001 group female`		Australia	Area C, 96 km NW. of Newman	23°00`48"S	118°52`31"E	-23.0133	118.875
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG001 group female`		Australia	Area C, 92.1 km NW. of Newman	23°00`38"S	118°55`07"E	-23.0106	118.919
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG104`		Australia	Marillana Station, site RNHW03	22°27`59.5"S	119°01`21.3"E	-22.4665	119.023
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG104`		Australia	Area C, 82.7 km NW. of Newman	22°57`49"S	119°02`50"E	-22.9636	119.047
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 86.2 km NW. of Newman	23°00`05"S	118°58`54"E	-23.0014	118.982
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 88.4 km NW. of Newman	22°53`56"S	119°01`50"E	-22.8989	119.031
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 87.3 km NW. of Newman	22°53`43"S	119°02`42"E	-22.8953	119.045
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 83.9 km NW. of Newman	22°59`35"S	119°00`57"E	-22.9931	119.016
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 89.6 km NW. of Newman	22°55`22"S	119°09`46"E	-22.9228	119.163
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 78.2 km NW. of Newman	22°55`04"S	119°08`02"E	-22.9178	119.134
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 78.2 km NW. of Newman	22°55`04"S	119°08`02"E	-22.9178	119.134
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 88.4 km NW. of Newman	22°53`56"S	119°01`50"E	-22.8989	119.031
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 89.4 km NW. of Newman	22°58`49"S	118°57`44"E	-22.9803	118.962
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 82.7 km NW. of Newman	22°53`57"S	119°05`58"E	-22.8992	119.099
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 91.3 km NW. of Newman	22°54`02"S	118°59`36"E	-22.9006	118.993
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 78.2 km NW. of Newman	22°55`04"S	119°08`02"E	-22.9178	119.134
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 93.1 km NW. of Newman	23°00`00"S	118°54`47"E	-23	118.913

Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 89.4 km NW. of Newman	22°58`49"S	118°57`44"E	-22.9803	118.962
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 86.2 km NW. of Newman	23°00`05"S	118°58`54"E	-23.0014	118.982
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 90.6 km NW. of Newman	22°59`52"S	119°01`47"E	-22.9978	119.03
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 82.7 km NW. of Newman	22°53`57"S	119°05`58"E	-22.8992	119.099
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 82.7 km NW. of Newman	22°53`57"S	119°05`58"E	-22.8992	119.099
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 83.9 km NW. of Newman	22°59`35"S	119°00`57"E	-22.9931	119.016
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 81.6 km NW. of Newman	22°54`25"S	119°07`27"E	-22.9069	119.124
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 89.6 km NW. of Newman	23°00`04"S	118°56`52"E	-23.0011	118.948
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 89.3 km NW. of Newman	22°54`23"S	119°00`45"E	-22.9064	119.012
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 82.7 km NW. of Newman	22°53`57"S	119°05`58"E	-22.8992	119.099
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 86.2 km NW. of Newman	23°00`05"S	118°58`54"E	-23.0014	118.982
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 86.2 km NW. of Newman	23°00`05"S	118°58`54"E	-23.0014	118.982
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 89.3 km NW. of Newman	22°54`23"S	119°00`45"E	-22.9064	119.012
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 82.7 km NW. of Newman	22°53`57"S	119°05`58"E	-22.8992	119.099
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 89.3 km NW. of Newman	22°54`23"S	119°00`45"E	-22.9064	119.012
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 82.7 km NW. of Newman	23°00`18"S	119°01`26"E	-23.005	119.024
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 82.7 km NW. of Newman	22°53`57"S	119°05`58"E	-22.8992	119.099
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 82.7 km NW. of Newman	22°53`57"S	119°05`58"E	-22.8992	119.099
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 84.7 km NW. of Newman	22°54`21"S	119°01`44"E	-22.9058	119.029
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 93.1 km NW. of Newman	23°00`00"S	118°54`47"E	-23	118.913
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 89.3 km NW. of Newman	22°54`23"S	119°00`45"E	-22.9064	119.012
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 84.7 km NW. of Newman	22°54`21"S	119°01`44"E	-22.9058	119.029
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 88.4 km NW. of Newman	22°53`56"S	119°01`50"E	-22.8989	119.031
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 88.4 km NW. of Newman	22°53`56"S	119°01`50"E	-22.8989	119.031
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Aname	`MYG195`		Australia	Area C, 93.1 km NW. of Newman	23°00`00"S	118°54`47"E	-23	118.913
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Chenistonia	`MYG088 female`		Australia	BHP Billiton Area C, ca. 95 km NW. of Newman	22°54`38.1"S	118°58`14.8"E	-22.9105	118.971
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Chenistonia	`MYG088`		Australia	BHP Billiton Area C, ca. 95 km NW. of Newman	22°54`38.0"S	118°58`00.2"E	-22.9105	118.967
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Teyl	`MYG027`		Australia	Hamersley Range, Weeli Wolli Creek region, Ar	22°55`30.9"S	119°02`15.7"E	-22.9252	119.038
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Yilgarnia	`MYG197`		Australia	Area C, 81.4 km NW. of Newman	22°57`29"S	119°04`09"E	-22.9581	119.069
Arthropoda	Arachnida	Araneae	Mygalomorphae	Nemesiidae	Yilgarnia	`MYG197`		Australia	Area C, 83.9 km NW. of Newman	22°59`35"S	119°00`57"E	-22.9931	119.016
Arthropoda	Arachnida	Pseudoscorpiones	Panctenata	Garypidae	Synsphyronus	`PSE014 long hand 2`		Australia	Area C, 87.3 km NW. of Newman	22°53`43"S	119°02`42"E	-22.8953	119.045
Arthropoda	Arachnida	Pseudoscorpiones	Panctenata	Garypidae	Synsphyronus	`PSE014 long hand 2`		Australia	Area C, 74.1 km NW. of Newman	22°55`04"S	119°11`21"E	-22.9178	119.189

Appendix IX: Regional Comparison of Species

Mammals										
	Database Searches									
Scientific Name	Common Name	Lamb Creek Level 2 Fauna Survey	Conservation Significance	EPBC Search (10 km buffer)	DEC Search	Naturemap Records (40 km radius)	Fauna Survey of the proposed Hope Downs 4 mining area. (Ninox Wildlife Consulting, 2009)	Yandicoogina Junction South West and Oxbow Fauna Survey. (Biota Environmental Sciences, 2010)	Fauna survey of proposed Iron Ore Mine, Cloud Break. (Bamford Consulting Ecologists, 2005)	Fauna Habitats and Fauna Assemblage of the Proposed FMG Stage B Rail Corridor and Mindy Mindy, Christmas Creek, Mt Lewin and Mt Nicholas Mine Areas. (Biota Environmental Sciences, 2005)
Tachyglossidae										
Tachyglossus aculeatus	Echidna								▼	
Dasyuridae										
Dasykaluta rosamondae	Kaluta	▼				▼	▼		▼	
Dasyurus hallucatus	Northern Quoll		EPBC - E,	▼	▼	▼				
Ningaui timealeyi	Pilbara Ningaui	▼				▼	▼	▼	▼	
Planigale aff. ingrami		▼				▼			▼	
Planigale aff. maculata							▼			
Pseudantechinus woolleyae	Wolley's False Antechinus		IUCN- LC							
Sminthopsis macroura	Stripe- faced Dunnart	▼				▼			▼	
Sminthopsis ooldea	Ooldea Dunnart					▼	▼			
Sminthopsis youngsoni	Lesser Hairy-footed Dunnart									▼
Phalangeridae										
Trichosurus vulpecula	Northern Brush-tail Possum					▼				
Thylacomyidae (Bilbies)										
Macrotis lagotis	Bilby		EPBC - V DEC - S1	V					▼	
Macropodidae										
Macropus robustus	Euro					▼	▼		▼	▼
Macropus rufus	Red Kangaroo					▼	▼		▼	
Petrogale rothschildi	Rothschild's Rock-wallaby					▼				▼
Pteropodidae										
Pteropus scapulatus	Little Red Flying-fox					▼				
Megadermatidae										
Macroderma gigas	Ghost bat	▼	p4		▼					
Hipposideridae										
Rhinonicteris aurantius	Pilbara Leaf-nosed Bat		EPBC - V, DEC - S1	▼	▼					
Emballonuridae										
Taphozous georgianus		▼				▼	▼	▼	▼	
Taphozous hilli						▼				
Saccolaimus flaviventris	Yeollow-bellied Sheath-tail bat					▼	▼	▼	▼	
Vespertilionidae										
Chalinolobus gouldii	Gould's Wattled Bat					▼	▼	▼	▼	
Chalinolobus morio	Chocolate Wattled Bat						▼			

	Database Searches									
Scientific Name	Common Name	Lamb Creek Level 2 Fauna Survey	Conservation Significance	EPBC Search (10 km buffer)	DEC Search	Naturemap Records (40 km radius)	Fauna Survey of the proposed Hope Downs 4 mining area. (Ninox Wildlife Consulting, 2009)	Yandicoogina Junction South West and Oxbow Fauna Survey. (Biota Environmental Sciences, 2010)	Fauna survey of proposed Iron Ore Mine, Cloud Break. (Bamford Consulting Ecologists, 2005)	Fauna Habitats and Fauna Assemblage of the Proposed FMG Stage B Rail Corridor and Mindy Mindy, Christmas Creek, Mt Lewin and Mt Nicholas Mine Areas. (Biota Environmental Sciences, 2005)
Nyctophilus geoffroyi	Lesser Long-eared Bat					▼			▼	
Scotorepens greyii	Western Broad Nosed Bat					▼	▼	▼	▼	
Vespadelus finlaysoni	Inland Cave Bat	▼				▼	▼	▼	▼	
Molossidae										
Chaerephon jobensis	Northern Freetail Bat					▼	▼		▼	
Mormopterus beccarii	Beccari's Freetail Bat					▼				
Tadarida australis	White-Striped Freetail Bat						▼	▼	▼	
Muridae										
Leggadina lakedownensis	Tropical Short-tailed Mouse		P4		▼					
Mus musculus	House Mouse	▼				▼			▼	▼
Pseudomys chapmani	Pebble Mound Mouse	▼	P4		▼	▼	▼	▼	▼	▼
Pseudomys desertor	Desert Mouse	▼							▼	▼
Pseudomys hermansburgensis	Sandy Inland Mouse	▼				▼		▼		▼
Zyzomys argurus	Common Rock Rat	▼				▼		▼	▼	
Leporidae										
Oryctolagus cuniculus	Rabbit			▼						
Canidae										
Canis lupus dingo	Dingo					▼	▼		▼	▼
Vulpes vulpes	Fox			▼						
Felidae										
Felis catus	Feral Cat			▼					▼	▼
Equidae										
Equus asinus								▼	▼	
Equus caballus									▼	
Camelidae										
Camelus dromedarius	Camel								▼	
Bovidae										
Bos taurus	Cow	▼						▼		

Taxonomy follows Western Australian Museum Mammals Checklist, Last modified: 12 August 2008 except where indicated otherwise.

■ Recorded on Threatened and Priority Fauna Database Search for the area (DEC) as schedule 1 or 4

■ Recorded on Protected Matters Database Search for the area - EPBC Act 1999 (DEH) as endangered (e), vulnerable (v) or migratory (m)

■ Priority listed by DEC

IUCN (2009) - VU = Vulnerable, EN = Endangered, NT - Near Threatened, LC = Least Concern, DD = Data Deficient

Reptiles and Amphibians											
Scientific Name	family	Common Name	Lamb Creek Level 2 Fauna Survey	Conservation Significance	DEC Search	EPBC Search	Naturemap Records	Fauna Survey of the proposed Hope Downs 4 mining area. (Ninox Wildlife Consulting, 2009)	Yandicoogina Junction South West and Oxbow Fauna Survey. (Biota Environmental Sciences, 2010)	Fauna survey of proposed Iron Ore Mine, Cloud Break. (Bamford Consulting Ecologists, 2005)	Fauna Habitats and Fauna Assemblage of the Proposed FMG Stage B Rail Corridor and Mindy Mindy, Christmas Creek, Mt Lewin and Mt Nicholas Mine Areas. (Biota Environmental Sciences, 2005)
Amphibians											
Cyclorana mainii	Hylidae	Sheep Frog	▼				▼				▼
Cyclorana platycephala	Hylidae										
Litoria rubella	Hylidae		▼				▼			▼	
Neobatrachus aquilonius	Myobatrachidae	Northern Burrowing Frog					▼				
Pseudophryne douglasi	Myobatrachidae						▼				
Uperoleia russeli	Myobatrachidae						▼				
Reptiles											
Chelidae (Turtles)											
Chelodina steindachneri	Chelidae	Flat-shelled Turtle								▼	
Agamidae (dragons)											
Amphibolurus longirostris	Agamidae	Long nosed Dragon	▼				▼	▼	▼	▼	
Caimanops amphiboluroides	Agamidae	Mulga Dragon	▼					▼			
Ctenophorus caudicinctus	Agamidae	Ring-tailed Dragon	▼				▼	▼	▼	▼	▼
Ctenophorus isolepis	Agamidae	Central Military Dragon	▼				▼		▼		▼
Ctenophorus nuchalis	Agamidae	Central Netted Dragon					▼			▼	
Ctenophorus reticulatus	Agamidae	Western Netted Dragon					▼			▼	
Ctenophorus scutulatus	Agamidae	Lozenge-marked Dragon					▼				
Diporophora valens	Agamidae		▼				▼				
Diporiphora winneckei	Agamidae	Cane-grass Dragon									
Pogona minor	Agamidae	Dwarf Bearded Dragon	▼		▼		▼	▼			
Tympanocryptis cephalus	Agamidae	Pebble Mimicking Dragon					▼				
Boidae (Pythons)											
Antaresia perthensis	Boidae	Pygmy Python	▼				▼				
Antaresia stimsoni	Boidae	Stimson's Python					▼				
Aspidites melanocephala	Boidae	Black-headed Python					▼	▼		▼	
Liasis olivaceus subsp. barroni	Boidae	Pilbara Olive Python	▼	DEC - S1, EPBC - V	▼	▼	▼				
Elapidae (Front-fanged Land snakes)											
Acanthophis wellsi	Elapidae	Pilbara Death Adder					▼	▼			
Brachyurophis approximans	Elapidae						▼				
Demansia psammophis subsp. cupreiceps	Elapidae	Yellow-faced Whipsnake	▼				▼		▼		
Demansia rufescens	Elapidae	Rusty Whipsnake					▼				
Furina ornata	Elapidae	Moon Snake					▼				
Parasuta monachus	Elapidae	Monk Snake	▼				▼				
Pseudechis australis	Elapidae	King Brown	▼				▼				
Pseudonaja mengdeni	Elapidae	Gwardar	▼								
Pseudonaja modesta	Elapidae	Ringed Brown Snake	▼				▼				
Pseudonaja nuchalis	Elapidae	Western Brown Snake					▼				
Suta fasciata	Elapidae	Rosen's Snake	▼								
Suta punctata	Elapidae	Little Spotted Snake					▼				
Vermicella snelli	Elapidae	Pilbara Bandy Bandy	▼				▼	▼			

Scientific Name	family	Common Name	Lamb Creek Level 2 Fauna Survey	Conservation Significance	DEC Search	EPBC Search	Naturemap Records	Fauna Survey of the proposed Hope Downs 4 mining area. (Ninox Wildlife Consulting, 2009)	Yandicoogina Junction South West and Oxbow Fauna Survey. (Biota Environmental Sciences, 2010)	Fauna survey of proposed Iron Ore Mine, Cloud Break. (Bamford Consulting Ecologists, 2005)	Fauna Habitats and Fauna Assemblage of the Proposed FMG Stage B Rail Corridor and Mindy Mindy, Christmas Creek, Mt Lewin and Mt Nicholas Mine Areas. (Biota Environmental Sciences, 2005)
Gekkonidae (Geckos)											
Crendactylus ocellatus	Gekkonidae	Clawless Gecko	▼				▼				
Diplodactylus conspicillatus	Gekkonidae	Fat-tailed Gecko	▼				▼			▼	▼
Diplodactylus granariensis rex	Gekkonidae										
Diplodactylus pulcher	Gekkonidae		▼				▼				
Diplodactylus savagei	Gekkonidae		▼				▼	▼			
Gehyra pilbara	Gekkonidae						▼				
Gehyra punctata	Gekkonidae		▼				▼		▼		
Gehyra purpurascens	Gekkonidae						▼				
Gehyra variegata	Gekkonidae		▼				▼	▼		▼	
Heternotia spelea	Gekkonidae	Prickly Cave Gecko					▼			▼	
Heteronotia binoei	Gekkonidae	Bynoe's Gecko	▼				▼			▼	
Lucasium stenodactylum	Gekkonidae		▼				▼	▼	▼		▼
Lucasium wombeyi	Gekkonidae						▼				
Nephurus levis subsp. pilbarensis	Gekkonidae	Knob-tailed Gecko									
Nephurus wheeleri subsp. cinctus	Gekkonidae	Banded Knob-tail Gecko	▼				▼	▼			
Oedura marmorata	Gekkonidae	Marbled Velvet Gecko	▼				▼		▼		
Rhynchoedura ornata	Gekkonidae	Beaked Gecko	▼				▼				
Strophurus elderi	Gekkonidae	Jewelled Gecko					▼				
Strophurus jeanae	Gekkonidae										
Strophurus strophurus	Gekkonidae	Spiny-tailed Gecko									
Strophurus wellingtonae	Gekkonidae		▼				▼	▼			
Underwoodisaurus milli	Gekkonidae	Thick-tailed Gecko					▼				
Underwoodisaurus seorsus	Gekkonidae	Pilbara Thick-tailed Gecko	Proposed Priority species								
Pygopodidae (legless lizards)											
Delma elegans	Pygopodidae		▼				▼				
Delma butleri	Pygopodidae										
Delma haroldi	Pygopodidae						▼	▼			
Delma pax	Pygopodidae						▼		▼		
Delma nasuta	Pygopodidae		▼				▼		▼		
Delma tincta	Pygopodidae	Excitable Delma	▼				▼	▼			
Lialis burtonis	Pygopodidae	Burton's Legless Lizard	▼				▼	▼		▼	
Pygopus nigriceps	Pygopodidae	Hooded Scaly-foot	▼				▼	▼			
Scincidae (Skinks)											
Carlia munda	Scincidae		▼				▼	▼	▼	▼	▼
Carlia tricantha	Scincidae						▼	▼			
Cryptoblepharus buchananii	Scincidae						▼				
Cryptoblepharus plagiocephalus	Scincidae									▼	
Cryptoblepharus ustulatus	Scincidae		▼				▼				
Ctenotus ariadnae	Scincidae										▼
Ctenotus duricola	Scincidae						▼	▼			▼
Ctenotus grandis	Scincidae						▼				
Ctenotus hanloni	Scincidae						▼		▼		

Scientific Name	family	Common Name	Lamb Creek Level 2 Fauna Survey	Conservation Significance	DEC Search	EPBC Search	Naturemap Records	Fauna Survey of the proposed Hope Downs 4 mining area. (Ninox Wildlife Consulting, 2009)	Yandicoogina Junction South West and Oxbow Fauna Survey. (Biota Environmental Sciences, 2010)	Fauna survey of proposed Iron Ore Mine, Cloud Break. (Bamford Consulting Ecologists, 2005)	Fauna Habitats and Fauna Assemblage of the Proposed FMG Stage B Rail Corridor and Mindy Mindy, Christmas Creek, Mt Lewin and Mt Nicholas Mine Areas. (Biota Environmental Sciences, 2005)
Ctenotus helenae	Scincidae		▼				▼	▼			▼
Ctenotus leonhardii	Scincidae										
Ctenotus pantherinus	Scincidae	Panther Skink	▼				▼	▼	▼	▼	
Ctenotus rubicundus	Scincidae		▼				▼		▼	▼	
Ctenotus rufescens	Scincidae						▼				
Ctenotus rutilans	Scincidae		▼				▼	▼			
Ctenotus saxatilis	Scincidae		▼				▼	▼		▼	▼
Ctenotus schomburgkii	Scincidae	Barred Wedge Snout Ctenotus	▼				▼	▼			
Ctenotus serventyi	Scincidae						▼				▼
Cyclodomorphus melanops	Scincidae	Spinifex Slended Bluetongue	▼				▼		▼	▼	
Egernia cygnitos	Scincidae	Western Pilbara Spiny-tailed Skink					▼				
Egernia formosa	Scincidae		▼				▼				
Eremiascincus richardsonii	Scincidae	Broad-banded Sand-swimmer					▼				
Eremiascincus fasciolatus	Scincidae	Narrow-banded Sand-swimmer					▼				
Lerista flammicauda	Scincidae	Fire-tailed Slider									
Lerista jacksoni	Scincidae						▼				
Lerista muelleri	Scincidae		▼				▼	▼		▼	
Lerista neander	Scincidae						▼				
Lerista vehmens	Scincidae						▼				
Lerista zietzi	Scincidae		▼				▼	▼			
Menetia greyii	Scincidae		▼				▼			▼	▼
Menetia surda	Scincidae						▼				
Morethia ruficauda exquisita	Scincidae	Fire-tailed Skink	▼				▼			▼	
Notoscincus butleri	Scincidae			DEC- P4							
Proablepharus reginae	Scincidae										
Tiliqua multifasciata	Scincidae	Central Bluetongue	▼				▼	▼		▼	
Typhlopidae (Blind Snakes)											
Ramphotyphlops ammodytes	Typhlopidae						▼			▼	
Ramphotyphlops ganei	Typhlopidae			DEC- P4	▼		▼				
Ramphotyphlops grypus	Typhlopidae						▼			▼	
Ramphotyphlops hamatus	Typhlopidae						▼				
Ramphotyphlops pilbarensis	Typhlopidae										
Ramphotyphlops waitii	Typhlopidae										
Varanidae (Monitors/Goannas)											
Varanus acanthurus	Varanidae	Ridge-tailed Monitor	▼				▼	▼		▼	
Varanus brevicauda	Varanidae	Short-tailed Pygmy Monitor	▼				▼			▼	
Varanus bushi	Varanidae	Pilbara Pygmy Mulga Monitor	▼				▼	▼			
Varanus caudolineatus	Varanidae	Stripe-tailed Monitor								▼	
Varanus eremius	Varanidae	Rusty Desert Monitor									
Varanus giganteus	Varanidae	Perentie	▼				▼				

Scientific Name	family	Common Name	Lamb Creek Level 2 Fauna Survey	Conservation Significance	DEC Search	EPBC Search	Naturemap Records	Fauna Survey of the proposed Hope Downs 4 mining area. (Ninox Wildlife Consulting, 2009)	Yandicoogina Junction South West and Oxbow Fauna Survey. (Biota Environmental Sciences, 2010)	Fauna survey of proposed Iron Ore Mine, Cloud Break. (Bamford Consulting Ecologists, 2005)	Fauna Habitats and Fauna Assemblage of the Proposed FMG Stage B Rail Corridor and Mindy Mindy, Christmas Creek, Mt Lewin and Mt Nicholas Mine Areas. (Biota Environmental Sciences, 2005)
Varanus panoptes	Varanidae	Spotted Goanna	▼				▼			▼	
Varanus pilbarensis	Varanidae	Pilbara Rock Monitor	▼				▼				
Varanus tristis	Varanidae	Racehorse Goanna	▼				▼			▼	
Taxonomy follows Western Australian Museum Reptiles Checklist, Last modified: 12 August 2008 except where indicated otherwise.											
IUCN (2009) - VU = Vulnerable, EN = Endangered, NT - Near Threatened, LC = Least Concern, DD = Data Deficient											

Database Searches								Fauna Survey of the proposed Hope Downs 4 mining area. (Ninox Wildlife Consulting, 2009)	Yandicoogina Junction South West and Oxbow Fauna Survey. (Biota Environmental Sciences, 2010)	Fauna survey of proposed Iron Ore Mine, Cloud Break. (Bamford Consulting Ecologists, 2005)	Fauna Habitats and Fauna Assemblage of the Proposed FMG Stage B Rail Corridor and Mindy Mindy, Christmas Creek, Mt Lewin and Mt Nicholas Mine Areas. (Biota Environmental Sciences, 2005)
Scientific Name	Common Name	Conservation Significance	Lamb Creek Level 2 Fauna Survey	Birds Australia Birddata Search	DEC Search	Naturemap Records	EPBC Search				
Casuariidae											
Dromaius novaehollandiae	Emu	LC		▼		▼				▼	▼
Phasianidae											
Coturnix ypsilophora	Brown Quail			▼		▼				▼	
Coturnix pectoralis	Stubble Quail			▼					▼		
Anartidae											
Anas gracilis	Grey Teal			▼					▼	▼	
Anas superciliosa	Pacific Black Duck			▼		▼				▼	
Chenonetta jubata	Australian Wood Duck			▼							
Cygnus atratus	Black Swan			▼						▼	
Dendrocygna eytoni	Plumed Whistling-Duck			▼		▼					
Malacorhynchus membranaceus	Pink-eared Duck			▼						▼	
Tadorna tadornoides	Australian Shelduck									▼	
Aythya australis	Hardhead			▼							
Procellariidae											
Macronectes giganteus	Southern Giant Petrel	DEC - T (IUCN - LC)			▼						
Podicipedidae											
Tachybaptus novaehollandiae	Australasian Grebe			▼							
Columbidae											
Geopelia cuneata	Diamond Dove		▼	▼		▼		▼	▼	▼	▼
Geopelia striata	Peaceful Dove			▼		▼			▼		
Geophaps plumifera	Spinifex Pigeon		▼	▼		▼		▼	▼		▼
Ocyphaps lophotes	Crested Pigeon		▼	▼		▼		▼	▼	▼	
Phaps chalcoptera	Common Bronzewing		▼	▼		▼		▼		▼	
Podargidae											
Podargus strigoides	Tawny Frogmouth		▼	▼		▼				▼	
Caprimulgidae											
Eurostopodos argus	Spotted Nightjar		▼	▼		▼		▼		▼	
Aegothelidae											
Aegotheles cristatus	Australian Owlet-nightjar		▼	▼		▼		▼		▼	▼
Anhingidae											
Anhinga novaehollandiae	Australasian Darter			▼		▼					
Phalacrocoracidae											
Microcarbo melanoleucos	Little Pied Cormorant			▼					▼		

Database Searches								Fauna Survey of the proposed Hope Downs 4 mining area. (Ninox Wildlife Consulting, 2009)	Yandicoogina Junction South West and Oxbow Fauna Survey. (Biota Environmental Sciences, 2010)	Fauna survey of proposed Iron Ore Mine, Cloud Break. (Bamford Consulting Ecologists, 2005)	Fauna Habitats and Fauna Assemblage of the Proposed FMG Stage B Rail Corridor and Mindy Mindy, Christmas Creek, Mt Lewin and Mt Nicholas Mine Areas. (Biota Environmental Sciences, 2005)
Scientific Name	**Common Name**	**Conservation Significance**	**Lamb Creek Level 2 Fauna Survey**	**Birds Australia Birddata Search**	**DEC Search**	**Naturemap Records**	**EPBC Search**				
Phalacrocorax sulcirostris	Little Black Cormorant			▼							
Phalacrocorax varius	Pied Cormorant					▼					
Pelecanidae											
Pelecanus conspicillatus	Australian Pelican			▼		▼					
Ardeidae											
Ardea ibis	Cattle Egret	EPBC - M, IUCN-LC					▼				
Ardea pacifica	White-necked Heron			▼				▼		▼	
Ardea modesta	Eastern Great Egret	EPBC - M,		▼			▼				
Egretta novaehollandiae	White-faced Heron			▼		▼				▼	
Nycticorax caledonicus	Nankeen Night-Heron			▼		▼					
Threskiornithidae											
Threskiornis spinicollis	Straw-necked Ibis			▼		▼				▼	
Plegadis falcinellus	Glossy Ibis			▼							
Apodidae											
Apus pacificus	Fork-tailed Swift	EPBC - M, IUCN-LC	▼				▼				▼
Accipitridae											
Accipiter fasciatus	Brown Goshawk			▼		▼					
Accipiter cirrocephalus	Collared Sparrowhawk			▼		▼				▼	
Aquila audax	Wedge-tailed Eagle		▼	▼		▼		▼		▼	▼
Elanus axillaris	Black-shouldered Kite		▼	▼							
Circus approximans	Swamp Harrier			▼							
Circus assimilis	Spotted Harrier		▼	▼		▼				▼	▼
Haliaeetus leucogaster	White-bellied Sea Eagle	EPBC - V		▼							
Haliastur sphenurus	Whistling Kite		▼	▼		▼		▼	▼	▼	
Hamirostra isura	Square-tailed Kite					▼					
Hamirostra melanosternon	Black-breasted Buzzard		▼					▼			
Hieraaetus morphnoides	Little Eagle			▼				▼	▼	▼	▼
Milvus migrans	Black Kite		▼	▼		▼				▼	
Falconidae											
Falco longipennis	Australian Hobby		▼	▼		▼				▼	
Falco cenchroides	Nankeen Kestrel		▼	▼		▼		▼	▼	▼	
Falco hypoleucos	Grey Falcon	DEC - P4			▼	▼				▼	
Falco peregrinus	Peregrine Falcon[S4]	DEC - S4 (IUCN-LC)						▼		▼	

Database Searches								Fauna Survey of the proposed Hope Downs 4 mining area. (Ninox Wildlife Consulting, 2009)	Yandicoogina Junction South West and Oxbow Fauna Survey. (Biota Environmental Sciences, 2010)	Fauna survey of proposed Iron Ore Mine, Cloud Break. (Bamford Consulting Ecologists, 2005)	Fauna Habitats and Fauna Assemblage of the Proposed FMG Stage B Rail Corridor and Mindy Mindy, Christmas Creek, Mt Lewin and Mt Nicholas Mine Areas. (Biota Environmental Sciences, 2005)
Scientific Name	Common Name	Conservation Significance	Lamb Creek Level 2 Fauna Survey	Birds Australia Birddata Search	DEC Search	Naturemap Records	EPBC Search				
Falco berigora	Brown Falcon		▼	▼		▼		▼		▼	▼
Railidae											
Gallirallus philippensis	Buff-banded Rail			▼							
Fulica atra	Eurasian Coot			▼							
Porzana tabuensis	Spotless Crake			▼							
Tribonyx ventralis	Black-tailed Native-hen									▼	
Otididae											
Ardeotis australis [P4, (IUCN - NT)]	Australian Bustard	DEC - P4		▼	▼	▼		▼		▼	
Burhinidae											
Burhinus grallarius	Bush-stone curlew	DEC - P4		▼	▼	▼					
Recurvirostridae											
Himantopus himantopus	Black-winged Stilt			▼		▼					
Charadriidae											
Charadrius veredus	Oriental Plover	EPBC - M, IUCN-LC					▼				
Elseyornis melanops	Black-fronted Dotterel			▼		▼				▼	
Erythrogonys cinctus	Red-kneed Dotterel									▼	
Scolopacidae											
Tringa nebularia	Common Greenshank					▼					
Turnicidae											
Turnix velox	Little Button-quail		▼	▼		▼		▼		▼	▼
Cacatuidae											
Eolophus roseicapillus	Galah		▼	▼		▼		▼		▼	▼
Cacatua sanguinea	Little Corella			▼		▼			▼	▼	
Nymphicus hollandicus	Cockateil		▼	▼		▼				▼	
Psittacidae											
Barnardius zonarius	Australian Ringneck		▼	▼		▼		▼	▼	▼	▼
Melopsittacus undulatus	Budgerigar		▼	▼		▼		▼		▼	▼
Pezoporus occidentalis	Night Parrot	EPBC - E, M (IUCN - CR)					▼			▼	
Polytelis alexandrae	Princess Parrot	DEC - P4									
Neopsephotus bourkii	Bourke's Parrot			▼						▼	
Cuculidae											
Cacomantis pallidus	Pallid Cuckoo		▼	▼		▼		▼		▼	▼
Centropus phasianinus	Pheasant Coucal			▼					▼		

Database Searches								Fauna Survey of the proposed Hope Downs 4 mining area. (Ninox Wildlife Consulting, 2009)	Yandicoogina Junction South West and Oxbow Fauna Survey. (Biota Environmental Sciences, 2010)	Fauna survey of proposed Iron Ore Mine, Cloud Break. (Bamford Consulting Ecologists, 2005)	Fauna Habitats and Fauna Assemblage of the Proposed FMG Stage B Rail Corridor and Mindy Mindy, Christmas Creek, Mt Lewin and Mt Nicholas Mine Areas. (Biota Environmental Sciences, 2005)
Scientific Name	Common Name	Conservation Significance	Lamb Creek Level 2 Fauna Survey	Birds Australia Birddata Search	DEC Search	Naturemap Records	EPBC Search				
Chalcites basalis	Horsfield's Bronze-Cuckoo			▼		▼		▼	▼	▼	▼
Strigidae											
Ninox connivens	Barking Owl					▼					
Ninox novaeseelandiae	Southern Boobook		▼	▼		▼		▼		▼	
Tytonidae											
Tyto javanica	Eastern Barn Owl			▼		▼				▼	
Halcyonidae											
Dacelo leachii	Blue-winged Kookaburra			▼		▼		▼	▼	▼	
Todiramphus pyrrhopygius	Red-backed Kingfisher		▼	▼		▼			▼	▼	
Todirhamphus sanctus	Sacred Kingfisher			▼		▼		▼			
Meropidae											
Merops ornatus	Rainbow Bee-eater	EPBC - M, IUCN-LC	▼	▼		▼	▼	▼	▼	▼	▼
Climacteridae											
Climacteris melanura subsp. wellsi	Black-tailed Treecreeper			▼							
Ptilonorhynchidae											
Ptilonorhynchus guttatus	Western Bowerbird		▼	▼		▼					
Ptilonorhynchus maculatus	Spotted Bowerbird			▼							
Maluridae											
Amytornis striatus	Striated Grasswren		▼	▼		▼		▼			▼
Malurus lamberti	Variegated Fairy-wren		▼	▼		▼		▼	▼	▼	▼
Malurus leucopterus	White-winged Fairy-wren			▼		▼		▼		▼	▼
Malurus splendens	Splendid Fairy-wren					▼		▼			
Stipiturus ruficeps	Rufous-crowned Emu-wren			▼		▼		▼		▼	
Acanthizidae											
Acanthiza apicalis	Inland Thornbill			▼		▼		▼			
Acanthiza chrysorrhoa	Yellow-rumped Thornbill			▼		▼				▼	
Acanthiza robustirostris	Slaty-backed Thornbill			▼		▼					
Acanthiza uropygialis	Chestnut-rumped Thornbill			▼		▼		▼		▼	
Aphelocephala leucopsis	Southern Whiteface									▼	
Gerygone fusca	Western Gerygone		▼	▼		▼		▼	▼	▼	
Pyrrholaemus brunneus	Redthroat	IUCN - LC		▼		▼		▼			

Database Searches								Fauna Survey of the proposed Hope Downs 4 mining area. (Ninox Wildlife Consulting, 2009)	Yandicoogina Junction South West and Oxbow Fauna Survey. (Biota Environmental Sciences, 2010)	Fauna survey of proposed Iron Ore Mine, Cloud Break. (Bamford Consulting Ecologists, 2005)	Fauna Habitats and Fauna Assemblage of the Proposed FMG Stage B Rail Corridor and Mindy Mindy, Christmas Creek, Mt Lewin and Mt Nicholas Mine Areas. (Biota Environmental Sciences, 2005)
Scientific Name	Common Name	Conservation Significance	Lamb Creek Level 2 Fauna Survey	Birds Australia Birddata Search	DEC Search	Naturemap Records	EPBC Search				
Smicrornis brevirostris	Weebill		▼	▼		▼		▼	▼	▼	▼
Pardalotidae											
Pardalotus striatus	Striated Pardalote		▼	▼		▼		▼	▼	▼	▼
Pardalotus rubricatus	Red-browed Pardalote		▼	▼		▼			▼		▼
Meliphagidae											
Acanthagenys rufogularis	Spiny-cheeked Honeyeater		▼	▼		▼		▼	▼	▼	
Certhionyx variegatus	Pied Honeyeater		▼								▼
Conopophila whitei	Grey Honeyeater	Not listed - scarce species with little known about its habitats	▼	▼		▼					
Epthianura aurifrons	Orange Chat									▼	
Ephthianura tricolor	Crimson Chat		▼	▼		▼					▼
Lichenostomus keartlandi	Grey-headed Honeyeater		▼	▼		▼		▼	▼	▼	▼
Lichenostomus penicillatus	White-plumed Honeyeater		▼	▼		▼		▼	▼	▼	
Lichenostomus plumulus	Grey-fronted Honeyeater					▼		▼		▼	
Lichenostomus virescens	Singing Honeyeater		▼	▼		▼		▼	▼	▼	▼
Lichmera indistincta	Brown Honeyeater		▼	▼		▼		▼	▼	▼	▼
Manorina flavigula	Yellow-throated Miner		▼	▼		▼		▼	▼	▼	▼
Melithreptus gularis	Black-chinned Honeyeater		▼	▼		▼		▼		▼	▼
Purnella albifrons	White-fronted Honeyeater					▼					
Sugomel niger	Black Honeyeater		▼	▼		▼					▼
Pomatostomidae											
Pomatostomus temporalis	Grey-crowned Babbler		▼	▼		▼		▼	▼	▼	
Pomatostomus superciliosus	White-browed Babbler			▼		▼		▼		▼	
Neosittidae											
Daphoenositta chrysoptera	Varied Sittella			▼		▼				▼	
Campephagidae											
Coracina maxima	Ground Cuckoo-shrike		▼	▼		▼			▼	▼	
Coracina novaehollandiae	Black-faced Cuckoo-shrike		▼	▼		▼		▼		▼	▼
Lalage sueurii	White-winged Triller		▼	▼		▼		▼		▼	▼

Database Searches								Fauna Survey of the proposed Hope Downs 4 mining area. (Ninox Wildlife Consulting, 2009)	Yandicoogina Junction South West and Oxbow Fauna Survey. (Biota Environmental Sciences, 2010)	Fauna survey of proposed Iron Ore Mine, Cloud Break. (Bamford Consulting Ecologists, 2005)	Fauna Habitats and Fauna Assemblage of the Proposed FMG Stage B Rail Corridor and Mindy Mindy, Christmas Creek, Mt Lewin and Mt Nicholas Mine Areas. (Biota Environmental Sciences, 2005)
Scientific Name	**Common Name**	**Conservation Significance**	**Lamb Creek Level 2 Fauna Survey**	**Birds Australia Birddata Search**	**DEC Search**	**Naturemap Records**	**EPBC Search**				
Pachycephalidae											
Colluricincla harmonica	Grey Shrike-thrush			▼		▼		▼	▼	▼	▼
Oreoica gutturalis	Crested Bellbird		▼	▼				▼	▼	▼	▼
Pachycephala rufiventris	Rufous Whistler		▼	▼		▼		▼	▼	▼	▼
Artamidae											
Artamus cinereus	Black-faced Woodswallow		▼	▼		▼		▼	▼	▼	▼
Artamus minor	Little Woodswallow		▼	▼		▼		▼	▼		
Artamus personatus	Masked Woodswallow		▼	▼		▼		▼	▼		
Cracticus nigrogularis	Pied Butcherbird			▼		▼		▼		▼	▼
Cracticus tibicen	Australian Magpie		▼	▼		▼				▼	▼
Cracticus torquatus	Grey Butcherbird			▼		▼		▼		▼	▼
Rhipiduridae											
Rhipidura albiscapa	Grey Fantail			▼		▼		▼		▼	
Rhipidura leucophrys	Willie Wagtail		▼	▼		▼		▼	▼	▼	▼
Corvidae											
Corvus bennetti	Little Crow			▼		▼			▼	▼	
Corvus coronoides	Australian Raven					▼					
Corvus orru	Torresian Crow			▼		▼		▼	▼	▼	▼
Monarchidae											
Grallina cyanoleuca	Magpie-lark		▼	▼		▼			▼	▼	
Petroicidae											
Melanodryas cucullata	Hooded Robin		▼	▼		▼		▼	▼	▼	
Petroica goodenovii	Red-capped Robin			▼		▼		▼		▼	
Alaudidae											
Mirafra javanica	Horsfield's Bushlark			▼		▼				▼	
Acrocephalidae											
Acrocephalus australis	Australian Reed-Warbler			▼		▼					
Megaluridae											
Cincloramphus cruralis	Brown Songlark			▼		▼				▼	
Cincloramphus mathewsi	Rufous Songlark		▼	▼		▼			▼		▼
Eremiornis carteri	Spinifexbird		▼	▼		▼		▼		▼	▼

Database Searches								Fauna Survey of the proposed Hope Downs 4 mining area. (Ninox Wildlife Consulting, 2009)	Yandicoogina Junction South West and Oxbow Fauna Survey. (Biota Environmental Sciences, 2010)	Fauna survey of proposed Iron Ore Mine, Cloud Break. (Bamford Consulting Ecologists, 2005)	Fauna Habitats and Fauna Assemblage of the Proposed FMG Stage B Rail Corridor and Mindy Mindy, Christmas Creek, Mt Lewin and Mt Nicholas Mine Areas. (Biota Environmental Sciences, 2005)
Scientific Name	**Common Name**	**Conservation Significance**	**Lamb Creek Level 2 Fauna Survey**	**Birds Australia Birddata Search**	**DEC Search**	**Naturemap Records**	**EPBC Search**				
Hirundinidae											
Petrochelidon ariel	Fairy Martin			▼		▼				▼	
Petrochelidon nigricans	Tree Martin			▼		▼			▼		▼
Nectariniidae											
Dicaeum hirundinaceum	Mistletoebird		▼	▼		▼		▼		▼	
Estrildidae											
Emblema pictum	Painted Finch		▼	▼		▼			▼	▼	▼
Neochmia ruficauda subsp. *subclarescens*	Star Finch			▼	▼				▼	▼	
Taeniopygia guttata	Zebra Finch		▼	▼		▼		▼	▼	▼	▼
Motacillidae											
Anthus novaeseelandiae	Australasian Pipit			▼		▼				▼	

Taxonomy follows Christidis and Boles (2008)* except where indicated otherwise such as . Great Egret *(Ardea alba) i*s a WAM listing - Western Australian Museum Birds Checklist, Last modified: 6 October 2008. Both names are presented because EPBC Act 1999 lists Great Egre*t (A. alba)* Christidis and Boles (2008) lists *Adea modesta* (Eastern Great Egret). Reference to subspecies such as "western ssp" comes from DEC listings.

Taxonomy follows Western Australian Museum Bird Checklist, Last modified: 6 October 2008 except where indicated otherwise.	**WAM**
Recorded on Threatened and Priority Fauna Database Search for the area (DEC) as schedule 1 or 4	**DEC**
Recorded on Protected Matters Database Search for the area - EPBC Act 1999 (DEH) as endangered (e), vulnerable (v) or migratory (m)	**EPBC**
Priority listed by DEC	**BA**
IUCN (2009) - VU = Vulnerable, EN = Endangered, NT - Near Threatened, LC = Least Concern, DD = Data Deficient	

Appendix X: Raw Habitat Data

Date	Recorder	Zone	Easting	Northing	Site ID	Survey type	Habitat Type	Habitat Description	Landform	Soil	Geology	Litter	Fire	Disturbance	Potential Species of Sig	Recorded species of Cons Sig	Photo numbers
3/04/2012	CC MP	50k	692354	7477632	022-mags	transect	Boolgeeda land system	Corumbia upper storey, mid storey acacia thicket over T. basedowi	plain	Ironstone		<20% 5mm	> 5years				3275-3279 WNESG-CC
3/04/2012	CC MP	50k	692198	7477587	023-mags	transect	Boolgeeda land system	mulga floodplain. Dominant mulga upper storey with occasional comrymbia over triodia and ptilotus.	plain	alluvial clay loam		patchy <20% cover, <5mm depth	no signs of recent fire	grazing and weeds			3280-3284 NESWG-CC
3/04/2012	CC MP	50k	691875	7477656	024-mags	transect	Boolgeeda land system	Corymbia upper storey with diverse acacia shrubland over themeda australis and triodia pungens. Scattered mulga patches.	Floodplain	alluvial clay loam		40% cover, 5mm depth	>5 years				3285-3289 NESWG-CC
3/04/2012	CC MP	50k	691702	7477830	025-mags	transect	Boolgeeda land system	mulga floodplain with acacia understoreyover triodia pungens, themeda australis and ptilotus.	Floodplain	clay loam with iron stone pebbles		<5%, 1-5mm depth	no signs of recent fire	high impact grazing, weeds.			3291-3295 NESWG-CC
3/04/2012	CC MP	50k	691723	7477964	026-mags	transect	Boolgeeda land system	Acacia spiky leaf with hibiscus and senna shrubs over ephemeral grasses (themeda and triodia) with occasional associated corymbia.	floodplain drainage line	deep loam		<10% cover, 1 - 5mm depth	no signs of recent fire	grazing and weeds			3296-3300 NESWG-CC
3/04/2012	CC MP	50k	691930	7478235	027-mags	transect	Boolgeeda land system	Scattered corymbia over ephemeral grassland with occasional acacia shrubs. Understorey primarily themeda and triodia.	floodplain drainage line	deep alluvial clay loam		<10% cover, 1 - 5mm depth	no signs of recent fire	grazing			3303-3307 NESWG-CC
5/04/2012	CC DS	50k	684008	7468874	009-CJ	transect	wannamunna land system	Corymbia and snappy gum with acacia aneura over themeda and aristida understorey with associated triodia.	grassy open woodland	stony loam		20% cover, 1cm depth	fire >10 years	minor disturbance			3480-3484 NESWG-CC
5/04/2012	CC DS	50k	684029	7469108	010-CJ	transect	wannamunna land system	blue mallee over acacia shrubs with triodia pungens understorey	spinifex open woodland	stony loam		<5% cover <5mm depth	old fire scars				3485-3489 NESWG-CC
6/05/2012	CC CJ	50k	687368	7476225	084-CJ	transect	Newman land system	Corymbia and snappy gum upperstorey with acacia, regen blue mallee and malvacea sp mid storey. Silver senna, blue grey senna, eremophila, solanacea sp, goodenia sp, trichadesma, bush celery, triodia pungens and basedowi, ptilotus and other perennial grasses.	Stony loam floodplain	stony loam		patchy under trees, 0-2mm depth	patchy fire, 5-10years old		potential pmm habitat		3630-3634 NESWG-CC
6/05/2012	CC CJ	50k	686573	7475916	085-CJ	transect	Boolgeeda land system	Snappy Gum, Blue malle, hakea, corymbia hamersleyana and corymba sp Upperstorey. Regen blue malle, jakea, acacia minirichi, grevilliea wickhamii midstorey. Triodia basedowi and pungens, ptilotus, grey senna, indigophora sp, fishbone senna.	minor drainage and associated floodplain	stony loam		none	fire< 5 years old	grazing			3635-3639 NESWG-CC
6/05/2012	CC CJ	50k	685238	7475564	086-CJ	transect	Boolgeeda land system	Snappy Gum, Blue malle, hakea, corymbia hamersleyana and corymba sp Upperstorey. Regen blue malle, jakea, acacia minirichi, grevilliea wickhamii midstorey. Triodia basedowi and pungens, ptilotus, grey senna, indigophora sp, fishbone senna. same as site 05-CJ	minor drainage and associated floodplain	stony loam		none	fire< 5 years old	grazing			same as above
3/04/2012	CM CJ	50k	693702	7477900	001-CJ	transect		stony creek lined with Eucalyptus, Acacia, themeda and triodia.	MEAT drainage	stony pebbles, red brown loam.		<10%		drill lines, roads			302-305-CM
5/04/2012	CM MP	50k	687918	74738784	004-HC	transect	Newman land system	Brachychiton, Eucalyptus camaldulensis, callitris and ficus upperstorey. Acacia, ptilotus, solanum, eremophila, ficus, malvacea, astrotricha midstorey. Ephemeral grasses	Steep rocky BIF gorge	coarse stony sand with		patchy 3-5CM depth	long time since fire				
6/04/2012	CM MP	50k	691578	7476099	MEAT1-HC	transect	Boolgeeda land system	Sparse Eucalyptus leucophloia and corymbia with mixed acacia, mulga and hakea upperstorey. Blue mallee with three acacia species midstorey. T. basedowi, t. pungens, indigophora, ptilotus, senna, solanum and malvaceae understorey.	Plain with creekline drainage	red brown clay loam with high coverage of BIF pebbles.		<5% cover 0-1cm depth	5-10 years since fire				39-43 - CM

Date	Recorder	Zone	Easting	Northing	Site ID	Survey type	Habitat Type	Habitat Description	Landform	Soil	Geology	Litter	Fire	Disturbance	Potential Species of Sig	Recorded species of Cons Sig	Photo numbers
6/04/2012	CM MP	50k	691145	7477080	SATOM2-HC	transect	Boolgeeda land system	Tall corymbia upperstorey. Regrowth mulga midstorey. Solanum, senna, stunted acacia, eremophila, triodia pungens, mixed ephemeral grasses and malvacea understorey.	Plain	red brown clay loam		20% cover 1-2cm depth	5-10 years since fire				35-38 NESW on powershot
6/04/2012	CM MP	50k	693048	7476641	SHET1-HC	transect	Newman land system	sparse corymbia and scattered eucalyptus leucophloia with hakea, blue mallee and grevillea upperstorey. Mixed acacias, dodonaea, indigophora, malvacea midstorey. Acacia hillaryi, triodia wiseana and triodia basedowi understorey.	Hill slope with associated ephemeral creekline drainage	very stony red brown clay loam with BIF pebbles.		5-10% cover between 0-5cm depth	low intensity fire within 5 years.		potential PMM habitat		44-48 cilver canon powershot.
6/04/2012	CM MP	50k	693517	7476689	SHET2-HC	transect	Newman land system	Sparse eucalyptus leucophloia, hakea, blue mallee, corymbia and grevillea upperstorey. Sappling eucalyptus leucophloia, hakea and malvaceae midstorey. Acacia hillaryi, fabaceae, acacia sp, triodia wiseana and triodia basedowi understorey.	Hill slope with associated ephemeral creekline drainae	very stony red brown clay loam with BIF pebbles.		<10% cover 0-2cm depth	low intensity fire within 5 years.		potential PMM habitat		49-53 canon powershot
6/04/2012	CM MP	50k	690204	7477027	SATOM1-HC	transect	Boolgeeda land system	sparse corymbia with rosette foliage upperstorey. Four acacia species, dodonaea, eremophila, mulga midstorey. Hakea, ptilotus, acacias, senna, malvacea, solanum, triodia pungens, ephemeral grasses, indigophora understorey.		red brown sandy loam with sparse BIF pebbles		<10% cover 0-1cm depth	fire 5-10 years previous.	few to no weeds. Grazing.			55-59 canon powershot.
3/04/2012	CJ CM	50k	693719	7477948	002	transect	McKay Land System	very sparse eucalyptus leucophloia upperstory. Sparse acacia long narrow, pedolostylus, hakea, grevillea, indigophora midstorey. Triodia wiseana, themeda, ptilotus, solanum and triodia basedowi understorey.	stony hill	BIF pebbles with dark red brown fine sand		minimal litter 0-1cm depth	no signs of recent fire		low SRE potential		no photos
3/04/2012	CJ CM	50k			003	transect	McKay Land System	very sparse eucalyptus leucophloia upperstory. Sparse acacia long narrow, pedolostylus, hakea, grevillea, indigophora midstorey. Triodia wiseana, themeda, ptilotus, solanum and triodia basedowi understorey.	stony hill	BIF pebbles with dark red brown fine sand		minimal litter 0-1cm depth	no signs of recent fire		low SRE potential		no photos
3/04/2012	CJ CM	50k			004	transect	McKay Land System	very sparse eucalyptus leucophloia upperstory. Sparse acacia long narrow, pedolostylus, hakea, grevillea, indigophora midstorey. Triodia wiseana, themeda, ptilotus, solanum and triodia basedowi understorey.	stony hill	BIF pebbles with dark red brown fine sand		minimal litter 0-1cm depth	no signs of recent fire		low SRE potential		no photos
3/04/2012	CJ CM	50k			005	transect	McKay Land System	very sparse eucalyptus leucophloia upperstory. Sparse acacia long narrow, pedolostylus, hakea, grevillea, indigophora midstorey. Triodia wiseana, themeda, ptilotus, solanum and triodia basedowi understorey.	stony hill	BIF pebbles with dark red brown fine sand		minimal litter 0-1cm depth	no signs of recent fire		low SRE potential		no photos
3/04/2012	CJ CM	50k			006	transect	McKay Land System	very sparse eucalyptus leucophloia upperstory. Sparse acacia long narrow, pedolostylus, hakea, grevillea, indigophora midstorey. Triodia wiseana, themeda, ptilotus, solanum and triodia basedowi understorey.	stony hill	BIF pebbles with dark red brown fine sand		minimal litter 0-1cm depth	no signs of recent fire		low SRE potential		no photos
3/04/2012	CJ CM	50k	694840	7478054	007	transect	McKay Land System	Eucalyptus leucophloia upperstorey. Acacia shiny stem and acacia long wide and acacia long narrow midstorey. Triodia wiseana understorey.	Minor drainage	brown sandy loam with conglomerate chunks.		no litter			medium potential as SRE habitat		307-310
7/04/2012		50k	685094	7468467		Litter		Tall strap-leaved Acacia									

Appendix XI: Specialised Zoological Anabat Data Report

Bat call identification

from Lamb Creek, WA

Type:	Acoustic analysis
Prepared for:	Rapallo Pty Ltd
Date:	4 June 2012
Job No.:	SZ273

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SUMMARY

Bat identifications from acoustic recordings are provided from Lamb Creek, c. 120 km WNW of Newman, in the Pilbara region of Western Australia. Six species of bat were identified as being present (Table 1). Details supporting the identifications are provided, as recommended by the Australasian Bat Society (ABS 2006). A summary of pulse parameters is provided in Table 2, and representative call sequences are illustrated in Figure 1. Further data is available should verification be required.

COMMENTS ON IDENTIFICATIONS

The yellow-bellied sheath-tailed bat *Saccolaimus flaviventris* was distinguished from the northern free-tailed bat *Chaerephon jobensis* by the pattern of harmonics (*S. flaviventris*: harmonics c. 10 kHz apart with most energy in h2 at c. 20 kHz; *C. jobensis*: harmonics c. 20 kHz apart with most energy in h1 at c. 20 kHz; Figure 1).

No unambiguous calls of bats of conservation significance (ghost bat *Macroderma gigas*; Pilbara leaf-nosed bat *Rhinonicteris aurantia*) were present. All short duration multi-harmonic signals were allocated to the common sheath-tailed bat *Taphozous georgianus* based on pulse structure and energy distribution; and all signals with a characteristic frequency above 100 kHz were from Finlayson's cave bat *Vespadelus finlaysoni* (Figure 1).

METHODS

Data recorded with a Wildlife Acoustics Song Meter SM2BAT were supplied as WAV format files on three 4 GB SD cards (recording settings were not available from the submitted data); plus one DAT format file as downloaded from a Titley Scientific AnaBat SD1 bat detector. Each WAV file was opened and inspected in Cool Edit 2000. Species were identified based on information in McKenzie and Muir (2000) and McKenzie and Bullen (2009), and nomenclature follows Armstrong and Reardon (2006). Signals recorded with the AnaBat SD1 detector were reinterpreted from the DAT file in CFC Read 4.3s software and examined in AnalookW 3.8s software. The frequency division ratio was set to a factor of 8. Three call variables were measured on good quality search phase pulses in representative call sequences: pulse duration (milliseconds), maximum frequency (kHz) and characteristic frequency (kHz). To double-check whether any signals of *R. aurantia* were present, a continuous representation of the AnaBat recordings in ZCA and MAP files was examined.

REFERENCES

ABS (2006). Recommendations of the Australasian Bat Society Inc for reporting standards for insectivorous bat surveys using bat detectors. *The Australasian Bat Society Newsletter* 27: 6–9. [ISSN 1448-5877]

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McKenzie, N.L. and Muir, W.P. (2000). Bats of the southern Carnarvon Basin, Western Australia. *Records of the Western Australian Museum* Supplement 61: 465–477.

McKenzie, N.L. and Bullen, R.D. (2009). The echolocation calls, habitat relationships, foraging niches and communities of Pilbara microbats. *Records of the Western Australian Museum* Supplement 78: 123–155.

TABLE 1. Species identifications, with the degree of confidence indicated by a code. Date and serial/unit correlates with site; see Table 2 for full species names.

	C. gouldii	*C. jobensis*	*S. flaviventris*	*S. greyii*	*T. georgianus*	*V. finlaysoni*
Date						
SM2BAT						
3/04/2012	◆	—	◆	◆	◆	◆
4/04/2012	◆	—	◆	—	—	◆
5/04/2012	—	—	—	—	◆	◆
6/04/2012	—	—	—	—	◆	◆
7/04/2012	◆	—	—	◆	—	◆
8/04/2012	◆	—	◆	◆	—	◆
9/04/2012	◆	◆	◆	◆	◆	◆
AnaBat serial 3775						
4/04/2012	◆	—	◆	—	—	◆
5/04/2012	—	—	—	—	◆	◆
7/04/2012	◆	—	—	◆	—	◆
8/04/2012	—	—	◆	◆	—	◆
9/04/2012	◆	◆	—	◆	◆	◆

Definition of confidence level codes:

— Not detected.

◆ Unambiguous identification of the species at the site based on measured call characteristics and comparison with available reference material. Greater confidence in this ID would come only after capture and supported by morphological measurements or a DNA sequence.

NC Needs Confirmation. Either call quality was poor, or the species cannot be distinguished reliably from another that makes similar calls. Alternative identifications are indicated in the *Comments on identifications* section of this report. If this is a species of conservation significance, further survey work might be required to confirm the record.

TABLE 2. Summary of variables from representative call sequences (Mean ± SD; range; [1] s,p: number of sequences measured, combined total number of pulses measured.

Species	s,p[1]	Duration (msec)	Max Frequency (kHz)	Char frequency (kHz)
Gould's wattled bat *Chalinolobus gouldii*	1,10	6.0 ± 1.3 4.2 – 7.6	39.6 ± 3.5 34.6 – 44.9	30.7 ± 0.7 29.9 – 31.9
Northern free-tailed bat *Chaerephon jobensis*	1,5	7.1 ± 1.7 4.9 – 8.9	31.7 ± 3.4 28.0 – 35.9	20.9 ± 2.1 18.5 – 23.8
Yellow-bellied sheath-tailed bat *Saccolaimus flaviventris*	1,4	15.8 ± 2.6 12.4 – 17.9	20.9 ± 0.6 20.1 – 21.3	17.5 ± 0.2 17.2 – 17.6
Little broad-nosed bat *Scotorepens greyii*	1,11	5.9 ± 0.8 4.1 – 7.2	50.4 ± 5.8 41.2 – 59.3	36.1 ± 0.6 34.6 – 36.9
Common sheath-tailed bat *Taphozous georgianus*	1,14	8.9 ± 1.5 6.6 – 10.5	27.4 ± 0.5 26.9 – 28.7	24.7 ± 0.3 24.2 – 25.2
Finlayson's cave bat *Vespadelus finlaysoni*	3,35	4.1 ± 1.0 3.0 – 7.9	72.5 ± 10.0 58.6 – 90.9	57.5 ± 1.3 55.4 – 59.9

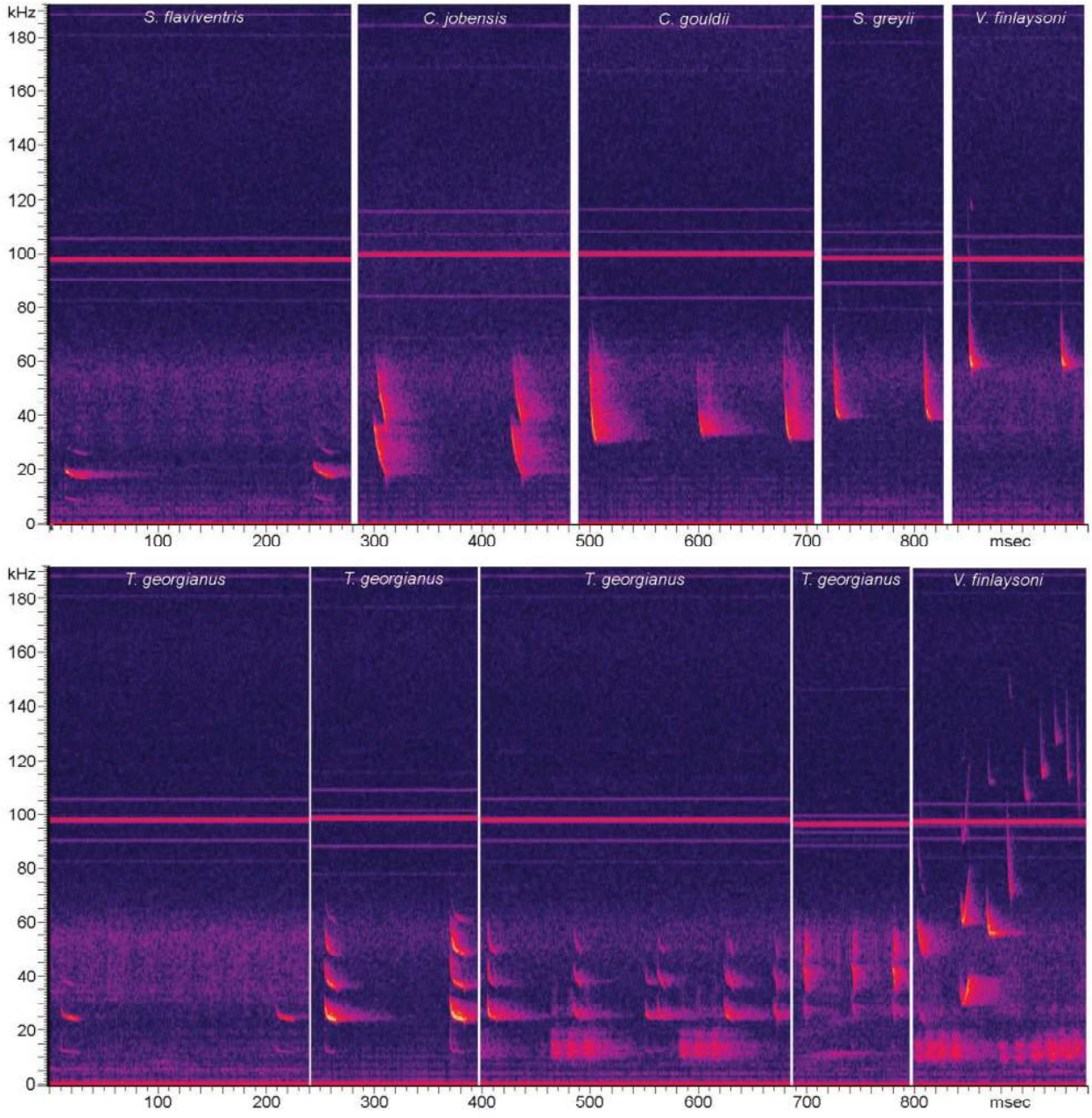

FIGURE 1. Representative call sequence portions of the species identified.

Appendix XII: WAM SRE Reports

Land snails from Lamb Creek, ca. 120km NW of Newman (Western Australia)

Brief Report to *Rapallo Environmental*

15 June 2012

Corey S. Whisson

Department of Aquatic Zoology, Western Australian Museum,
Locked Bag 49, Welshpool DC, Western Australia 6986, Australia

Although identifications in this report were consistent with the best available information and current scientific thinking at the time of identification the use of this report is at the risk of the user. Any liability to users of this report for loss of any kind arising out of the use of this report or the information and identifications it contains is expressly disclaimed.

SUMMARY

The samples from Lamb Creek, approximately 120km NW of Newman, submitted to the Western Australian Museum on the 22nd May 2010, contained three single species of land snails belonging to the families Bulimulidae and Pupillidae. None are considered short-range endemic species. Some pupillid specimens were juvenile and could not be identified past family level.

METHODS

8 samples of land snail specimens were collected by the environmental consultancy *Rapallo Environmental* during a faunal survey of the Lamb Creek area, approximately 120km north-west of Newman, Western Australia in April 2012. These specimens were presented to the Mollusc Section of the Western Australian Museum for identification and comment on the 22nd of May 2012 (WAMTS-057).

Specimen data, giving the site numbers and co-ordinates, habitat information and the collecting methods employed were provided with the specimens.

Land snail specimens were examined under a *Leica* MZ95 dissecting microscope. They were compared with dry and preserved specimens in the Molluscan Collections of the Western Australian Museum and with descriptions and figures in relevant publications. As we have limited material from the project areas, most of the survey specimens have been registered and deposited into the Western Australian Museum's Mollusc Collection.

RESULTS

The land snails collected during this survey belong to the terrestrial pulmonate families Bulimulidae and Pupillidae (Appendix A). The three species identified from this survey are considered to form part of the indigenous Western Australian fauna.

Bulimulidae

***Bothriembryon* sp. nov.**

Undescribed widespread species.

Family Pupillidae

Subfamily *Gastrocoptinae*

***Gastrocopta* cf. *mussoni* Pilsbry, 1917**

Probably conspecific with *G.mussoni* which is a widespread species

Subfamily Pupillinae

***Pupoides beltianus* (Tate, 1894)**

Widespread species

REFERENCES

Pilsbry, H.A., (1917), *in* Tyron, G.W. & Pilsbry, H.A. *Manual of Conchology.* Philadelphia : Conchology Department, Academy of Natural Sciences Ser. 2, **24**

Tate, R. (1894). Brief diagnoses of Mollusca from Central Australia. *Trans. R. Soc. S. Aust.* **18**: 191-194.

Appendix A: Land snails from Lamb Creek.

Site	Family	Genus	Species	Reg. No. (WAM S)	No. Specimens
PMI Lamb 24 mollusc	Bulimulidae	*Bothriembryon*	sp. nov.	83524	1 dead-taken
PMI Lamb 25 mollusc	Bulimulidae	*Bothriembryon*	sp. nov.	83523	1 dead-taken
PMI Lamb 26 mollusc	Pupillidae	Juv.		Not kept	1 dead-taken
PMI Lamb 27 mollusc	Pupillidae	Juv.		Not kept	1 live-taken
PMI Lamb 28 mollusc	Pupillidae	*Pupoides*	*beltianus*	83525	1 dead-taken
PMI Lamb 29 mollusc	Pupillidae	Juv.		Not kept	1 dead-taken
PMI Lamb 35 mollusc	Pupillidae	*Gastrocopta*	cf. *mussoni*	83527	1 dead-taken
PMI Lamb 36 mollusc	Pupillidae	*Gastrocopta*	cf. *mussoni*	83526	1 dead-taken, 2 live-taken
PMI Lamb 37 mollusc		Not	Submitted		

PHOENIX
ENVIRONMENTAL SCIENCES

Terrestrial invertebrates from Lamb Creek, Western Australia

Prepared for Rapallo

June 2012

Taxonomic Report

Terrestrial invertebrates from Lamb Creek, Western Australia

Prepared for Rapallo

Taxonomic Report

Author: Volker W. Framenau

Date: 18 June 2012

Submitted to: Cara McGary, Chris Jackson

Chain of authorship and review			
Name	Task	Version	Date
Volker Framenau	Interim for client comments	0.1	15 June 2012
Volker Framenau	Final submitted to client	1.0	18 June 2012
	Choose an item.		
	Choose an item.		
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Appendix 1 Short-range Endemic invertebrates identified from Lamb Creek

EXECUTIVE SUMMARY

In May 2012, Phoenix Environmental Sciences Pty Ltd (Phoenix) was commissioned by Rapallo to identify pseudoscorpions, centipedes, millipedes, isopods and spiders collected at Lamb Creek, Western Australia. A total of 18 samples were identified and screened for short-range endemic (SRE) invertebrate taxa. The scorpions delivered to Phoenix will be reported on separately through ScorpionID (E. Volschenk).

There are uncertainties in determining the range-restrictions of many invertebrates in Western Australia due to lack of surveys, lack of taxonomic resolutions within target taxa and problems in identifying certain life stages. To account for these uncertainties Phoenix uses a three-tier categorisation for short-range endemism: confirmed SRE, likely SRE and potential SRE.

The identification material included 11 morphospecies in 11 genera from nine families. These include one likely SRE:

- a slater, *Spherillo* sp. indet. (Armadillidae) – rarely collected in the Pilbara with some troglomorphic features.

The material also included five potential SREs:

- a trapdoor spider, *Synothele* 'MYG255' (family Barychelidae) – currently only know from a single male collected at Lamb Creek; it is recommended to conduct a molecular analysis to compare the COI sequence with the database at the WA Museum
- a pseudoscorpion, *Austrochthonius* 'pilbara' (family Chthoniidae) – this species possibly represents a species complex which may include SREs; currently under revision at the WA Museum (M.S. Harvey)
- a soil centipede, Geophilomorpha sp. indet. – taxonomically poorly resolved centipede order; due to high diversity and cryptic lifestyle in moist and deep leaf litter considered potential SREs
- a millipede, *Austrostrophus* sp. indet. (Trigoniulidae) – unidentifiable juvenile; two species are currently known in the genus from the Pilbara one of which is widespread (*A. stictopygus*), the other is a potential SRE (*Austrostrophus* 'DIP018')
- a slater, *Buddelundia* '13' (Armadillidae) – possibly conspecific to specimens collected 80 km west of Newman.

1 SCOPE OF WORKS

In May 2012, Phoenix Environmental Sciences Pty Ltd (Phoenix) was commissioned by Rapallo to identify spiders, pseudoscorpions, centipede, millipedes and slaters collected at Lamb Creek, Western Australia (project PMI Lamb Creek 13726). A total of 18 samples were identified and screened for short-range endemic (SRE) invertebrate taxa.

2 BACKGROUND

2.1.1 Short-range endemic invertebrates

Short-range endemic fauna are defined as animals that display restricted geographic distributions, nominally less than 10,000 km^2, that may also be disjunct and highly localised (Harvey 2002; Ponder & Colgan 2002). The most appropriate analogy is that of an island, where the movement of fauna is restricted by the surrounding marine waters, therefore isolating the fauna from other terrestrial populations. Isolating mechanisms and features such as roads, urban infrastructure, large creek lines and ridges can act to prevent the dispersal and gene flow of the less mobile invertebrate species.

Short-range endemism in terrestrial invertebrates is believed to have evolved through two primary processes (Harvey 2002):

- **Relictual short-range endemism**: relictual SREs are thought to have had wider distributions during more mesic geological periods. Australia's aridification over the last 60 million years resulted in a contraction of the ranges of these species into relatively small habitat pockets where moist conditions persist (relictual Gondwanan habitats). Evolutionary processes over long periods of isolation typically resulted in each population developing into a distinctive species. Millipedes and slaters are typical relictual SREs and they are generally found in deep gullies often on the south-facing slopes of mountains, hills and ridges. Relictual SREs often inhabit areas with: high rainfall, areas where topography induces fog, areas with permanent water (swamps, creek lines and river systems) or deep litter beds. Sometimes habitats have various combinations of these features.
- **Habitat specialisation**: habitat specialist SREs may have settled in particular isolated habitat types by means of dispersal or phoresy (transport of one organism by another) and evolved in isolation into distinct species. Such habitat islands include rocky outcrops (pseudoscorpions in the genus *Synsphyronus* or spiders in the family Selenopidae are typical examples) or salt lakes (e.g. wolf spiders of the genus *Tetralycosa*). Unlike relictual SREs in mesic habitats, habitat specialist SREs are restricted by environmental parameters other than humidity and are often found in arid environments such as the Pilbara.

Invertebrate groups that contain SRE taxa are generally well distributed across the Australian landscape and well adapted to semi-arid environments due to a variety of behavioural and morphological features that have developed to avoid desiccation and predation. They generally possess (Harvey 2002):

- poor powers of dispersal
- confinement to discontinuous habitats
- seasonality, i.e. only active in cooler or wetter months
- slow growth
- low levels of fecundity.

2.1.2 Categories of short-range endemism

Currently, there is no accepted system to determine the likelihood that a species is an SRE. The uncertainty in categorising a specimen as SRE originates in a number of factors including:

- **Poor regional survey density** (sometimes taxon-specific): A regional fauna is simply not known well enough to assess the distribution of species. This factor also considers the fact that, simply because a species has not been found regionally, does not mean it is really absent; this confirmation ('negative proof') is almost impossible to obtain ('absence of proof is not proof of absence').
- **Lack of taxonomic resolution**: many potential SRE taxa (based on habitat constraints, SRE status of closely related species, or morphological peculiarities such as troglomorphism) have never been taxonomically treated and identification to species level is very difficult or impossible as species-specific character systems have not been defined. Good taxonomic resolution does not necessarily require a published revision, but generally requires a taxonomist to be actively working on this group or a well-established, preferably publicly available, reference collection (i.e. museum collection).
- **Problems of identification**: SRE surveys often recover life stages of potential SRE taxa that cannot be confidently identified based on morphological characters, even if revisions exist. These include, for example, juvenile or female millipedes, mygalomorph spiders and scorpions. Molecular techniques are increasingly being employed to overcome these identification problems.

Considering these factors of uncertainty, Phoenix currently employs a simple three-tier system to categorise the different probabilities of short-range endemism: confirmed, likely or potential SRE (Table 2-1). These categories are dynamic and can change with every single survey as knowledge of SRE status is updated. For example, the millipede *Austrostrophus stictopygus* Hoffman, 2003 (order Spirobolida) has been shown widespread in the Pilbara based on material collected as part of environmental assessment studies following its initial description from few localities (Harvey *et al.* 2011; Hoffman 2003).

Life stages of species that cannot be identified at the species level, e.g. some females and juveniles, are assessed based on the knowledge of the higher taxon they belong to, i.e. family or genus. For example, all juvenile or female *Antichiropus* millipedes would be classified as 'confirmed SRE' as all but two of the 120+ known species in this genus are currently considered SREs (Wojcieszek *et al.* 2011).

Although the different categories of 'SRE-likelihood' may help to set conservation priorities, SRE taxa of all categories should be assessed on their merit, in order to determine appropriate conservation measures that adhere to the Precautionary Principle within environmental impact assessments. That

is, "*where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason to postpone measures to prevent environmental degradation*" (EPA 2002).

Table 2-1 Phoenix SRE categories reflecting survey, taxonomic and identification uncertainties

SRE category	Criteria	Typical representative
(Confirmed) SRE	Confirmed or almost certainly SRE; taxonomy of the group is well known (but not necessarily published); group well represented in collections, in particular from the region in question; high levels of endemism in documented species; inference is often possible from immature specimens	*Antichiropus* millipedes and araneomorph spiders in the genus *Karaops* (Selenopidae)
Likely	Taxonomically poorly resolved group; unusual morphology for the group (i.e. some form of troglomorphism); often singleton in survey and few, if any, regional records	Opiliones, some pseudoscorpions and slaters, many mygalomorph spiders
Potential	Taxonomically poorly resolved group; often common in certain microhabitats in SRE surveys (i.e. litter dwellers), but no other regional records; congeners often widespread	Cryptopidae, Geophilida

2.2 IDENTIFICATION AND PERSONNEL

All taxa were examined in 70% or 100% ethanol under a Leica M205A stereomicroscope.

The method of identification for each taxon, i.e. by taxonomic literature or comparison with type or other reference material, is indicated in the taxonomic part of this report. Phoenix personnel involved in the identification are listed in Table 2-2.

Table 2-2 Phoenix and external personnel involved in identification

Name	Qualifications
Dr Volker W. Framenau	M.Sc. (Cons. Biol.), Ph.D. (Zool.)
Dr Erich Volschenk	Ph.D. (Zool.)
Dr Simon Judd	Ph.D. (Zool.) – independent Isopoda taxonomist

2.3 TAXONOMY AND NOMENCLATURE

The taxonomic nomenclature of invertebrates follows the references detailed in Table 2-3.

Morphospecies designations of undescribed species are generally adopted from the systems of the scientist(s) working on the group. For mygalomorph spiders, the Western Australian Museum has established a morphological reference collection of males that aids in the identification of spiders. Morphospecies are numbered consecutively with the prefix "MYG", e.g. *Aname* 'MYG001' (Nemesiidae).

Table 2-3 Nomenclatural references, morphospecies designations and reference collections for the invertebrates of Lamb Creek

Taxonomic group	Taxonomic reference for described species and higher taxa	Morphospecies designation and reference collection
Araneae (Mygalomorphae)	Platnick (2012)	"MYG"-numbering system developed by V.W. Framenau (WAM, Phoenix), reference collection at WAM
Araneae (Araneomorphae: Selenopidae)	Platnick (2012)	Morphospecies designations developed by M. Harvey (WAM) and V.W. Framenau (WAM, Phoenix), reference collection at WAM
Pseudoscorpiones	Harvey (2011a)	"PSE"-morphospecies designations developed by M. Harvey (WAM), reference collection at WAM
Diplopoda (Polydesmida: *Antichiropus*)	Mesibov (2006)	"DIP"-morphospecies designations developed by C. Car and M. Harvey (WAM), reference collection at WAM
Chilopoda (Geophilomorpha, Cryptopidae only)	Colloff *et al.* (2005)	Taxonomically poorly studied groups, no reference collection available
Isopoda	Schotte *et al.* (2008)	Morphospecies designations developed by S. Judd, reference material at WAM

2.4 SPECIMEN DEPOSITORY

The EPA guidance statement No. 20 ('*Sampling of short-range invertebrate fauna for environmental impact assessment in Western Australia*') (EPA 2009) recommends that all specimens representing SRE target groups are lodged with the WAM to enhance the knowledge of the distribution of putatively rare species. Phoenix adheres to this recommendation and all of the survey specimens will be lodged with the WA Museum.

3 RESULTS

3.1 SUMMARY

The identification material included 11 morphospecies in 11 genera from nine families (Table 3-1; Appendix 1). These include one likely and five potential SREs.

Table 3-1 Status of SRE target invertebrate from Lamb Creek

Higher taxon	Family	Species	SRE status	Remarks
Araneomorphae (modern spiders)	Zodariidae	Zodariidae sp. indet.	Not SRE	Not SRE target group
Mygalomorphae (trapdoor spiders)	Barychelidae	*Aurecocrypta* 'MYG057'	Not SRE	Widespread in Pilbara
		Synothele 'MYG255'	Potential	Currently only record of species
Pseudoscorpiones (pseudoscorpions)	Atemnidae	*Oratemnus* sp. indet.	Not SRE	Commonly collected in Pilbara, not considered SRE
	Cheiridiidae	Cheiridiidae sp. indet.	Not SRE	Commonly collected in Pilbara, not considered SRE
	Chthoniidae	*Austrochthonius* 'pilbara'	Potential	Possibly representing species complex, under revision at WAM
	Olpiidae	*Beierolpium* '8/2' *Beierolpium* sp. indet.	Not SRE	Commonly collected in Pilbara, not considered SRE
Chilopoda - Geophilomorpha (soil centipedes)	indet.	Geophilomorpha sp. indet.	Potential	Taxonomically poorly resolved
Diplopoda - Spirobolida (millipedes)	Triguniulidae	*Austrostrophus* sp. indet.	Potential	May represent *Austrostrophus* 'DIP018', currently considered potential SRE
Isopoda (slaters)	Armadillidae	*Buddelundia '13'*	Potential	Possibly also found at Wonmunna mining lease
		Spherillo sp. indet.	Likely	Rarely found in the Pilbara

3.2 ARANEAE – ARANEOMORPHAE (MODERN SPIDERS)

With the exception of the Selenopidae (Flat Rock Spiders), modern spiders do not belong to the target groups for SRE surveys and therefore the single male zodariid spider from Lamb Creek (Appendix 1 was not identified beyond family level and is here not commented on.

3.3 ARANEAE – MYGALOMORPHAE (TRAPDOOR SPIDERS)

Trapdoor spiders represent one of the focal groups in surveys of SRE taxa (Harvey 2002). A number of mygalomorph spiders, e.g. *Idiosoma nigrum* Main, 1952, *Kwonkan eboracum* Main, 1983 and *Moggridgea tingle* Main, 1991 are listed on Schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2012* (Western Australian Government 2012). The Western Australian mygalomorph fauna is vast and many families and genera remain taxonomically poorly known (e.g. Barychelidae: *Idiommata*; Idiopidae: *Aganippe*; Nemesiidae: *Aname*, *Chenistonia*, *Kwonkan*). A recent molecular study of Pilbara Mygalomorphae based COI sequence data (Helix 2012) provided a new benchmark for diversity estimates in the Pilbara which by far exceeds the species richness of the region documented in during the DEC Pilbara Biological Survey (Durrant *et al.* 2010). Many of these genetic lineages are known from very restricted ranges only (Helix 2012).

3.3.1 Barychelidae (Brush-footed Trapdoor Spiders)

Barychelid spiders, commonly called Brush-footed Trapdoor Spiders, are small to fairly large in size with well-developed claw tufts and short terminal segment of the posterior lateral spinnerets (Raven 1994). Of all trapdoor spiders, few are as cryptic as the Barychelidae. Their burrows tend to be less than 60 cm deep and often lack the firm thick door of the Ctenizidae or the extensive webs of Dipluridae.

In Western Australia, the genera *Aurecocrypta*, *Idiommata*, *Mandjelia* and *Synothele* are known to occur from the Southwest region into the Pilbara region and *Moruga* has been found in the Kimberleys (Raven 1994). The DEC Pilbara survey recovered four species of Brush-footed Trapdoor Spiders in three genera, of which *Synothele* was with four species most diverse (Durrant *et al.* 2010). However, a recent molecular study on Pilbara Barychelidae uncovered a 20 different molecular lineages (putative species) within the family suggesting a much higher diversity in the region; many of these species appear to have restricted ranges (Helix 2012).

3.3.1.1 Genus *Aurecocrypta*

Aurecocrypta males are very similar to those in the genus *Synothele* but differ in the uniformly dark colour of the abdomen (mottled in *Synothele*) and some details of the male pedipalp. Two species are currently described, both only known from Western Australia, *A. katersi* and *A. lugubris* (Raven 1994).

***Aurecocrypta* 'MYG057'**

Aurecocrypta 'MYG057' is not uncommon throughout the Pilbara region of Western Australia (WA Museum database). It is not an SRE.

3.3.1.2 Genus *Synothele*

The genus *Synothele* can be identified by the low number of maxillary cuspules in combination with the lack of lyra (specialised clubbed setae) on the maxillae, and the often mottled abdomen

(uniformly dark in the similar *Aurecocrypta*). The genus is widespread throughout Western Australia (21 species) and South Australia (3 species) with most species known only from very limited ranges (Raven 1994).

***Synothele* 'MYG255'**

Synothele 'MYG255' is a fairly large species within the genus. It is the first representative of this new morphospecies in the WA Museum reference collection. Based on the distribution patterns of the genus in the Pilbara, it is considered a potential SRE. It is recommended to conduct molecular identification against the mygalomorph COI sequence database of the WA Museum to expand the knowledge of the distribution of this species.

3.4 PSEUDOSCORPIONES (FALSE SCORPIONS OR PSEUDOSCORPIONS)

Pseudoscorpiones resemble scorpions in that they possess a pair of long pedipalps with pincers which are directed forward; however, they do not possess the tail or a sting of scorpions. Most species are small to very small in size (most species are less than 1 cm long) (Harvey & Yen 1989). Pseudoscorpions can be found inhabiting a wide variety of habitats including leaf litter, soil, under the bark of trees, under stones, and in rock crevices (Harvey & Yen 1989; Main 1985). In Western Australia, 17 families of pseudoscorpions have been recorded to date (Harvey 2011a). The group contains several SRE species, for example species in the genus *Synsphyronus* (family Garypidae) are often habitat specific SREs on rocky outcrops (Harvey 2011b).

3.4.1 Atemnidae

Atemnids are frequently found under bark of trees in Western Australia, but the systematics of the group, particularly of the genus *Oratemnus*, is uncertain and the taxonomy of individual species unclear (M Harvey personal communication). However, based upon current evidence, it seems that most species will eventually be found to be widely distributed. For this reason, the specimen collected at Lamb Creek is not considered an SRE.

3.4.2 Cheiridiidae

The systematic status of the many populations of Cheiridiidae is currently unknown but it is very unlikely that any represent short-range endemic species (M Harvey personal communication).

3.4.3 Family Chthoniidae

Members of the Chthoniidae are small pseudoscorpions with comparatively large chelicerae. Five indigenous genera have been reported from Australia, and each is widespread (Edward & Harvey 2008). Chthoniidae are especially common in leaf litter and under rocks in high rainfall areas of eastern and south-western Australia.

3.4.3.1 Genus *Austrochthonius*

Species of *Austrochthonius* occur in leaf litter and soil environments throughout much of southwestern Australia, as well as subterranean ecosystems in Cape Range and near Busselton (Harvey 1991; Harvey & Mould 2006). The taxonomy of the Western Australian species is not resolved but there are clearly several species represented in the collections of the WA Museum. Recent molecular analyses showed deep genetic divergences within the genus, but this is not reflected in their morphology and species identification is extremely difficult. The genus

Austrochthonius is currently under revision at the Western Australian Museum (M. Harvey personal communication).

***Austrochthonius* 'pilbara'**

Austrochthonius 'pilbara' is currently poorly defined and may consist of a group of species. It is currently considered a potential SRE.

3.4.3.2 Olpiidae

Systematically, the Olpiidae are poorly defined and lack any uniting characters (Harvey 1992; Murienne *et al.* 2008). In Australia, six genera in the family are listed with valid species, *Austrohorus*, *Beierolpium*, *Euryolpium*, *Linnaeolpium*, *Olpium* and *Xenolpium* (Harvey 2011a). Olpiids are mostly found in xeric habitats, under stones, bark and in leaf litter and frequently belong to the most commonly collected pseudoscorpions in surveys for SRE in these habitats in Western Australia. Most species, as those from the genus *Beierolpium* found at Lamb Creek (Appendix 1) are generally widespread and not considered SREs, although some genera or species may be range-restricted, in particular in subterranean habitats (Harvey & Leng 2008).

3.5 CHILOPODA (CENTIPEDES)

The centipedes represent a diverse group of predatory arthropods. Each pair of legs is attached to a separate body segment which distinguishes this class from the millipedes (Diplopoda; two pairs of legs per segment) (Colloff *et al.* 2005). Adult body length ranges from 4 to 300 mm, with most species measuring 10 to 100 mm long. In most cases, they feed on small live arthropods and other invertebrates, although large scolopendromorphans can take vertebrate prey (Edgecombe & Giribet 2007).

All five orders of centipedes can be found in Australia, of which one, the Craterostigmorpha, only occurs in Tasmania and New Zealand (Colloff *et al.* 2005). Scolopendromorpha and Scutigeromorpha (house centipedes) are the most commonly encountered centipedes in WA. Most species are very fast runners and are highly mobile and therefore, widespread (e. g. Edgecombe & Barrow 2007; Edgecombe & Giribet 2009; Koch 1982, 1983a, b, c; Waldock & Edgecombe 2012). Therefore, they are not considered target groups for SRE surveys. In contrast, Geophilomorpha, Lithobiomorpha and the Cryptopidae (within the Scolopendromorpha) may include Gondwanan refugial SREs based on the habitat preference for moist and deep leaf litter. Geophilomorpha and Cryptopidae have also been found in subterranean environments in the Pilbara where they are limited to very small ranges (e. g. Edgecombe 2005).

3.5.1 Geophilomorpha (Soil Centipedes)

With more than 1,200 described species world-wide, the Geophilomorpha are the most diverse centipede order (Bonato 2011). Their body is conspicuously narrow and elongate, with at least 33 segments (27 to 191 pairs of legs). Thirteen families are known world-wide, of which six are known to occur in Australia, Ballophilidae, Chilenophilidae, Geophilidae, Mecistocephalidae, Oryidae and Schendylidae (Colloff *et al.* 2005). Most recent taxonomic additions to the WA fauna included the description of the genus *Australoschendyla* (family Schendylidae) (Jones 1996) and a new species in the genus *Tuoba* (family Geophilidae) ((Jones 1998).

The taxonomy of the Geophilomorpha is poorly resolved and it is currently impossible to identify the specimen beyond order level. Based on their high diversity in combination for the preference for

moist, deep litter habitats, all undescribed representatives of the Geophilomorpha are here considered potential SREs.

3.6 DIPLOPODA (MILLIPEDES)

The Australian millipedes are poorly studied and biogeographic patterns remain largely unresolved (Black 1997; Shelley & Golovatch 2011). At least eight orders of millipedes are native to Australia; all species in the order Julida are introduced (Mesibov 2006). Millipedes belong to one of the main target groups of SRE surveys. SREs are particularly expected within the orders Sphaerotheriida (rolling millipedes), Polydesmida, and Chordeumatida (not known from WA) (EPA 2009; Harvey 2002). A recent review of Australian *Atelomastix* (order Spirostreptida) found all of 29 species treated were SREs (Edward & Harvey 2010).

3.6.1 Spirobolida - Triguniulidae

The millipede family Triguniulidae represents a conspicuous element of the Southeast Asian and Indonesian faunas where 21 genera are recognised (Hoffman 2003). In Australia, however, the group has few representatives, including two monotypic genera from WA, *Austrostrophus* and *Speleostrophus* (Hoffman 1994, 2003). *Speleostrophus nesiotes*, endemic to caves on Barrow Island, was gazetted on 11 April 2003 under the WA *Wildlife Conservation Act 1950* as a Schedule 1 species. It is the only Australian native millipede on a State endangered list (Mesibov 2006).

3.6.1.1 Genus *Austrostrophus*

The genus *Austrostrophus* was described only fairly recently and includes a single species, *A. stictopygus* (Hoffman 2003). This millipede has been described as a "curious and disjunct spiroboloid" (Hoffman 2003), based on unusual morphological features such as structure of the male gonopods, punctuate paraprocts (anal segments) and fringed edge on the metazonum (posterior unit of segments). Punctuate paraprocts are otherwise only present in the eastern state genus *Ainigmabolus* (Hoffman 2003)

At the time of its description, *A. stictopygus* was thought to have a very narrow distribution and was only known from the Burrup Peninsula. Recent surveys as part of resource developments in the Pilbara have shown that the species is widespread throughout the region (Harvey *et al.* 2011).

***Austrostrophus* sp. indet.**

The specimen submitted for identification was a juvenile and could not be identified to species level. It is possible that it represents a second undescribed species known in addition to *A. stictopygus*, namely *Austrostrophus* 'DIP018' collected from two localities in the southeastern Pilbara and currently considered a potential SRE. Consequently, *Austrostrophus* sp. indet. from Lamb Creek is here also considered a potential SRE.

3.7 ISOPODA (SLATERS)

Almost 200 described species of Oniscidea, a suborder of the Isopoda containing the supralittoral, terrestrial and secondarily aquatic slaters (or woodlice), have been recorded from Australia (DSEWPC 2010). The WA fauna is comparatively poorly known with many undescribed species (Judd & Horwitz 2003). Slaters are an ideal biological model for faunistic and biogeographical studies, due to their reduced dispersal ability and narrow habitat preferences (e.g. Taiti & Argano 2009). Consequently, they belong to one of the target groups of SRE surveys (EPA 2009; Harvey 2002).

3.7.1 Armadillidae

Armadillidae typically have a convex dorsal surface and the animal can roll up into a ball. The family is diverse in Australia, currently 24 genera are described; many species live in litter or under wood and stones in forest or woodland or near the coast (Green *et al.* 2010).

3.7.1.1 Genus *Buddelundia*

Members of the genus *Buddelundia* belong to the most common terrestrial isopods in WA and the genus was well represented in the Rail Corridor. The genus is currently under taxonomic revision by S. Judd. Species of *Buddelundia* often have a very wide distribution and are not expected to have many SRE species (S. Judd personal communication).

***Buddelundia* '13'**

Buddelundia '13' represents a small species-complex of highly convex habit that is restricted to the Pilbara. This species was previously collected at the Wonmunna mining lease 80 km west of Newman (Phoenix 2011). However, the single specimen collected here is not fully mature so a determination is tentative. It is considered a potential SRE (S. Judd personal communication).

3.7.1.2 Genus *Spherillo*

***Spherillo* sp. indet.**

Isopods of the type here collected are only tentatively associated with the genus *Spherillo*. They almost certainly belong to a different, unnamed genus (S. Judd personal communication). There have been very few specimens of this genus collected in the Pilbara, but species diversity appears high. They have some troglobitic characteristics (e.g. reduced eyes and lack of pigment). This genus was also collected at Wonmunna (Phoenix 2011) but both clearly represent different species. It is extremely rare to find these armadillids among the epigean isopods of the Pilbara and they are therefore considered likely SREs (S. Judd personal communication).

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Appendix 1 Short-range Endemic invertebrates identified from Lamb Creek

Field No.	Order	Family	Genus and species	♂♂	♀♀	Juv.	total
XREF PMI Lamb 06	Araneae	Zodariidae	Zodariidae sp. indet.	1			1
XREF PMI Lamb 05		Barychelidae	*Aurecocrypta* 'MYG057'	1			1
XREF PMI Lamb 02		Barychelidae	*Synothele* 'MYG255'	1			1
XREF PMI Lamb 19	Pseudoscorpiones	Atemnidae	*Oratemnus* sp. indet.		1		1
XREF PMI Lamb 33		Cheiridiidae	Cheiridiidae sp. indet.		1		1
XREF PMI Lamb 39		Chthoniidae	*Austrochthonius* 'pilbara'			1	1
XREF PMI Lamb 20		Olpiidae	*Beierolpium* '8/2'			1	1
XREF PMI Lamb 21		Olpiidae	*Beierolpium* '8/2'		1		1
XREF PMI Lamb 17		Olpiidae	*Beierolpium* '8/3'		1		1
XREF PMI Lamb 30		Olpiidae	*Beierolpium* sp. indet.			1	1
XREF PMI Lamb 32		Olpiidae	*Beierolpium* sp. indet.			1	1
XREF PMI Lamb 22		Olpiidae	*Beierolpium* sp. indet.			1	1
XREF PMI Lamb 31		Olpiidae	*Beierolpium* sp. indet.			1	1
XREF PMI Lamb 38	Geophilomorpha		Geophilomorpha sp. indet.				1
XREF PMI Lamb 37	Spirobolida	Triguniulidae	*Austrostrophus* sp. indet.			1	1
FLAGM2	Isopoda	Armadillidae	*Buddelundia* '31'			1	1
STABM2		Armadillidae	*Spherillo* sp. indet.	1			1

ScorpionID

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Lamb Creek Scorpion Identification Report

Report ID: RA.LC.2012.05
Prepared for: Rapallo
By Dr Erich S. Volschenk
Saturday, 30 June 2012

Rapallo is undertaking a short-range endemic survey at Lamb Creek, and has requested:
- Taxonomic identifications of scorpion from the survey;
- SRE assessment of the species represented in the collection, and;
- Lodgement of these specimens in the Western Australian Museum Arachnology Collection

The collection is comprised of 13 samples.

FAMILY: Buthidae CL Koch, 1837

The family Buthidae is the most diverse and wide spread of all scorpion families (Fet & Lowe 2000). In Australia, Buthidae is represented by the genera *Australobuthus* Locket; *Isometrus* Ehrenberg; *Isometroides* Keyserling , *Lychas* C.L. Koch, and *Hemilychas* Hirst. In Western Australia, only the genera *Isometrus*, *Isometroides* and *Lychas*, have been recorded. The taxonomy of the constituent species of *Isometrus*, *Isometroides* and *Lychas* is very problematic and each genus contains numerous undescribed species, most notably in the genus *Lychas* (Volschenk unpublished data). Most Authors refer to LE Koch (1977) for keys and identification. That revision represents an important study of the Australian scorpions; however, several taxonomic decisions made by Koch (1977) have been rejected by subsequent authors and the taxonomy in that publication is not up to date. Most Australian buthid species appear to have wide distributions; however, a few taxa have confirmed SRE distributions (Volschenk unpublished data).

GENUS: *Lychas* CL Koch, 1845

The genus *Lychas* is widespread across the Australian mainland. The taxonomy of this genus is problematic, with numerous undescribed species known in Australia (Volschenk *et al.* 2010). The situation is further complicated with the genus being also represented in Africa, India and eastern Asia (Fet & Lowe 2000). All of the Australian species are endemic and are currently under revision by ES Volschenk. Most species of Lychas appear to have wide distributions; however, a small number of undescribed species are known to be SRE's.

Species: *Lychas* 'harveyi' Morphospecies

SRE STATUS
Lychas 'harveyi' is not an SRE.

TAXONOMIC RESOLUTION
Lychas 'harveyi' is a well-defined and clearly recognised morphospecies.

DISTRIBUTION
Lychas 'harveyi' is a widespread species. Records are known from the Midwest and Pilbara regions of Western Australia where it is one of the most common scorpion species.

RECOMENDATIONS
Lychas 'harveyi' is not an SRE and no management is recommended.

WAM Rego.	Client Rego.	♂	♀	Juv.	Location	Notes
T114305	S13	2	0	0	Newman, ca. 120 km NW	
T114315	S16	0	1	0	Newman, ca. 120 km NW	
T114317	S14	1	0	0	Newman, ca. 120 km NW	
T114316	S12	0	1	0	Newman, ca. 120 km NW	
T114307	S11	1	0	0	Newman, ca. 120 km NW	
T114308	S10	1	0	0	Newman, ca. 120 km NW	
T114314	S08	0	1	0	Newman, ca. 120 km NW	
T114310	S07				Newman, ca. 120 km NW	
T114311	S01	0	1	0	Newman, ca. 120 km NW	

_____ Number of samples: 9

==========

Species: *Lychas* 'pilbara1' Morphospecies

SRE STATUS
Lychas 'pilbara1' is not an SRE.

TAXONOMIC RESOLUTION
Lychas 'pilbara1' is a well-defined and clearly recognised morphospecies.

DISTRIBUTION
Lychas 'pilbara1' has been recorded throughout the Pilbara region of Western Australia. Despite being widespread, it appears to have a very patchy distribution and is never common.

RECOMENDATIONS
Lychas 'pilbara1' is not an SRE and no management is recommended.

WAM Rego.	Client Rego.	♂	♀	Juv.	Location	Notes
T114312	S15	2	0	0	Newman, ca. 120 km NW	
T114306	S13	0	0	0	Newman, ca. 120 km NW	
T114313	S09	1	0	0	Newman, ca. 120 km NW	

_____ Number of samples: 3

==========

FAMILY: Urodacidae Pocock

The family Urodacidae is endemic to Australia (Fet 2000; Prendini 2000; Prendini 2003; Volschenk *et al.* 2000) where it is represented by the genera *Urodacus* Peters, 1861 and *Aops* Volschenk and Prendini, 2008.

GENUS: Urodacus Peters, 1861

Urodacus has been considered a member of the family Scorpionoidea for many years, but in a revision of the superfamily Scorpionoidea Latreille, Prendini (Prendini 2000) placed *Urodacus* in its own family. Unlike the species designations for Buthidae, LE Koch's (Koch 1977) species' of *Urodacus* have been mostly supported by subsequent authors (Harvey & Volschenk 2002; Volschenk & Prendini 2008; Volschenk *et al.* 2000). The biggest issue confronting Urodacus taxonomy is the number of undescribed species being uncovered through current revisionary work (Volschenk unpublished data). Currently 23 species of *Urodacus* are described; however, this may represent as little as 20% of the real diversity of this genus in Australia. Urodacus appears to be most diverse in Western Australia and few species are recorded east of the Great Dividing Range in eastern Australia. *Urodacus* contains both widespread and SRE species. During a large-scale survey of the Pilbara fauna, Volschenk, et. al. (Volschenk *et al.*) recorded nine undescribed species and only one formerly describes species were reported in that study.

Species: *Urodacus* sp. indet.

SRE STATUS
Urodacus sp. indet. undetermined SRE status.

TAXONOMIC RESOLUTION
Urodacus sp. indet. specimen/s could not be identified owing to incorrect sex and/or life history stage.

DISTRIBUTION
Urodacus sp. indet. cannot be defined as this is not a clear species. See comments for the genus.

RECOMENDATIONS
Urodacus sp. indet. management is impossible since it is not clear which species this is.

WAM Rego.	Client Rego.	♂	♀	Juv.	Location	Notes
T114309	S10	0	0	1	Newman, ca. 120 km NW	

Number of samples: 1

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DISCLAIMER

This document has been prepared based on assumptions as reported throughout and upon information and data supplied by others.

While Rapallo Pty. Ltd. has taken all reasonable care to ensure the facts and opinions expressed in this document are accurate, it does not accept any legal responsibility to any person for any loss or damage suffered by him resulting from his use of this report however caused and whether by breach of contract, negligence or otherwise.

APPENDIX E
TAXA WITH THE POTENTIAL TO BE AN SRE INVERTEBRATE RECORDED IN THE CLEARING PERMIT AREA

Table E.1: Taxa with the Potential to be an SRE Invertebrate Recorded in the Clearing Permit Area and Surrounds

Scientific Name	Literature Sources		SRE Status	Recorded in the Survey Area	Recorded in the Clearing Permit Area	Records in Survey Area	Records in Clearing Permit Area	Records in Indicative Footprint	Regional Records	Habitat
	Rapallo-2012	Rapallo-2022b								
Centipede										
Cryptops 'LCr01'	-	✓	Possible	✓	-					Gully/gorge
Cryptops 'LCr02'	-	✓	Possible	✓	✓	1	1	1	No	Stony plain
Mecistocephalus 'LCr01'	-	✓	Possible	✓	✓	6	6	6	No	Mulga, stony plain
Mecistocephalus 'LCr02'	-	✓	Possible	✓	-					Tussock grassland
Orphnaeus 'LCr01'	-	✓	Possible	✓	✓	1	1	1	No	Medium drainage
Sepedonophilus 'LCr01'	-	✓	Possible	✓	-					Gully/gorge
Gastropod										
Bothriembryon 'BOT065'	-	✓	Possible	✓	✓	4	4	4	Yes – unpublished WAM MSU data	Mulga
Isopod										
Buddelundia '10ma'	-	✓	Possible	✓	✓	3	3	3	Yes – 53 km northeast the Development Envelope (Alacran 2021c)	Stony plain
Buddelundia '13'	✓	✓	Possible	✓	✓	10	2	2	No – WAM database records of *Buddelundia* '13' available; however no sequenced data publicly available or via WAM MSU	Hillcrest/hillslope, medium drainage, Mulga
Buddelundia '16'	-	✓	Possible	✓	-					Deep gully
Buddelundiinae (Armadillidae) 'ISOP009'	-	✓	Possible	✓	✓	1	1	1	Yes – 124 km northwest (Wilson & Harvey 2021) and northeast of the Development Envelope (Alacran 2021c)	Medium drainage
Millipede										
Austrostrophus 'Clade A'	-	✓	Possible	✓	✓	2	1	1	Yes – undisclosed sampling location accessed via GenBank	Mulga, gully/gorge
Austrostrophus 'Clade M'	-	✓	Possible	✓	✓	3	3	3	No	Mulga, stony plain
Mygalomorph spider										
Kwonkan 'MYG324'	-	✓	Possible	✓	✓	1	1	1	Yes – records from Karijini National Park and Juna Downs Station (Wilson & Harvey 2021)	Mulga
Pseudoscorpion										

Scientific Name	Literature Sources		SRE Status	Recorded in the Survey Area	Recorded in the Clearing Permit Area	Records in Survey Area	Records in Clearing Permit Area	Records in Indicative Footprint	Regional Records	Habitat
	Rapallo-2012	Rapallo-2022b								
Austrochthonius 'LCr01'	-	✓	Possible	✓	-					Mulga
Euryolpium 'LCr01'	-	✓	Possible	✓						Gully/gorge
Indolpium 'LCr03'	-	✓	Possible	✓	✓	2	2	2	No	Hillcrest/hillslope
Indolpium 'LCr04'	-	✓	Possible	✓	✓					Gully/gorge
Indolpium 'LCr05'	-	✓	Possible	✓	✓	1	1	1	No	Minor drainage
Olpiidae 'LCr02'	-	✓	Possible	✓	✓	3	3	3	Yes – two WAM lodged specimens collected approximately 7 km north of this specimen (Wilson & Harvey 2021)	Hillcrest/hillslope
Scorpion										
Lychas 'bituberculatus complex'	-	✓	Possible	✓	✓	6	6	5	Yes – record from approx. 30 km south-southeast of the Proposal (Alacran reference sequence)	Mulga, stony plain
Lychas 'hairy tail complex'	-	✓	Possible	✓	-					Gully/gorge
Lychas 'harveyi complex'	-	✓	Possible	✓	✓	15	12	11	No – matches with sequenced specimen as *Lychas 'harveyi* complex' was not sequenced (previously believed to be widespread) as *Lychas 'harveyi* complex' was collected during the 2012 fauna survey. Nearest regional specimen of *Lychas 'harveyi* complex' is from Mining Area C.	Mulga shrubland patches, medium drainage, stony plain, tussock grassland plain
Lychas 'multipunctatus complex'	-	✓	Possible	✓	-					Tussock grassland plain
Urodacus sp. indet.	✓	-	Possible	✓	-					Flat

APPENDIX F
FLORA AND VEGETATION MANAGEMENT PLAN

MINERAL RESOURCES

MANAGEMENT PLAN

FLORA AND VEGETATION MANAGEMENT PLAN

LAMB CREEK IRON ORE MINE

25/09/2024 VERSION 0

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Revision History					
Version	**Issue Date**	**Prepared by**	**Reviewed By**	**Approved By**	**Document Purpose**
0	25/09/2024	Stantec	Carl Paton Adam Cross Neil Smith	Adam Parker – Manager Project Approvals	Regulatory Submission

Acknowledgement of Country

MinRes is committed to reconciliation and recognises and respects the significance of Aboriginal and Torres Strait Islander peoples' communities, cultures, and histories. MinRes acknowledges and respects Aboriginal and Torres Strait Islander peoples as the traditional custodians of the land.

EXECUTIVE SUMMARY

Table ES 1 summarises the purpose of the Flora and Vegetation Management Plan (FVMP), including monitoring program within the context of the Western Australia Environmental Protection Authority (EPA) objectives for the key environmental factor of Flora and Vegetation (EPA, 2016). The FVMP and Monitoring Program also aligns with the EPA (2021c) and Commonwealth of Australia (2014) Environmental Management Plan Instructions and Guidelines. The FVMP and Monitoring Program has been prepared for the Mineral Resources Limited (MinRes) Lamb Creek Iron Ore Project and considers all proposed land disturbance for implementation of the Project (i.e. Indicative Footprint (IF)) as referred to in Mining Proposal and EPBC submissions (646.9 ha). Noting that this IF is different to the IF for the EP Act Part IV Section 38 referral (636.3 ha), as the Part IV referral area does not include the area of the proposed Great Northern Highway (GNH) intersection. Ground disturbance and vegetation clearing for the GNH intersection is covered under a separate Native Vegetation Clearing Permit (NVCP) as these works are wholly within Main Roads WA road reserve. This Environmental Management Plan specifically addresses the Flora and Vegetation environmental factor associated with the Project related ground disturbances (under all approvals).

Summary **Table ES 1** below presents the environmental outcomes and objectives for the environmental factor to be met through implementation of this FVMP, as well as the environmental criteria and management targets to measure achievement of the associated environmental outcomes and objectives.

Table ES-1: Flora and Vegetation Management Plan Summary

Project Title	Lamb Creek Iron Ore Project	
Short Description	Open pit iron ore mine located approximately 130 km northwest of Newman to produce up to 10 million tonnes per annum (Mtpa) of crushed and screened iron ore over a period of three to five years. This will comprise a multi-stage crushing and screening process plant and associated mine infrastructure including, but not limited to, site offices, maintenance and equipment service area, water pipelines, fuel storage, power generation, telecommunications and an accommodation village for site personnel. The total disturbance footprint of the Project is 646.9 ha (Indicative Footprint), within a Development Envelope of 874 ha, as referenced in the Mining Proposal and EPBC referral (**Figure 1**). Iron ore product will be loaded onto road trains and transported 16 km on a dedicated private haul road to its intersection with Great Northern Highway, where it will be transported 320 km to ship load-out facilities at the Utah Point berth in Port Hedland.	
Proponent Name	Process Minerals International (PMI) a wholly owned subsidiary of MinRes (ACN 118 549 910)	
Ministerial Statement No.	TBA	
Scope And Purpose Of FVMP	To present a robust and implementable environmental management framework to protect the environmental values of the Project and to demonstrate that the EPA's objective for this factor is met during the construction and operation of the Project.	
Key Environmental Factor And Objective	Flora and Vegetation:	To protect flora and vegetation so that biological diversity and ecological integrity are maintained.
Condition Clauses	TBA	
Key Components In The Flora And Vegetation MP	Key provisions are detailed in **Section 3**	

Outcome-based Management Provisions	Ensure development and operation of the Project meets the objective of protecting flora and vegetation to maintain biological diversity and ecological integrity.
Objective-based Management Provisions	• No clearing of native vegetation shall occur outside of approved area(s) during construction or operation. • No weed species to be introduced into the Development Envelope as a result of construction and operation of the Project. • No significant expansion of known weed populations within the Development Envelope as a result of construction and operation of the Project. • Effective operation of the Project to avoid Project related fire. • Minimise decline of flora and vegetation due to dust, weeds, and hydrocarbon or chemical leaks and altered hydrological regimes as a result of construction and operation of the Project.
Proposed Construction And Operation Dates	The forecast key milestones for construction and commissioning are: • construction Q3 to Q4 2025. • commence commissioning Q1 2026. • commence operation from Q1 2026 to Q2 2026.
Flora And Vegetation Management Required Pre-construction	Yes - this FVMP will be required to be implemented during installation of access tracks and roads into the site, following granting of licensed tenements

Declaration of accuracy

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed	
Full name (please print)	Celine Mangan
Organisation (please print)	Mineral Resources Ltd
Date	25/09/2024

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Appendices

Appendix A Indicative Weed Management Plan

Appendix B Risk Assessment

ABBREVIATIONS

Abbreviation	Definition
AER	Annual Environmental Report
BC Act	*Biodiversity Conservation Act 2016*
CAR	Compliance Assessment Report
DE	Development Envelope
DCCEEW	Department of Climate Change, Energy the, Environment and Water
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety
DSO	Direct Shipping Ore
DWER	Department of Water and Environmental Regulation
EIA	Environmental Impact Assessment
EMS	Environmental Management System
EP Act	*Environmental Protection Act 1986*
EPA	Western Australian Environmental Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ESD	Environmental Supporting Document
GWOS	Groundwater Operating Strategy
FVMP	Flora and Vegetation Management Plan
ha	Hectare
IF	Indicative Footprint
MCP	Mine Closure Plan
MRWA	Main Roads Western Australia
NVCP	Native Vegetation Clearing Permit
P	Priority
PEC	Priority Ecological Community
PEOF	Pilbara Environmental Offset Fund
PMI	Process Minerals International
RSD	Referral Supporting Document
SWMP	Surface Water Management Plan
T	Threatened
WA	Western Australia

1. CONTEXT, SCOPE AND RATIONALE

1.1 PROJECT BACKGROUND

Process Minerals International (PMI; the Proponent), a wholly owned subsidiary of Mineral Resources Limited (MinRes), proposes to develop the Lamb Creek Iron Ore Project (the Project), located approximately 130 kilometres (km) northwest of Newman, in the East Pilbara Local Government Authority (LGA) in Western Australia (WA).

Open pit iron ore mine to produce up to 10 million tonnes per annum (Mtpa) of crushed and screened iron ore over a period of three to five years. This will comprise a multi-stage crushing and screening (process plant and associated mine infrastructure including, but not limited to, site offices, maintenance and equipment service area, water pipelines, fuel storage, power generation, telecommunications and an accommodation village for site personnel. The total disturbance footprint of the Project is 646.9 ha (Indicative Footprint), within a Development Envelope of 874 ha (Figure 1), as referenced in the Mining Proposal and EPBC referral. Iron ore product will be loaded onto road trains and transported 16 km on a dedicated private haul road to its intersection with Great Northern Highway, where it will be transported 320 km to ship load-out facilities at the Utah Point berth in Port Hedland.

The Project is being referred under s. 38 of the *Environmental Protection Act 1986* (EP Act) as it has the potential to significantly affect key environmental factors, defined by the WA Environmental Protection Authority (EPA) in its *Statement of environmental principles, factors, objectives and aims of EIA* (Environmental Protection Authority, 2021b). The Project is also being referred under the *Environment Protection and Biodiversity and Conservation Act 1999* (EPBC Act) as it is likely to have a significant impact on Matters of National Significance (MNES). A Native Vegetation Clearing Permit (NVCP) under Part V of the EP Act will also be sought for the area of the Project that intersects the Great Northern Highway Road Reserve.

As a result of the various approvals being sought for the Project, there are subtle differences in the Development Envelopes (DE) and Indicative Footprints, however the overall clearing associated with the Project is the same. The maximum DE or Proposed Action Area for the EPBC referral is 897.5 ha, as the EPBC referral was based on an earlier, now revised, DE footprint. The EPBC referral DE is also slightly larger than that for the s. 38 Referral, due to the splitting of the DE between the approvals under Part IV and Part V of the EP Act. This Flora & Vegetation Management Plan (FVMP) has been prepared to support the submission of the EPBC referral, s. 38 Referral Supporting Document (RSD) and the NVCP application and details the management actions proposed to reduce adverse environmental impacts to the key environmental factor of Flora and Vegetation from all proposed land disturbance.

Key nomenclature used throughout this document is summarised below:

- **The Project:** This refers to the boundary within which the elements of the proposed Lamb Creek Project activities are situated.
- **Project Area (897.5 ha):** Refers to the maximum proposed Development Envelope (as for EPBC) within R47/19 (to be converted to M47/1592) and L47/1008, which overlie the Juna Downs pastoral lease (LPL N050471). A small portion of the access road and Great Northern Highway intersection area is within railway corridor L021124 (Hamersley Iron Pty Ltd- Yandicoogina Rail) that is excised from Juna Downs. This Project Area also includes the area of the intersection with the Great Northern Highway which is entirely within Main Roads WA road reserve.
- **Development Envelope (874 ha):** delineates the area within which the Project components are located (**Figure 1**) and is a combination of the development envelopes included in the Part IV and Part V applications.

- **Indicative Footprint (646.9 ha)**: refers to the area that is proposed to be directly disturbed by the Project (e.g. clearing of native vegetation) (**Figure 1**) and occurs entirely within the Development Envelope. The layout of the Indicative Footprint may be subject to change; however, total disturbance will not exceed the maximum disturbance for the Development Envelope.
- **Flora and Vegetation Survey Area (3,785 ha):** refers to the Umwelt (2022a) field survey boundary (**Figure 2**).
- This FVMP has been prepared in accordance with the *How to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans: Instructions* (Environmental Protection Authority, 2021a).

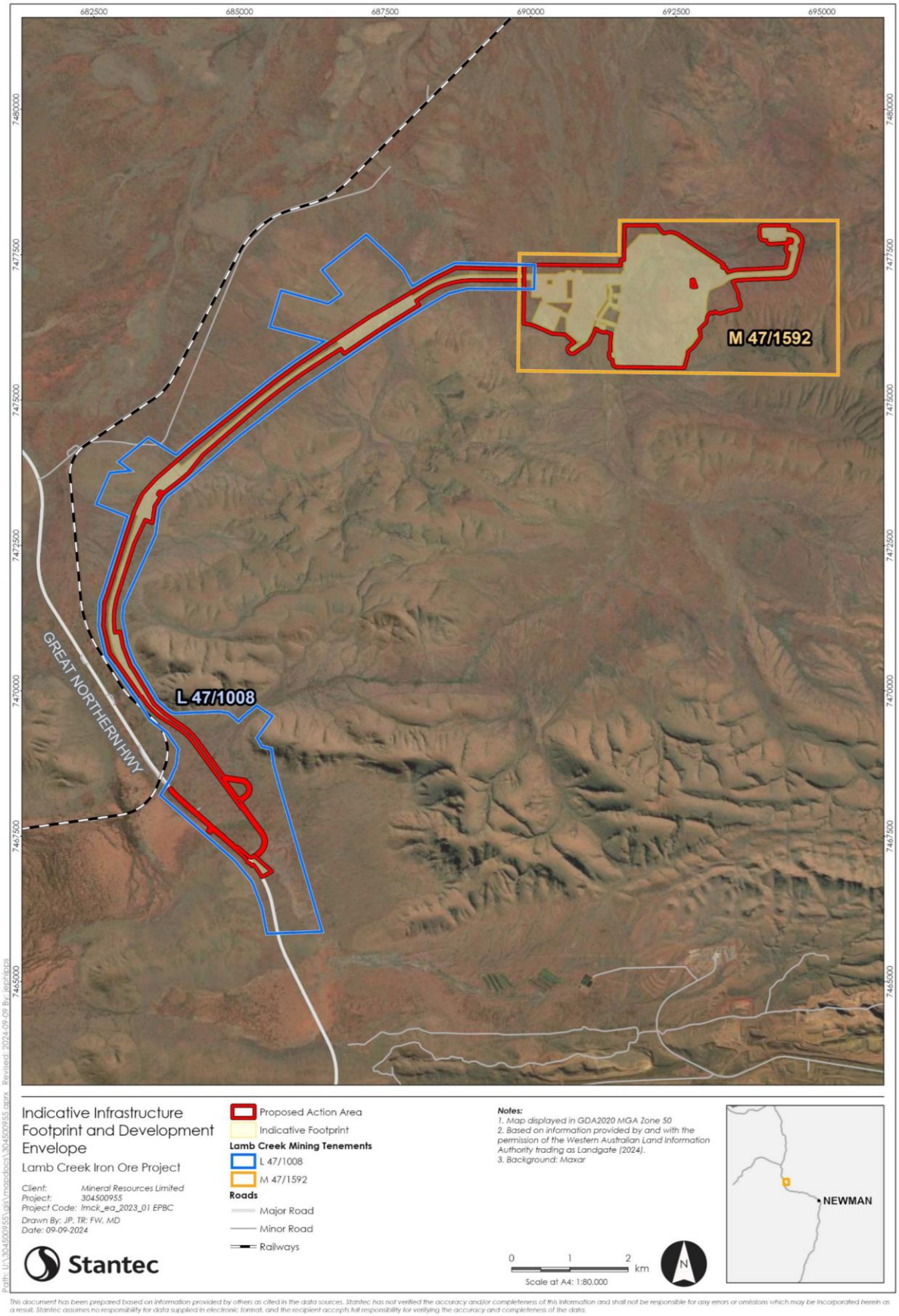

Figure 1: Development Envelope and Indicitive Footprint

1.2 KEY ENVIRONMENTAL FACTOR – FLORA AND VEGETATION

This FVMP demonstrates that the potential impacts to flora and vegetation can be managed to meet the EPA's objective, aided by the conceptual design, planned construction and operational procedures that will be implemented to avoid, mitigate and maintain values. In addition, 646.9 ha of native vegetation in "Good" to "Excellent" condition will be offset through the Pilbara Environmental Offsets Fund (PEOF). Any additional requirements in relation to threatened flora will be managed by the EPBC referral process.

The EPA's objective for the environmental factor of Flora and Vegetation is "*To protect flora and vegetation so that biological diversity and ecological integrity are maintained.*" (Environmental Protection Authority, 2016). In the context of this objective, ecological integrity is the composition, structure, function and processes of ecosystems, and the natural range of variation of these elements. Flora and Vegetation is considered a key environmental factor for the Project due to the potential for direct and indirect impacts during construction and operation activities.

1.2.1 Site Specific Environmental Values

The flora and vegetation values identified as having the potential to be affected by the Project include:

- native vegetation within the Pilbara bioregion comprising 13 identified vegetation types, with clearing of up to 646.9 ha to occur; and
- Conservation significant flora present in the Indicative Footprint; *Aristida lazaridis* (P2), *Rhagodia* sp. Hamersley (M. Trudgen 17794) ("*Rhagodia* sp. Hamersley") (P3) and *Seringia exastia* (T – Commonwealth) recorded within the Indicative Footprint.

1.2.2 Potential Impacts to Flora and Vegetation

The Project may directly and indirectly impact on flora and vegetation, with the potential direct impacts identified as:

- loss of native vegetation due to clearing; and
- loss of significant flora taxa due to clearing.
- The potential indirect impacts have been identified as:
- potential for fragmentation of vegetation as a result of construction of linear corridors.
- introduction and / or spread of introduced flora species.
- degradation or alteration of vegetation as a result of altered fire regimes.
- degradation or alteration of vegetation as a result of altered hydrological regimes.
- degradation of vegetation through dust deposition.
- An assessment of the potential impacts and risks to the flora and vegetation resulting from the Project has been undertaken and is included as **Appendix B**. Results of the risk assessment have been used to develop management measures that form part of this FVMP.

1.3 PURPOSE AND OBJECTIVE

The purpose of this FVMP is to document the Proponent's approach and management measures for avoiding and minimising potential impacts on vegetation and significant flora species from the Project during construction and operation. Successful implementation of these measures will help maintain the biodiversity and ecological integrity of significant flora and vegetation in the Project Area, for aspects within the proponents control. The objective of this FVMP is to meet the EPA's objective for the

environmental factor of Flora and Vegetation using the EPA's mitigation hierarchy of avoid, mitigate, rehabilitate and offset (Government of Western Australia, 2014).

1.4 RATIONALE AND APPROACH

The Proponent is committed to avoiding and minimising potential impacts caused by the operations of the Project to flora and vegetation species of significance to ensure that the biodiversity, ecological integrity and function of vegetation is maintained. The Project has been designed to avoid impacts to key environmental factors located within the Project Area.

The FVMP focuses on outcome-based management provisions including monitoring and evaluating success of management actions with respect to significant flora and vegetation within the Project Area, driven by triggers and thresholds. Assessment of the pathways over which impacts may occur provides the rationale for choice of provisions and choice of appropriate indicators to measure against the environmental outcome and/or objective.

This FVMP is subject to approval by the EPA and Department of Climate Change, Energy, the Environment and Water (DCCEEW) and will subsequently be implemented.

1.5 LEGISLATION, POLICY AND GUIDANCE

This FVMP has been written in accordance with Western Australian (WA) and Commonwealth policies and guidance, including:

- Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2016; (EPA, 2021a)
- Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans; (EPA, 2021c)
- Environmental Impact Assessment (Divisions 1 and 2) Procedures Manual (EPA, 2021b);
- Environmental Management Plan Guidelines (Commonwealth of Australia, 2014);
- Outcomes-based conditions policy (DoE, 2016b);
- Outcomes-based conditions guidance (DoE, 2016a);
- Environmental Factor Guideline – Terrestrial Flora (EPA, Environmental Protection Authority, 2016);
- Biosecurity and Agriculture Management Act 2007 (WA);
- Biodiversity Conservation Act 2016 (WA); and
- Rights in Water and Irrigation Act 1914 (WA) and
- Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth).

The following management plans and strategies are also relevant to the FVMP, specific to the Project and include:

- Significant Fauna Management Plan (SFMP)

State and Commonwealth plans and management prescriptions that are relevant to flora and vegetation include:

- Matters of National Environmental Significance. Significant impact guidelines 1.1 - Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth of Australia, 2013).

2. VEGETATION

2.1 SURVEY AND STUDY FINDINGS

The rationale for the proposed management approach in this FVMP is supported by desktop, detailed and targeted flora and vegetation surveys that have been completed over the Lamb Creek Project area since 2012 (Rapallo, 2012, 2017, 2020, 2021a, 2021c, 2021d, 2022; Umwelt, 2022a). The findings of these surveys are summarised in the following sections and have been used to inform the impact assessment within the RSD and EPBC referral, and to develop mitigation measures detailed in this FVMP (Table 1). Surveys and studies undertaken include:

- Lamb Creek Flora and Vegetation Impact Assessment Report (Umwelt, 2022b)
- Detailed and Targeted Flora and Vegetation Survey (Umwelt, 2022a)
- Targeted conservation significant flora survey of the Lamb Creek project area (Rapallo, 2022)
- Detailed flora and vegetation survey of the Great Northern Highway intersection – Lamb Creek Project (Rapallo, 2021a)
- Lamb Creek Flora mapping update and data review (Rapallo, 2017), and
- Level 2 Flora and Vegetation Survey of the Lamb Creek Project Area (Rapallo, 2012);

Table 1: Summary of Flora and Vegetation Surveys Conducted for the Project

Survey (Reference)	Study Type/ Dates	Proximity to Project Area	Survey / Study Effort	Flora and Vegetation recorded	Key Findings
Lamb Creek Detailed and Targeted Flora and Vegetation Survey (Umwelt, 2022a)	Scope • Detailed and Targeted Flora and Vegetation survey. Timing • 14 – 23 March, 4 – 14 April and 29 June – 1 July 2022 (field surveys). Size • 3785.7 ha.	Over Project area	Desktop assessment • Database searches (max 40 km buffer). • Review of relevant reports. Field survey • 116 quadrats. • 5 relevés. • Targeted searching for all significant flora previously recorded in the Study Area or considered potentially to occur.	328 discreet vascular flora taxa including: • 45 families. • 137 genera including 7 introduced taxa. 10 Vegetation Types were defined. The majority of the vegetation within the Study Area (90.5 %) was rated as Excellent, with no obvious signs of damage caused by human activities. The remainder of the vegetation was rated as Very Good and Good.	One Threatened taxon under the EPBC Act (*Seringia exastia*) was recorded however it is likely to be delisted in the near future. Seven significant flora taxa were recorded within the Study Area including five Department of Biodiversity, Conservation and Attractions (DBCA) listed Priority (P) taxa, and two potentially undescribed taxa, as listed below: • Aristida jerichoensis var. subspinulifera (P3). • Aristida lazaridis (P2). • Corchorus sp. (Potentially undescribed). • Eremophila naaykensii (P3). • Euphorbia ferdinandi. s. lat. (Potentially undescribed). • Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2). • Rhagodia sp. Hamersley (M. Trudgen 17794) (P3).
Detailed flora and vegetation survey of the Great Northern Highway intersection – Lamb Creek Project (Rapallo, 2021b)	Scope • Single phase detailed flora and vegetation survey of the Great Northern Highway intersection. Timing • 12-17 May 2021 (field surveys). Size	Over the Great Northern Highway intersection.	Desktop assessment • Database searches (max 60 km buffer). • Review of relevant reports. Field survey • 19 flora quadrats (50 m by 50 m). • 1 relevé were sampled during the field survey. • Additional flora taxa were recorded opportunistically while traversing between quadrats. Survey also included:	• 187 flora taxa including: • 35 families • 178 genera including 9 introduced taxa • Six vegetation types were mapped and described. • Vegetation condition across the survey area varied from Very Good to	Five conservation significant flora taxa were recorded from the survey area, as listed below: • Aristida lazaridis: (P2). • Rhagodia sp. Hamersley (M. Trudgen 17794): (P3). • Goodenia nuda: (P4). • Seringia exastia: Critically Endangered. • Euphorbia aff. ferdinandi: Potentially undescribed.

Survey (Reference)	Study Type/ Dates	Proximity to Project Area	Survey / Study Effort	Flora and Vegetation recorded	Key Findings
	• 254 ha.		• opportunistic records and field notes. • specimen collection and identification. • vegetation health classification.	Degraded, with most of the quadrats ranked as Good.	
Targeted conservation significant flora survey of the Lamb Creek project area (Rapallo, 2022)	Scope • A targeted significant flora survey was conducted over two phases. Timing • Phase one: 15-29 April 2020. • Phase two: 12-17 May 2021. Size • 872 ha.	The project area at the time of the survey only included R47/19 and L47/736. This footprint has now been superseded, the current footprint extends outside of the survey area by 236 hectares (36%).	Desktop assessment • Review and refine desktop information on conservation significant flora within 30km of the Project Area. Field survey • a flora desktop assessment. • systematic parallel traverses spaced approximately 50 m apart. • additional searches on foot and via helicopter, outside the survey area.		One Threatened taxon under the EPBC Act (*Seringia exastia*) was recorded however it is likely to be delisted in the near future. Six species of priority flora listed by the DBCA were recorded: • Aristida Lazaridis (P2). • Aristida jerichoensis var. subspinulifera (P3). • Eremophila sp. Hamersley Range (P3). • Rostellularia adscendens var. latifolia (P3). • Rhagodia sp. Hamersley (M. Trudgen 17794) (P3) • Euphorbia aff. ferdinandi: Potentially undescribed.
Lamb Creek and Wedge Deposits – Flora and Vegetation Desktop Assessment (Woodman, 2020)	Scope • Desktop Assessment of Lamb Creek Deposit, Wedge Deposit and access road from Great Northern Highway. Size	Over Project Area.	Desktop assessment • Database searches (40km buffer). • Review of relevant reports.	9 significant vegetation communities. 38 introduced taxa.	• 62 significant flora taxa or habitat for significant taxa. • 61 DBCA classified priority flora. • 1 Threatened taxon.

Survey (Reference)	Study Type/ Dates	Proximity to Project Area	Survey / Study Effort	Flora and Vegetation recorded	Key Findings
	• 3,110 ha. •				
Lamb Creek flora mapping update and data review (Rapallo, 2017)	Scope • Level 2 Flora and Vegetation single-phase field survey. Timing • 27 March to 1 April 2012 (6 days). Size • 233 ha.	An extension to the 2012 vegetation mapping to account for a change in alignment of one of the proposed haul road options. (215 ha of L47/736 outside of the previous area mapped in 2012).	Desktop assessment • extrapolation of vegetation mapping into the new haul road corridor. • No field work was conducted within the portion of the new haul road located outside the area surveyed in 2012. • 2012 observations and drawings were utilised.	5 vegetation communities assessed as occurring in the additional study area based on extrapolation.	
Level 2 Flora and Vegetation Survey of Lamb Creek project area for Process Minerals International (Rapallo, 2012)	Scope • Level 2 Flora and Vegetation single-phase field survey. Timing • 27 March to 1 April 2012 (6 days). Size • 2,068 ha.	The survey encompassed the proposed mine site, two alternate haul road routes (nominal 120 m buffer either side), three alternate accommodation camp locations.	Desktop assessment • Review and refine desktop information on conservation significant flora (max 40km) of the Project Area. Field survey • A total of 46 flora quadrats of 50 x 50 m were established within the area within each of the five land systems within the Flora and Vegetation Survey Area as well as opportunistic collections of species.	230 species 110 genera 42 families 5 introduced taxa 6 vegetation communities. Average vegetation condition was excellent to very good.	3 species of priority flora listed by the DBCA were recorded • Aristida Lazaridis (P2) • Brachyscome sp. Wanna Munna Flats (P3) • Aristida calycina var. calycina (P2)

2.2 PRE-EUROPEAN VEGETATION

Pre-European vegetation mapping was originally undertaken by Beard (1975) at various scales across WA and has since been updated to be consistent with the National Vegetation Information System (NVIS) descriptions at a scale of 1:250,000 (Beard et al., 2013). Two vegetation associations have been mapped within the Flora and Vegetation Survey Area; Hamersley 18 and Hamersley 82 (Table 2) described as follows:

- Hammersley 18: Low woodland; continuous Mulga woodland communities over spinifex *Triodia basedowii* and *Triodia epactia* hummock grasslands on stony undulating plains; and
- Hammersley 82: Low scattered tree steppe; Snappy Gum *Eucalyptus leucophloia* over spinifex *Triodia wiseana* hummock grassland on stony undulating plains.

Vegetation associations retaining less than 30% of their pre-European extent generally experience accelerated species loss at an ecosystem level and are regarded as being 'vulnerable', while vegetation types retaining less than 10% of their original extent are regarded as being 'endangered' (Environmental Protection Authority, 2020). The two vegetation associations found to intersect the Flora and Vegetation Survey Area have close to 100% of their original extent remaining and are considered 'least concern'. In addition, at a scale of 1:1,000,000, the vegetation units described by Beard (1975) within the Flora and Vegetation Survey Area are well represented throughout the Pilbara bioregion.

Table 2: European Vegetation associations within the Flora and Vegetation Survey Area (DBCA, 2019)

Vegetation Association	Scale	Pre-European Extent (Ha)	Current Extent Remaining (Ha)	Pre-European Extent Remaining	Conservation Status	Extent In Survey Area (Ha)
Hammersley 18.11	State Wide	19,892,306	19,843,148	99.75%	Least Concern	1,094.65
	Pilbara Bioregion	676,556	671,843	99.30%	Least Concern	
Hammersley 82.3	State Wide	2,565,901	2,157,841	99.51%	Least Concern	707.24
	Pilbara Bioregion	2,563,583	2,550,888	99.50%	Least Concern	

2.2.1 Vegetation Types

The most recent detailed flora and vegetation survey undertaken by Umwelt (2022a) found a total of 10 vegetation types within the study area with nine of these being within the DE (Table 3; Figure 2). The vegetation types mapped belonged to three broad groups based on soil and topography:

- Group 1 is characterised by Woodlands over sparse shrublands and hummock grasslands on gentle lower to upper slopes on redbrown clay loams.
- Group 2 is charactered by Open Woodlands over sparse shrublands and tussock and hummock grasslands on steep slopes, crests, gullies and gorges with exposed ironstone and skeletal soils.
- Group 3 is characterised by Mulga Woodlands over tussock grasslands and open woodlands over sparse shrublands over hummock grasslands on red-brown clay-loam on plains; and open woodlands over shrublands over hummock grasslands on major and minor drainage lines.

None of these communities were considered representative of any listed threatened ecological communities (TECs) or priority ecological communities (PECs), nor are they considered regionally significant vegetation for any other reason and are likely to be represented elsewhere.

Table 3: Vegetation Types Mapped Within the Flora and Vegetation

Vegetation Type	Description	Extent in Survey Area (ha)	Extent in Development Envelope (ha)
Group 1: Woodlands over sparse shrublands and hummock grasslands on gentle lower to upperslopes on redbrown clay loams			
1	Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and/or *E. gamophylla* with isolated *Corymbia deserticola* subsp. *deserticola* over low to mid sparse to open shrubland dominated by species including *Acacia atkinsiana* and A. *ancistrocarpa* over low open hummock grassland of *Triodia pungens*, *T. vanleeuwenii* and *T. wiseana* and low open tussock grassland of *Themeda* sp. Mt Barricade and *Paraneurachne muelleri* on red-brown sandy clay loam to clay loam on gently inclined mid to lower slopes and associated drainage lines	1429.2 (37.8%)	445.8 (51.0%)
2	Low open woodland of *Eucalyptus leucophloia* subsp. *leucophloia* with occasional *Corymbia deserticola* subsp. *deserticola* and C. *hamersleyana* over low sparse shrubland of *Acacia hilliana* and *Hakea chordophylla* over open hummock grassland of *Triodia vanleeuwenii* and *T. wiseana* on red-brown clay loam with ironstone pebbles on gently inclined lower to upper slopes	382.3 (10.1 %)	66.4 (7.6 %)
3	Isolated trees of *Corymbia hamersleyana*, *Eucalyptus leucophloia* subsp. *leucophloia* and *E. gamophylla* over low sparse shrubland of mixed Acacia species over low hummock grassland of *Triodia pungens* and *T. wiseana* on red-brown sandy clay loam on mid to lowerslopes with ironstone pebbles	48.2 (1.3 %)	7.2 (0.8%)
Group 2: Open Woodlands over sparse shrublands and tussock and hummock grasslands on steep slopes, crests, gullies and gorges with exposed ironstone and skeletal soils.			
4	Low open woodland of *Corymbia ferriticola* or *Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* with *Ficus brachypoda* occurring on gorge and gully areas, over low sparse shrubland of mixed species dominated by *Corchorus laniflorus*, *Dodonaea viscosa* subsp. *mucronata* and *Gossypium robinsonii* over sparse hummock grassland dominated by *Triodia pungens* with *T. wiseana* and tussock grasses including *Cymbopogon ambiguus* and *Aristida burbidgeae* on red brown clay loam on steep upperslopes, gullies, breakaways and gorges with significant ironstone outcropping	95.3 (2.5 %)	1.6 (0.2%)
5	Occasional *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* over mixed isolated shrubs including *Acacia inaequilatera* and *Senna artemisioides* subsp. *glutinosa* over low hummock grassland of *Triodia wiseana* on steep upperslopes and associated drainage lines on red-brown clay loam with exposed ironstone and dolerite	100.9 (2.7 %)	0
6	Low woodland to open woodland of *Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* and occasional *E. kingsmillii* over mid isolated shrubs of *Acacia hamersleyensis* and *Grevillea wickhamii* ?subsp. *hispidula* over low hummock grassland of *Triodia wiseana* on red brown sandy clay loam on steep mid to upperslopes with exposed ironstone	316.6 (8.4 %)	4.0 (0.5%)

Vegetation Type	Description	Extent in Survey Area (ha)	Extent in Development Envelope (ha)
Group 3: Mulga Woodlands over tussock grasslands and open woodlands over sparse shrublands over hummock grasslands on red-brown clay-loam on plains; and open woodlands over shrublands over hummock grasslands on major and minor drainage lines			
7	Isolated trees of *Corymbia hamersleyana*, *Eucalyptus leucophloia* subsp. *leucophloia* and *Eucalyptus xerothermica* over low open to sparse shrubland dominated by *Acacia aptaneura*, *A. aneura* and *A. pruinocarpa* over low tussock grassland to sparse tussock grassland dominated by *Themeda* sp. Mt Barricade (M.E. Trudgen 2471), *Enneapogon polyphyllus*, *Chrysopogon fallax* and *Aristida* spp. with occasional *Triodia pungens* on red brown clay loam with some ironstone pebbles on plains	523.4 (13.8 %)	171.9 (19.7 %)
8	Isolated trees of *Eucalyptus xerothermica* over tall open to sparse shrubland of *Hakea lorea* subsp. *lorea* and *Acacia aptaneura* over low open tussock grassland of *Aristida contorta*, *A. inaequiglumis* and *Themeda triandra* on red-brown sandy clay to clay on plains	68.9 (1.8 %)	3.9 (0.5%)
9	Low open woodland of *Corymbia hamersleyana*, *C. deserticola* subsp. *deserticola*, *Eucalyptus gamophylla* and *Eucalyptus leucophloia* subsp. *leucophloia* over tall sparse shrubland of *Acacia atkinsoniana* and occasional *A. ancistrocarpa* and *A. aptaneura* over low hummock grassland dominated by *Triodia pungens* and occasional *T. wiseana* with *Paraneurachne muelleri* also dominant on red-brown clay loam with ironstone pebbles on plains	600.8 (15.9 %)	103.3 (11.8 %)
10	Low open woodland of *Corymbia hamersleyana* with occasional *Eucalyptus gamophylla*, *E. leucophloia* subsp. *leucophloia* and *E. xerothermica* over tall open shrubland dominated by taxa including *Acacia cowleana*, *A. tumida* var. *pilbarensis*, *Gossypium robinsonii* and *A. pyrifolia* over low open hummock grassland of *Triodia pungens* and tussock grassland dominated by *Themeda* sp. Mt Barricade (M.E. Trudgen 2471) and *Aristida* spp. on red-brown clay loams on major and minor drainage lines	523.4 (13.8 %)	67.1 (7.7 %)
Cleared, rehabilitated, existing roads and tracks (not a vegetation type).		4.6 (0.1%)	2.9 (0.3%)
Total		**3785.7**	**874**

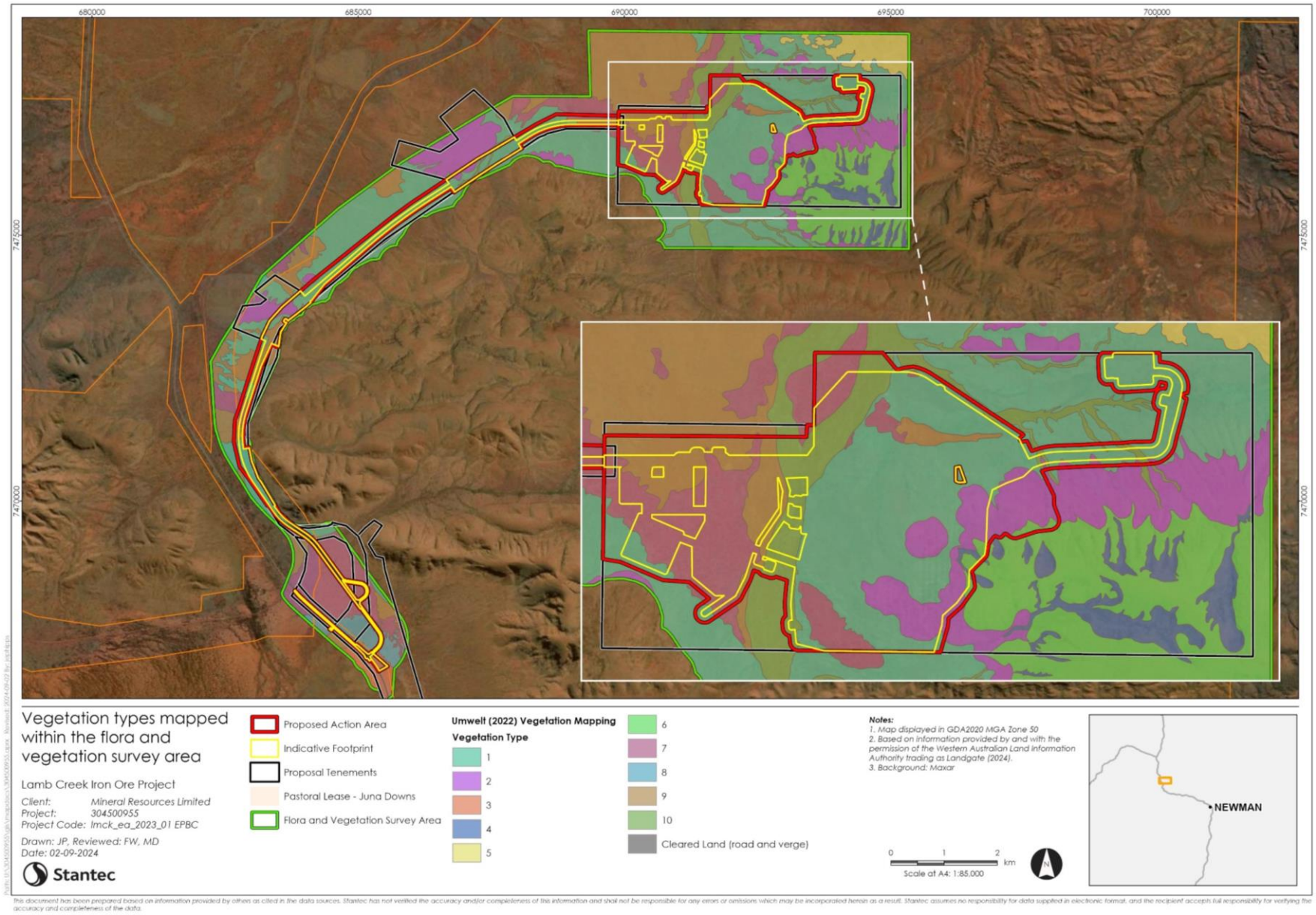

Figure 2: Vegetation Types Mapped Within The Flora And Vegetation Survey Area

2.2.1.1 Vegetation Condition

The condition of the vegetation in the Study Area was rated Good to Excellent (Umwelt, 2022a). The majority of the vegetation (90.5 %) rated as Excellent, with no obvious signs of damage caused by human activities. The remainder of the vegetation was rated as Very Good and Good (8.2 % and 1.2 % respectively), with some historical mechanical disturbance but mostly low levels of introduced flora within the Study Area. Less than 1 % of the Study Area (4.6 ha) was mapped as cleared with no native vegetation remaining.

The vegetation of the Study Area has for the most part been subject to fire in the past 10 years however none of the Study Area has been burnt more recently than four and a half years prior to survey (Umwelt, 2022a).This has resulted in a mosaic of vegetation of different fire ages. Floristic data and site photos collected in 2020 and 2021 indicate that these fires have changed both vegetation structure and floristic composition since 2012 (Rapallo, 2021e).

2.2.1.2 Vegetation of Significance

None of the vegetation types recorded from the Flora and Vegetation Survey Area are consistent with TECs or PECs listed under the *Biodiversity Conservation Act 2016* (BC Act) or EPBC Act for the Pilbara bioregion (Department of Biodiversity Conservation and Attractions, 2021). The nearest PEC to the Flora and Vegetation Survey Area is a subtype of the "Coolibah-lignum flats: *Eucalyptus victrix* over lignum community in the Pilbara". The edge of the PEC's buffer zone is located approximately 5 km south of the Flora and Vegetation Survey Area (Rapallo, 2022). As neither *Eucalyptus victrix* nor *Muehlenbeckia* spp. (lignum) have been recorded within the Flora and Vegetation Survey Area, the Coolibah-lignum flats PEC is considered unlikely to occur.

2.2.1.3 Other Vegetation of Significance

Vegetation may be of significance for reasons other than being listed as a TEC or PEC. This may include, although is not limited to, scarcity, combination of species, role as a refuge, restricted distribution and vegetation extent being below a threshold level (Environmental Protection Authority, 2004). Local significance can be determined where a vegetation type is confined to a specialised habitat and/or landform that is not common in the local area or the vegetation types are supporting significant species or groundwater dependent species. The following vegetation communities are considered to be potentially locally and/or regionally significant; however, they are not listed under the BC Act or EPBC Act.

The closest significant vegetation record to the Study Area is an occurrence of the 'Coolibah-lignum flats: *Eucalyptus victrix* over lignum community in the Pilbara - sub type 2: Coolibah woodlands over lignum (*Duma florulenta*) over swamp wanderrie (Lake Robinson)' PEC (P1); the edge of this PEC's buffer polygon is approximately 3 km south of the Study Area. The vegetation types mapped by Umwelt (2022a) are not considered to represent any listed PEC or TEC nor are they considered to be significant. None of the vegetation types are considered to be providing important functions required to maintain ecological integrity of a significant ecosystem.

2.2.1.4 Groundwater-dependent Vegetation

No groundwater dependent vegetation was recorded within the Flora and Vegetation Survey Area (Rapallo, 2022), consistent with the characterisation of part of the area as a floodplain, as well as an apparent lack of permanent or semi-permanent surface water and a lack of broad incised channels.

2.2.2 Flora

2.2.2.1 Floristic Composition

The Umwelt (2022a) survey recorded 328 vascular flora taxa flora taxa from 45 families and 137 genera, including 7 introduced taxa. The most well-represented families were Fabaceae (64 discrete taxa, three known hybrids), Poaceae (56 taxa), Malvaceae (45 taxa) and Amaranthaceae (16 taxa).

2.2.2.2 Significant Flora

Nine significant flora species were recorded within, and adjacent to, the DE (**Table 4, Figure 3)**. This includes five DBCA-listed Priority flora taxa, one Commonwealth listed taxa and two taxa considered significant under the 'new species or species with anomalous features that indicate a potential new species' which are referred to as "potentially undescribed (Umwelt, 2022a):

- Aristida jerichoensis var. subspinulifera (P3)
- Aristida lazaridis (P2)
- *Corchorus sp*. (Potentially undescribed)
- Eremophila naaykensii (P3)
- *Euphorbia ferdinandi* s. lat. (Potentially undescribed)
- *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)
- *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
- Rostellularia adscendens var. latiflora (P3)
- *Seringia exastia* (T – Commonwealth)

Three significant taxa were recorded in the Indicative Footprint. These were:

- *Rhagodia* sp. Hamersley (M. Trudgen 17794) was not recorded by Umwelt (2022a) but 3 plants were previously recorded by Rapallo (2022).
- *Aristida lazaridis* (P2) - Umwelt (2022a) recorded three records with a total of four individuals while Rapallo 2022c recorded 58 plants from 44 records; and
- *Seringia exastia* (T) - Umwelt (2022a) recorded 13 records with a total of 221 individuals while Rapallo 2022c recorded none).

A single plant of *Aristida jerichoensis* var. *subspinulifera* has been recorded in the Development Envelope in the indirect impact assessment zone by Umwelt (2022a) but outside of the Indicative Footprint. The Umwelt (2022a) survey recorded locations of *Seringia exastia*, a taxon currently still listed as Threatened under the EPBC Act however it has been delisted under the BC Act. Locations of significant flora taxa recorded in the Study Area by the Umwelt 2022 survey are presented in **Table 4**. The Umwelt (2022a) survey recorded *Goodenia nuda* during the survey however this species has now been delisted from a priority 4 and has therefore been excluded from **Table 4**. All significant flora taxa recorded within the Flora and Vegetation Survey Area also occur within the broader Hamersley subregion. Figure 3: Priority Flora Recorded Within The Flora And Vegetation Survey Area shows the locations of the significant flora in relation to the DE.

Table 4: Significant Flora Recorded in the Flora and Vegetation Survey Area

Species	Conservation Status	Habitat	Vegetation Types	No. of Individuals			Other previous records of species
				Survey Area	DE (excluding IF)	IF	
Seringia exastia	T/Cr	Variety of Mulga woodlands, sometimes with *Eucalyptus* spp., over *Acacia* spp. shrublands over *Triodia pungens* hummock grassland. Gullies and washouts. Red sand/laterite over sandstone.	1~, 2, 3, 6, 9, 10	783 in 37 locations	11	211	The species is currently listed as Critically Endangered under the EPBC Act, but this is due to a taxonomic revision where a threatened and a common species were merged, and the name of the former was adopted as the new name, with the conservation status still attached. The current distribution map published on FloraBase (Western Australian Herbarium 1998) incorporates this revision, showing *Seringia exastia* as widespread across northern Western Australia, ranging from the Coolgardie and Murchison IBRA regions in the south to the Dampierland IBRA region in the north. *Seringia exastia* is no longer listed as Threatened under State legislation and is expected to be de-listed under the EPBC Act in the future. The Rapallo (2022) survey found 2 additional records in their targeted flora survey area of the Lamb Creek site.
Aristida lazaridis	P2	Plain, clay/loam, drainage, slope; often Mulga low open woodland with or without *Eucalyptus* spp., over variety of shrubs and herbs, often over tussock grassland but sometimes with *Triodia* spp. hummock grassland.	7~, 8~, 3, 9	7217 in 3094 locations	12	77	Rapallo (2022) recorded an estimated population of 12773 plants from 6757 point locations over the 2020 and 2021 surveys undertaken. Searches outside the survey area on foot and from helicopter recorded the species extending outside the project area. A significant population of *Aristida lazaridis* (2405 individuals) has been recorded in deep loam soil along an un-incised drainage line north and west of the BHP Packsaddle Village, approximately 7 km south-east of the Proposal. The species has also been recorded from Lake Robinson on the eastern fringe of the Coondewanna Flats. The Western Australian Herbarium (WAH) has 20 specimen records within their database, with collections from locations across approximately 130 km extending from the Rangers Station at Karijini National Park to near Newman (DBCA 2021c). There are 43 records from the Rio Tinto Priority Flora database (Rio Tinto 2018) extending over 60 km. Additionally, this species occurs over a 2,500 km range across the Northern Territory and Queensland (Atlas of Living Australia 2021).

Species	Conservation Status	Habitat	Vegetation Types	No. of Individuals			Other previous records of species
				Survey Area	DE (excluding IF)	IF	
Aristida jerichoensis var. subspinulifera	P3	Plain or flat, clay/loam. Often Mulga woodlands or *Acacia* spp. shrublands over spinifex and/or tussock grassland.	8~	97 in 8 locations	1	0	Locally, there is a WAH record of *Aristida jerichoensis* var. *subspinulifera* from 800 m northwest of the Proposal, from a level plain of orange light clay (DBCA 2021a). There are 39 specimen records within the WAH database, with collections from locations spread across 290 km extending between Nammuldi to Newman, with outliers in the Little Sandy Desert and Murchison, as well as collections from the Northern Territory and Queensland (DBCA 2021c; Atlas of Living Australia 2021).
Eremophila naaykensii previously Eremophila sp. Hamersley Range	P3	Rocky gullies and gorges. Steep rocky hill slopes and summits, high in the landscape.	4~	73 from 37 locations	0	0	This species has been recorded approximately 8 km south of the Proposal (DBCA 2021a) and from Baby Hope Downs approximately 35 km southeast of Proposal from five locations in rocky gullies and gorges (Biota 2014). There are 15 specimen records within Western Australia, with WAH records from locations spread across 220 km from Paraburdoo to Newman (Western Australia Herbarium, 1998) and 345 records, within the Rio Tinto database; recorded from Eastern Range, Channar, Turee Syncline, Karijini National Park, West Angelas, Angelo Central and Hope Downs 1 (Rio Tinto 2016).
Corchorus sp.	Potentially undescribed	The habitat of the recorded population was restricted to drainage lines of sandy loam soils, with no or very few stones, and an open lower stratum of tussock grasses and low shrubs	9~	35 from 23 locations	0	0	This species does not match reference specimens of any published species and has potential taxonomic significance. This entity is distinct in having elongated fruit. Fruiting specimens were collected in April and June 2022, indicating approximately a March-May flowering period. Flowering specimens were also collected in late June, though this could be considered a response to the unseasonably late rains of May 2022 rather than an indicator of usual flowering time. There are no other known populations of this entity, which may indicate that it is geographically restricted. A precautionary approach would see it regarded as a taxon of potential conservation significance, though this is not yet able to be formally assessed (Umwelt, 2022a).

Species	Conservation Status	Habitat	Vegetation Types	No. of Individuals			Other previous records of species
				Survey Area	DE (excluding IF)	IF	
Rhagodia sp. Hamersley (M. Trudgen 17794)	P3	Mulga over mixed grassland. Emergent eucalypts and *Triodia* spp. grassland. Very open Mulga woodland over patchy mixed grasses. Floodplains, hardpan plains.	7~, 8, 9	53 from 49 locations	0	3	This species is widespread on Mulga plains. Fifty plants were recorded near the Great Northern Highway by Rapallo (2022). The Rapallo (2022) survey found 49 additional records in their targeted flora survey area of the Lamb Creek site. Locally, 13 populations of *Rhagodia* sp. Hamersley have been recorded within 3 km of the Proposal Area. There are 63 specimen records in the WAH database, with collection locations spread approximately 290 km extending between Tom Price and Newman (DBCA, 2021). Fifty plants were recorded near the Great Northern Highway by Rapallo (2022). The Rapallo (2022) survey found 49 additional records in their targeted flora survey area of the Lamb Creek site with 3 plants been previously recorded in the Development Envelope. Umwelt (2022a) however did not record any plants in their survey.
Hibiscus sp. Gurrinbiddy Range (M.E. Trudgen MET 15708)	P2	Rocky gullies, drainage lines and gorges with loamy skeletal soil	4~	17 from 2 locations	0	0	This taxon is known from 24 WA Herbarium records across 10 broad regional locations, two of which occur within DBCA-managed tenure within Karijini National Park, no records are within 10km of the Study Area. This record of *Hibiscus* sp. Gurinbiddy Range (M.E. Trudge MET 15708) is a slight range extension of the known range of this taxon to the north.
Euphorbia aff. ferdinandi	Potentially undescribed	Often found in open woodland, *Acacia aneura* woodland, low shrublands, flats, in clay loam soil	8~, 7	60 individuals from 19 locations	0	0	This taxon was recorded from four locations near the Great Northern Highway. It was only recognised as a potentially undescribed species, and different from any known species, when the specimen was compared in detail with other Euphorbia specimens at the WAH. Further advice was sought from Steve Dillon at the WAH, who advised that the specimen differed from *Euphorbia ferdinandi* by having broader seeds and a stigma different from what has been described for this species (S. Dillon pers. comm., September 2021). All locations of this taxon were within the Flora and Vegetation Survey Area, but outside of the Development Envelope. The Rapallo (2022) survey found 4 additional records in their targeted flora survey area of the Lamb Creek site.

Species	Conservation Status	Habitat	Vegetation Types	No. of Individuals			Other previous records of species
				Survey Area	DE (excluding IF)	IF	
Rostellularia adscendens var. latiflora	P3	Acacia shrubland, sometimes with Eucalypts and Corymbias, over shrublands and herblands, over tussock grassland, or *Triodia pungens* hummock grassland.	1	1	0	0	Local population has been assessed to be of low regional significance. The taxon has a distribution of approximately 450 km from west of Tom Price to north east of Meenthena Station. The species is known from 42 WA Herbarium records across more than 280km from near Mt Farquhar (89km north-west of Tom Price) to the Oakover River with at least six locations occur in the Karijini National Park. This taxon has been recorded approximately 20km south-east of the Lamb Creek retention license on the MAC development Envelope (Umwelt, 2022b). A single plant was recorded by Rapallo (2022c) within a minor flowline within the area of the proposed haul road. While the study area is within the known range of the taxon, Umwelt (2022a) however did not record any plants in their survey.

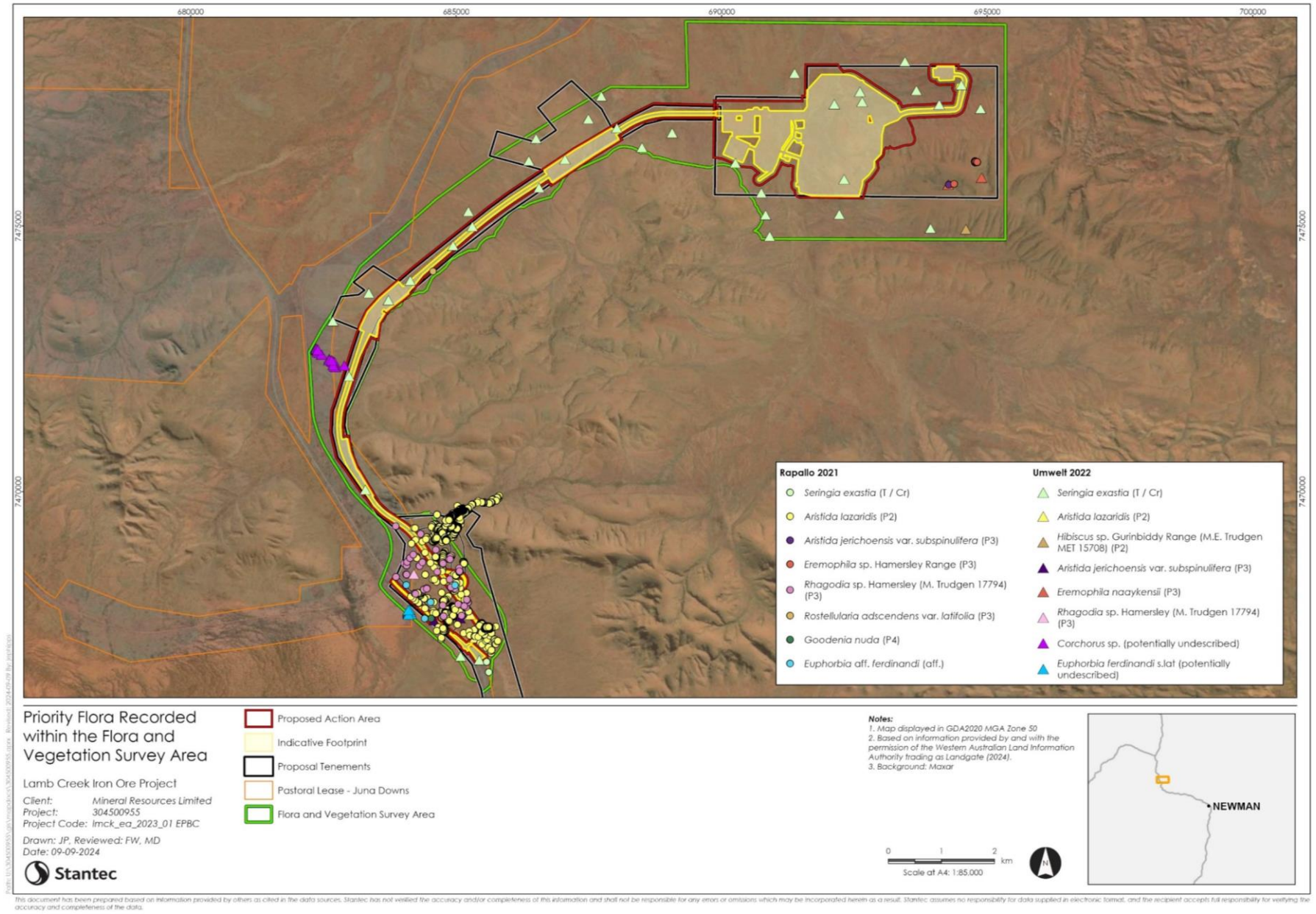

Figure 3: Priority Flora Recorded Within The Flora And Vegetation Survey Area

2.2.2.3 Introduced Flora

In total, seven introduced flora species (weeds) have been recorded within the Flora and Vegetation Study area (Table 5Table 5:, Figure 3). None of these taxa were listed as Declared Pests (DPIRD, 2020) or Weeds of National Significance (Commonwealth of Australia, 2022). *Bidens bipinnata*, *Cenchrus ciliaris* and *C. setigera* were the most common introduced taxa in terms of numbers of locations and individuals recorded. Introduced flora were most commonly recorded in drainage areas (Figure 3Figure 4:). Whilst some of the introduced flora have a High/Rapid ecological impact and invasiveness ratings, no introduced taxa were widespread in the Study Area, and the vegetation was considered to be in mostly Excellent condition (Umwelt, 2022a).

Table 5: Introduced Flora Species Recorded In The Flora And Vegetation Survey Area

Species	Common Name	Number of Locations	Number of individuals	Naturalised Status (Western Australian Herbarium, 2022)	Ecological Impact*	Invasiveness*
Bidens bipinnata	Bipinnate Begger's Tick	31	824	Alien to WA	Unknown	Rapid
Cenchrus ciliaris	Buffel Grass	13	149	Alien to WA	High	Rapid
Cenchrus setiger	Birdwood Grass	17	2,654	Alien to WA	High	Rapid
Malvastrum americanum	Spiked Malvastrum	11	70	Alien to WA	High	Rapid
Portulaca pilosa	Pink Purslane	1	1	Alien to WA	Not rated	Not rated
Setaria verticillata	Whorled Pigeon Grass	6	20	Alien to WA	High	Rapid
Tribulus terrestris	Caltrop	3	5	Alien to WA	Unknown	Moderate

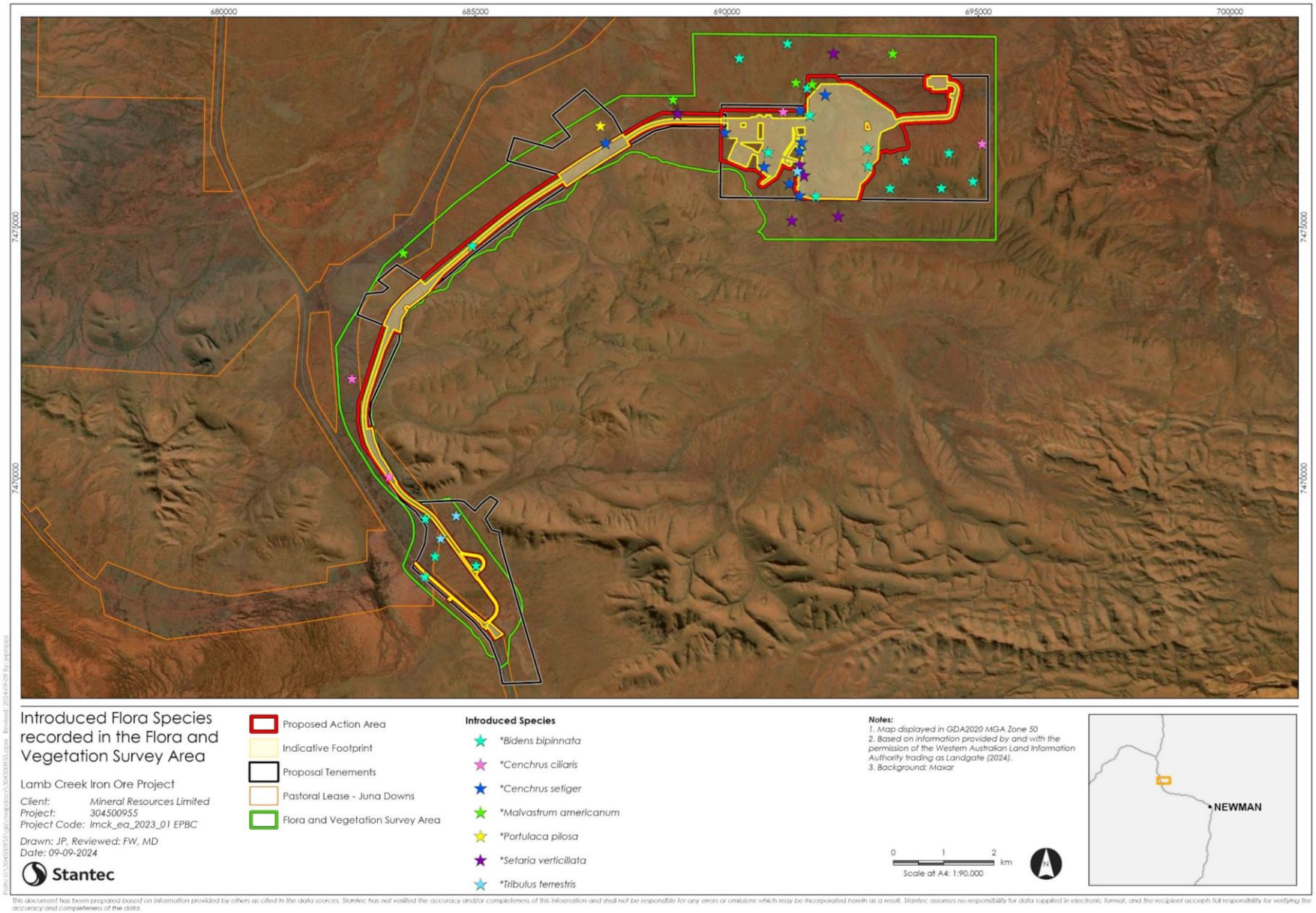

Figure 4: Introduced flora Species recorded in the Flora and Vegetation Survey Are

2.3 KEY ASSUMPTIONS AND UNCERTAINTIES

The limitations and constraints that can affect the adequacy of flora and vegetation management actions are summarised as follows:

- It is assumed that by utilising areas of existing disturbance, minimising clearing, and implementing progressive rehabilitation throughout the life of the Project, the impacts to significant flora and vegetation will be minimised.
- It is assumed that targeted surveys for significant flora have adequately characterised the populations potentially impacted and are of suitable standard to implement proposed management targets.
- Potential survey limitations of the latest Umwelt (2022a) include:
    - Survey timing and weather/season/cycle- partial limitation: All significant flora taxa known to occur or potentially occurring in the Study Area based on the desktop assessment results were considered to be identifiable during the 2022 survey with the exception of two taxa. *Arthropodium vanleeuwenii* (P2) is considered visible only when flowering in September, as it grows up through Triodia. This taxon could occur within the Study Area and Targeted Survey Area based on the habitats present. *Rhodanthe ascendens* (P1) was also potentially unidentifiable at the time of survey based the known flowering time. However, this taxon is unlikely to occur in the Study Area based on a combination of the habitat present, extent of targeted searching undertaken, and that the Study Area is outside of the known range. One significant flora taxon (*Euphorbia clementii*) (P2) is a known fire responder; otherwise, the fire response of other significant flora is unknown or presumed not to be fire responders (from desktop review). The majority of the targeted flora survey area was either long unburnt (>10 years), or otherwise subject to burn approximately 4.5 years ago. Unlikely that *Euphorbia clementii* (P2) is present in Study Area due to being outside of the known range of the taxon.
- Key uncertainties:
    - The extent to which climatic factors outside of the Proponents control will impact on successful rehabilitation.
    - The extent to which climatic factors outside of the Proponents control will impact on the health and extent of populations of significant flora.
    - Variation in soil condition over the Disturbance Envelope and within the revegetation zones.

2.4 POTENTIAL PROJECT IMPACTS

The Project may directly and indirectly impact on flora and vegetation, with the potential direct impacts identified as:

- loss of native vegetation due to clearing.
- loss of significant flora taxa due to clearing.
- unauthorised clearing outside the approved Indicative Footprint.

The potential indirect impacts have been identified as:

potential for fragmentation of vegetation as a result of construction of linear corridors.

- introduction and / or spread of introduced flora species.
- degradation or alteration of vegetation as a result of altered fire regimes.
- degradation or alteration of vegetation as a result of altered hydrological regimes.
- degradation of vegetation through dust deposition.

2.5 APPLICATION OF THE MITIGATION HIERARCHY

Mitigation measures have focused on significant flora, where relevant, aligning with the management provisions.

The Project will **avoid** impacts to significant flora via the following:

- Proposed clearing has been minimised as far as practicable to reduce the extent of disturbance required; the Proponent has revised the Development Envelope from 1,399 ha to 874 ha.
- The area to be cleared shall be clearly demarcated and machinery operators made aware of the operational boundary, following confirmation with the relevant manager. Some heavy equipment used may have in-cab GPS mapping and alarm functions however in the absence of this functionality, other control measures such as the use of spotters and/or restricting clearing to the daylight hours will be undertaken.
- A Land Activity Permit and Land Clearing Procedure will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary.
- Significant flora populations and the area to be cleared shall be clearly demarcated and machinery operators made aware of the operational boundary, following confirmation with the relevant manager.
- Off-road driving shall be prohibited unless authorised via a LAP.
- Avoid hot work in fire sensitive areas and during fire risk day.
- Intersection of the haul road with GNH and an additional 100 m past the intersection, will be sealed to reduce the generation of dust.
- Road Train iron ore loads will be covered.
- Ground clearing (including topsoil stripping) shall not be undertaken during periods of high wind (unless soil moisture levels are also elevated enough to inhibit dust formation).

The Project will **minimise** impacts to significant flora via the following:

- Spatially restricted Indicative Footprint and short life of mine.
- Implementation of the FVMP.
- Clearing awareness training undertaken by all personnel involved in clearing activities.
- Vegetation clearing shall be kept to the minimum amount required and as approved.
- Where significant flora taxa populations cannot be avoided, as may be the case with *Seringia exastia* (EN under the EPBC Act), *Aristida lazaridis* (P2) and *Rhagodia* sp. Hamersley (P3), infrastructure will be placed to avoid the highest densities and designed to minimise obstruction of surface water flows.
- Preparing and Implementing a Weed Management Plan (indicative plan attached, **Appendix A**) prior to construction and operation, to control access and movement of vehicles and construction personnel to prevent the introduction and spread of weeds into the Development Envelop, weed free areas, and between work areas.
- Vehicles with ground engaging equipment to be cleaned, inspected and issued with a Weed Hygiene Certificate prior to entry to site or moving between areas of known weed infestation within the site (as per MinRes Weed Management Plan, **Appendix A**).
- Off-road driving shall be prohibited unless authorised under a LAP.
- Weed awareness and weed hygiene shall be delivered to all personnel as part of the induction process.
- Regular inspection and maintenance of vehicles and equipment shall be undertaken (fire and spill prevention).
- Fire management awareness shall be delivered to all personnel as part of the induction process.

- Firebreaks will be incorporated into mine layout planning in accordance with the local government firebreak notice under s. 33 of the *Bush Fires Act 1954*.
- Smoking will only be permitted in designated areas, which shall be appropriately signed and contain self-arresting cigarette butt disposal containers.
- An Emergency Response Plan shall be prepared and implemented.
- An Emergency Response Team shall be formed, in accordance with requirements regulated by DEMIRS
- The Emergency Response Team will ensure that sufficient fire suppression equipment is located as per the Emergency Response Plan.
- Hot Work shall be completed under a Hot Work Permit and in accordance with MRL-SAF-PRO-0081 Hot Work Procedure.
- Traffic Management Plan shall be prepared and implemented.
- All vehicles and machinery will be fitted with fire extinguishers and/or in-plant fixed water suppression.
- Fire extinguishers will be located at infrastructure/building facilities across the project.
- Implement surface and groundwater management strategies in accordance with the Surface water Management Plan (SWMP) and Groundwater Operating Strategy (GWOS).
- Dust suppression shall be implemented to manage dust emission on cleared areas and iron ore handling areas.
- Speed limits shall be established and apply on unsealed and sealed roads within the Project Area.

The Project will **rehabilitate** impacts to flora via the following:

- Implement an appropriate rehabilitation plan (surface treatments; seed selection, collection, storage and management) in accordance with the approved MCP.
- Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, in accordance with the approved Mine Closure Plan.
- Seasonal weed control programs shall be implemented, including herbicide spraying or physical removal, as required.
- Weeds which are physically removed will be disposed of at the waste rock landform and buried.
- Salvage and stockpile particular vegetation types, soil, or habitat features (e.g. vegetation, stumps, logs, and boulders) for use in rehabilitation programs.

The Project will **offset** impacts to significant flora via the following:

- The Proponent proposes offsets, whereby financial contributions will be made to the Pilbara Environmental Offset Fund (PEOF) to offset the significant impact to native vegetation from clearing in accordance with *Cumulative environmental impacts of development in the Pilbara region – Advice of the Environmental Protection Authority to the Minister for Environment under Section 16(e) of the Environmental Protection Act 1986* (Department of Water and Environmental Regulation, 2019).

3. MANAGMENT PROVISIONS

3.1 OVERVIEW

The FVMP outlines the requirements to avoid, minimise, manage, monitor, and rehabilitate direct and indirect impacts to significant flora and vegetation from the Project, aligning with the EPA's mitigation hierarchy. The subsequent sections identify the management provisions that will be implemented by the Proponent for the Project to ensure that the environmental objectives, criteria, targets, and outcomes are met for flora and vegetation. Where unacceptable environmental outcomes remain post the implementation of control measures, offset strategies will be proposed. The FVMP will be reviewed and updated as required, following an adaptive management approach (**Section 7**). A detailed Mine Closure Plan (MCP) will be provided and will address the potential impacts of the Project post closure-.

3.2 OUTCOME-BASED PROVISIONS

This FVMP focuses on outcome-based provisions, which are performance-based and can be applied through a variety of means. The objectives developed are measurable, and the success of management actions can be monitored and reported. Outcome-based provisions specify triggers and thresholds (environmental criteria) for direct impacts that are quantifiable and specifically relate to flora and vegetation (Table 6). Two objectives have been developed, with associated triggers and thresholds. Where required, suitable response and corrective actions are also recommended for the environmental criteria. The following outcomes-based provisions have been established:

- Ensure development and operation of the Project meets the objective of protecting flora and vegetation to maintain biological diversity and ecological integrity.

3.3 OBJECTIVE-BASED PROVISIONS

Objective-based provisions relate to environmental management actions that are not specifically measurable. They specify management actions according to management targets, particularly for indirect impacts that are not necessarily quantifiable. Five objective-based management provisions have been outlined in Table 7 to prevent project-related adverse impacts to flora and vegetation (including significant species) within proximity to the Project with appropriate management actions and monitoring actions. The following objectives-based provisions have been established:

- No clearing of native vegetation shall occur outside of the approved, demarcated clearing area(s) during construction or operation.
- No new weed species to be introduced into the Development Envelope as a result of construction and operation of the Project.
- No significant expansion of known weed species in the Development Envelope as a result of construction and operation of the Project.
- Effective operation of the Project to avoid Project related fire.
- Minimise decline of flora and vegetation health, population, due to dust, weeds, and hydrocarbon or chemical leaks and altered hydrological regimes as a result of construction and operation of the Project.

It is also noted that as ongoing monitoring is undertaken and additional population data is gathered, the management targets may be reviewed, and quantifiable outcome-based provision(s) may be established accordingly.

3.4 ENVIRONMENTAL CRITERIA, TARGETS AND JUSTIFICATION

The development of environmental objectives and criteria for outcome-based provisions within the FVMP are based on available data and information and align with the purpose of the FVMP. Outcome-based provisions utilise monitoring and reporting to assess against the measurable environmental criteria. In addition to these, objective-based provisions have been applied with management targets.

During monitoring, where threshold criteria (outcome-based) or management targets (objective-based) are exceeded, and are project-related, response and corrective actions are provided, and will be implemented, where deemed appropriate. Monitoring will inform adaptive management, with the revision of environmental criteria, and response or corrective actions, as required.

Table 7 outlines the objective-based management provisions required to avoid and minimise any direct and indirect impacts on the following flora and vegetation environmental values within the Project Area, in alignment with the EPA's mitigation hierarchy (avoid, minimise, rehabilitate):

- Native vegetation within the Pilbara bioregion comprising 9 identified vegetation types within the IF, with clearing of up to 646.9 ha to occur.
- 77 individuals of *Aristida lazaridis* (P2), three individuals of *Rhagodia* sp. Hamersley (M. Trudgen 17794) and 211 individuals of *Seringia exastia* (EPBC listed only) recorded within the Indicative Footprint.

Where there is the potential for significant environmental impacts remaining, post implementation of control measures, environmental offset strategies are proposed to meet Environmental Protection Authority (2016) guidance for flora and vegetation. For the Project, clearing of up to 646.9 ha of native vegetation within a Development Envelope of 874 ha will occur. The Proponent proposes offsets, whereby financial contributions will be made to the PEOF to offset the significant impact to native vegetation from clearing.

Justification for the management provisions outlined in the FVMP are based on the following:

- Weeds can have a detrimental effect on ecological communities, with certain weeds such as*C*enchrus* spp. leading to an increased risk of fire which is a key threat to a number of significant fauna. Although no weeds identified by the survey were listed as Declared Pests (DPIRD, 2020) or Weeds of National Significance (Commonwealth of Australia, 2022), some species are rated as having 'High' ecological impact or 'Rapid' invasiveness in native vegetation. MinRes is committed to managing the introduction and spread of weeds as a result of the Project, however it is acknowledged that MinRes are unlikely to be able to prevent weeds from spreading from source populations into the Project Area. As a result, the Indicative Weed Management Plan (WMP)(**Appendix A**) focuses on weeds rated as having a high or very high management priority (by DBCA) within the Project Area, through managing the cover/abundance of these weeds throughout the remainder of the Project Area. Appropriate triggers and thresholds have been developed with corrective actions built into the WMP.
- Clearing of vegetation can result in the loss of significant flora and lead to degradation of vegetation types through edge effects. Clearing within the Project Area has been minimised through design and planning and will be kept to within the clearing allowance approved.
- Secondary impacts to vegetation health can occur through altered fire regimes, altered hydrological regimes, dust deposition or hydrocarbon or chemical spills. Management actions have been developed to minimize any potential project related decline in vegetation health as a result of these secondary impacts.

Table 6: Flora and Vegetation Outcome-Based Management Provisions

EPA Factor and Objective		Flora and vegetation: To protect flora and vegetation so that biological diversity and ecological integrity are maintained						
FVMP Purpose		*To avoid adverse project-related impacts to flora and vegetation including significant species.*						
Outcome-Based Management Objectives		Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
		Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
FV1	Protect flora and vegetation values to maintain biological and ecological diversity in the Project area integrity.	Total clearing reaches 90% of approved clearing value (Ha). Or unplanned clearing occurs within the Development Envelope.	Unauthorised clearing occurs, including exceedance of approved clearing allowance, any clearing outside of the Development Envelope, or any unauthorised clearing within the Development Envelope.	• Report internally as an incident in accordance with internal procedures. • Reconcile clearing to date against approved clearing allowances and review management strategies to ensure authorised limits are not exceeded. The management strategy reviews may include the following: • Increased frequency of clearing tracking and reconciliation against approved clearing allowance. • Audit and review of training and staff inductions (increase staff training and awareness to include information on buffers, legislative requirements, and appropriate clearing procedures). • Review of the potential impact(s) of	• Undertake investigation to determine source of disturbance. If source is project-related, undertake a review to determine if impact can be minimised, develop actions to prevent recurrence and communicate findings to relevant personnel. • Undertake rehabilitation of unauthorised clearing as required, in accordance with rehabilitation procedures. • Report as a non-compliance to appropriate regulator within 10 days of identification. • Investigation report to be submitted to appropriate regulator with remediation	• Monitoring of clearing register for compliance to approvals. • Internal audit and inspection of areas of clearing. • Analysis of clearing undertaken via annual aerial imagery survey to assess whether any unauthorised clearing has occurred. • Monitor significant species populations, as appropriate.	• Post clearing • Post clearing • Annual • As triggered / if required • As triggered / if required	• Annual Environmental Reporting. • Clearing Register. • Internal clearing permits. • Survey data. • Monitoring Program reporting as appropriate. • Incident reports.

EPA Factor and Objective		Flora and vegetation: To protect flora and vegetation so that biological diversity and ecological integrity are maintained						
FVMP Purpose		*To avoid adverse project-related impacts to flora and vegetation including significant species.*						
Outcome-Based Management Objectives		Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
		Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
				unauthorised clearing and report any non-compliance to appropriate regulator within 10 days of confirmation of unauthorised clearing. • Installation of signage where appropriate. •	actions proposed within 28 days of original notification.	• Monitoring of any rehabilitation undertaken in accordance to rehabilitation procedures.		
FV2	Avoid facilitating the introduction of new weed species or the spread of existing weed species in the Project Area as a result of the Project.	*Addressed separately in the objective-based management provisions below and indicative WMP (**Appendix A**).						

Table 7: Flora and Vegetation Objectives-Based Management Provisions

EPA Factor and Objective		Flora and vegetation: To protect flora and vegetation so that biological diversity and ecological integrity are maintained				
• Environmental Values		• Native vegetation within the Pilbara bioregion comprising 9 identified vegetation types, with clearing of up to 646.9 ha to occur. • Populations of *Aristida lazaridis* (P2), *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) and *Seringia exastia* (T) (EPBC listed only) recorded within the Indicative Footprint.				
FVMP Purpose		To avoid adverse project-related impacts to flora and vegetation including significant flora and vegetation associations.				
Key Impacts and Risks		Potential risk to long term viability of local and regional populations of conservation significant flora and vegetation, due to direct impacts from clearing of native vegetation or direct and indirect impacts from construction or operational mining activities (**Appendix B)**				
Management Targets	**Management Priority**	**Management Actions**	**Monitoring**	**Timing**	**Responsible**[1]	**Reporting**
No clearing of vegetation shall occur outside of the approved, demarcated clearing area(s) during construction or operation.	**High**	• Avoid any unapproved clearing which results in take of Priority flora including *Aristida lazaridis* (P2), *Aristida jerichoensis* var. *subspinulifera* (P3), *Rhagodia* sp. Hamersley (P3), and *Seringia exastia* (T) (EPBC listed only). • Significant flora populations and the area to be cleared shall be clearly demarcated and machinery operators made aware of the operational boundary, following confirmation with the relevant manager. • The Land Activity Permit (LAP) and Clearing Procedure will be followed, to ensure clearing works are within approved boundary and compliant with regulatory requirements.	1. Visual inspections for evidence of: • adherence to boundary demarcation compliance. • unauthorised access or clearing (e.g., observations of vehicles or machinery, vehicle tracks, damage to fencing or vegetation). 2. Monitoring of clearing register for compliance to approvals: • Clearing activities will be audited regularly to ensure compliance with LAP conditions, including prior to LAP close out. This includes confirmation that all clearing has been completed within the LAP boundary.	• During construction (pre-clearing clearing and post-clearing activities). • Imagery analysis annually, or as required, to monitor clearing extent. • As triggered.	• Project Manager • Construction. • Operations. • Environment Team.	• Regular reporting: • Monitoring reports- clearing register and Internal clearing permits. • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. • Internal incident reporting and investigation process. Report any non-compliances with the LAP

[1] As per **Table 8**

EPA Factor and Objective	Flora and vegetation: To protect flora and vegetation so that biological diversity and ecological integrity are maintained				
• Environmental Values	• Native vegetation within the Pilbara bioregion comprising 9 identified vegetation types, with clearing of up to 646.9 ha to occur. • Populations of *Aristida lazaridis* (P2), *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) and *Seringia exastia* (T) (EPBC listed only) recorded within the Indicative Footprint.				
FVMP Purpose	To avoid adverse project-related impacts to flora and vegetation including significant flora and vegetation associations.				
Key Impacts and Risks	Potential risk to long term viability of local and regional populations of conservation significant flora and vegetation, due to direct impacts from clearing of native vegetation or direct and indirect impacts from construction or operational mining activities (**Appendix B)**				
Management Targets	**Management Priority**	**Management Actions**	**Monitoring**	**Timing**	**Responsible[1]**	**Reporting**
		• Clearing awareness training is to be undertaken by all personnel involved in the LAP process and clearing activities, including specific information on significant flora within the Development Envelope, the requirements for clearing. • Proposed clearing has been minimised as far as practicable to reduce the extent of disturbance required; the Proponent has revised the Development Envelope from 1,399 ha to 874 ha (and concurrent Indicative Footprint reductions). • Delineate clearing boundary areas by qualified surveyors in the field and confirmed cleared areas after clearing. Coordinates for clearing extents will be provided to the Construction Contractor. Some heavy equipment will have in-cab GPS mapping and alarm functions, however in the absence of this	• Land disturbance will be reconciled annually, as a minimum, for compliance and reporting purposes. 3. Internal incident reporting and investigation process.			and Clearing Procedure. • Exceedance Reporting: • Management action has not been implemented (report in accordance with Section 5, Reporting Provisions) • Management target has not been achieved (report in accordance with Section 5)

EPA Factor and Objective		Flora and vegetation: To protect flora and vegetation so that biological diversity and ecological integrity are maintained				
• Environmental Values		• Native vegetation within the Pilbara bioregion comprising 9 identified vegetation types, with clearing of up to 646.9 ha to occur. • Populations of *Aristida lazaridis* (P2), *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) and *Seringia exastia* (T) (EPBC listed only) recorded within the Indicative Footprint.				
FVMP Purpose		To avoid adverse project-related impacts to flora and vegetation including significant flora and vegetation associations.				
Key Impacts and Risks		Potential risk to long term viability of local and regional populations of conservation significant flora and vegetation, due to direct impacts from clearing of native vegetation or direct and indirect impacts from construction or operational mining activities (**Appendix B)**				
Management Targets	**Management Priority**	**Management Actions**	**Monitoring**	**Timing**	**Responsible**[1]	**Reporting**
		functionality, pegging of clearing boundaries, supplemented with other control measures such as the use of spotters and/or restricting clearing to the daylight hours will be used to prevent unauthorised clearing. • Vehicles and equipment shall be restricted to designated roads, tracks and cleared areas, unless approved and controlled via a LAP.				
No new weed species introduced into the Development Envelope as a result of construction and operation of the Project. **No significant expansion of known weed populations within the Development Envelope as a result of**	**High**	Addressed separately in the indicative WMP (**Appendix B**).				

EPA Factor and Objective	Flora and vegetation: To protect flora and vegetation so that biological diversity and ecological integrity are maintained					
• Environmental Values	• Native vegetation within the Pilbara bioregion comprising 9 identified vegetation types, with clearing of up to 646.9 ha to occur. • Populations of *Aristida lazaridis* (P2), *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) and *Seringia exastia* (T) (EPBC listed only) recorded within the Indicative Footprint.					
FVMP Purpose	To avoid adverse project-related impacts to flora and vegetation including significant flora and vegetation associations.					
Key Impacts and Risks	Potential risk to long term viability of local and regional populations of conservation significant flora and vegetation, due to direct impacts from clearing of native vegetation or direct and indirect impacts from construction or operational mining activities (**Appendix B)**					
Management Targets	**Management Priority**	**Management Actions**	**Monitoring**	**Timing**	**Responsible[1]**	**Reporting**
construction and operation of the Project.						
No fires occur within the Development Envelope as a result of construction of operation of the Project.	**High**	• Off-road driving shall be prohibited unless authorised under a LAP. • Avoid hot work in fire sensitive areas and during fire risk days. • Fire awareness shall be delivered to all personnel as part of the induction process. • Firebreaks will be incorporated into mine layout planning in accordance with the local government firebreak notice under s. 33 of the *Bush Fires Act 1954*. • Smoking will only be permitted in designated areas, which shall be appropriately signed and contain self-arresting cigarette butt disposal containers. • An Emergency Response Plan shall be prepared and implemented. • An Emergency Response Team shall be formed, in	• Inspection and maintenance of fire breaks in accordance with the local government firebreak notice under s. 33 of the *Bush Fires Act 1954*. • Regular inspection of vehicles and fire response equipment shall be undertaken.	• As required in accordance with the local government firebreak notice under s. 33 of the *Bush Fires Act 1954*. • Quarterly	• Project Manager • Construction personnel. • Operations personnel • Environment Manager • Environment Team.	Regular reporting: • Internal incident reporting, emergency response and investigation process in the event of a fire, in accordance with internal incident reporting procedure. • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER by (date to be determined) each year.

EPA Factor and Objective	Flora and vegetation: To protect flora and vegetation so that biological diversity and ecological integrity are maintained					
• Environmental Values	• Native vegetation within the Pilbara bioregion comprising 9 identified vegetation types, with clearing of up to 646.9 ha to occur. • Populations of *Aristida lazaridis* (P2), *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) and *Seringia exastia* (T) (EPBC listed only) recorded within the Indicative Footprint.					
FVMP Purpose	To avoid adverse project-related impacts to flora and vegetation including significant flora and vegetation associations.					
Key Impacts and Risks	Potential risk to long term viability of local and regional populations of conservation significant flora and vegetation, due to direct impacts from clearing of native vegetation or direct and indirect impacts from construction or operational mining activities (**Appendix B)**					
Management Targets	**Management Priority**	**Management Actions**	**Monitoring**	**Timing**	**Responsible[1]**	**Reporting**
		accordance with requirements regulated by DEMIRS. • The Emergency Response Team will ensure that sufficient operational fire suppression equipment is located as per the Emergency Response Plan. • A Traffic Management Plan shall be prepared and implemented. • Implement a Hot Work Permit system for high ignition risk work activities. • Regular inspection and maintenance of vehicles and equipment shall be undertaken. • All vehicles and machinery will be fitted with fire extinguishers and/or in-plant fixed water suppression, and water carts will be fitted with firefighting equipment. • Fire extinguishers will be located at				Exceedance reporting: • Management action has not been implemented (report in accordance with **Section 5**) • Management target has not been achieved (report in accordance with **Section 5**)

EPA Factor and Objective	Flora and vegetation: To protect flora and vegetation so that biological diversity and ecological integrity are maintained					
• Environmental Values	• Native vegetation within the Pilbara bioregion comprising 9 identified vegetation types, with clearing of up to 646.9 ha to occur. • Populations of *Aristida lazaridis* (P2), *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) and *Seringia exastia* (T) (EPBC listed only) recorded within the Indicative Footprint.					
FVMP Purpose	To avoid adverse project-related impacts to flora and vegetation including significant flora and vegetation associations.					
Key Impacts and Risks	Potential risk to long term viability of local and regional populations of conservation significant flora and vegetation, due to direct impacts from clearing of native vegetation or direct and indirect impacts from construction or operational mining activities (**Appendix B)**					
Management Targets	**Management Priority**	**Management Actions**	**Monitoring**	**Timing**	**Responsible**[1]	**Reporting**
		infrastructure/building facilities across the project. • All fuel stored on site is to be contained within a secure bund or other facility. • Implement an appropriate rehabilitation plan (surface treatments; seed selection, collection, storage and management) in accordance with the approved MCP, following fire.				
Ensure natural surface water flow is maintained as far as practicable.	**High**	Hydrological Regimes: • Haul road and Development Envelope design shall consider surface water flow to minimise obstruction to seasonal overland water flow to the loamy drainage flats proximal to the Great Northern Highway. • Implement surface and groundwater management strategies in accordance with the SWMP and Groundwater Operating Strategy (GWOS). • Drainage management structures identified as	• Implement surface and groundwater monitoring as required in accordance with the Surface Water Management Plan (SWMP) and GWOS.	• in accordance with schedule in the SWMP and GWOS. •	• Project Manager • Construction personnel. • Operations personnel • Environment Manager • Environment Team.	Regular reporting: • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER by (date to be determined) each year. • SWMP monitoring reports.

EPA Factor and Objective	Flora and vegetation: To protect flora and vegetation so that biological diversity and ecological integrity are maintained					
• Environmental Values	• Native vegetation within the Pilbara bioregion comprising 9 identified vegetation types, with clearing of up to 646.9 ha to occur. • Populations of *Aristida lazaridis* (P2), *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) and *Seringia exastia* (T) (EPBC listed only) recorded within the Indicative Footprint.					
FVMP Purpose	To avoid adverse project-related impacts to flora and vegetation including significant flora and vegetation associations.					
Key Impacts and Risks	Potential risk to long term viability of local and regional populations of conservation significant flora and vegetation, due to direct impacts from clearing of native vegetation or direct and indirect impacts from construction or operational mining activities (**Appendix B)**					
Management Targets	**Management Priority**	**Management Actions**	**Monitoring**	**Timing**	**Responsible**[1]	**Reporting**
		remaining post closure shall meet recognised Australian drainage design specifications. • The open pit will be backfilled to a minimum of 5 m above the baseline groundwater level. • Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable.				Exceedance reporting: • Management action has not been implemented (report in accordance with **Section 5**) • Management target has not been achieved (report in accordance with **Section 5**)
No significant impacts to flora and vegetation from dust deposition.	**Low**	• Intersection of the haul road with Great Northern Highway, and an additional 100 m past the intersection, will be sealed to reduce the generation of dust. • Road haulage iron ore loads will be covered. • Ground clearing (including topsoil stripping) shall not be undertaken during periods of high wind (unless soil moisture levels are also elevated	• Monitoring of daily wind conditions will be taken into consideration when planning clearing or blasting activities. • Visual assessment of dust suppression application and performance	• Daily • Daily	• Construction. • Construction • Operations.	Regular Reporting: • Internal incident reporting, and investigation process in accordance with internal incident reporting procedure for example: • Excessive dust

EPA Factor and Objective		Flora and vegetation: To protect flora and vegetation so that biological diversity and ecological integrity are maintained				
• Environmental Values		• Native vegetation within the Pilbara bioregion comprising 9 identified vegetation types, with clearing of up to 646.9 ha to occur. • Populations of *Aristida lazaridis* (P2), *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) and *Seringia exastia* (T) (EPBC listed only) recorded within the Indicative Footprint.				
FVMP Purpose		To avoid adverse project-related impacts to flora and vegetation including significant flora and vegetation associations.				
Key Impacts and Risks		Potential risk to long term viability of local and regional populations of conservation significant flora and vegetation, due to direct impacts from clearing of native vegetation or direct and indirect impacts from construction or operational mining activities (**Appendix B)**				
Management Targets	**Management Priority**	**Management Actions**	**Monitoring**	**Timing**	**Responsible[1]**	**Reporting**
		enough to inhibit dust formation). • A Land Activity Permit and the Land Clearing Procedure will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary. • Spatially restricted Indicative Footprint and short life of mine. • Vehicles and equipment shall be restricted to designated roads, tracks and cleared areas. • Dust suppression shall be implemented to manage dust emission on cleared areas and iron ore handling areas. This will be visually assessed on an ongoing basis. • Reduced speed limits shall apply on unsealed roads (site-specific but typically 40 kph). • Blasting plans will consider meteorological conditions to minimise dust lift off.				• Vehicles reported outside authorised areas/ tracks. • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. Exceedance Reporting: • Management action has not been implemented (refer to **Section 5**) • Management target has not been achieved (refer to Section 5)

EPA Factor and Objective		Flora and vegetation: To protect flora and vegetation so that biological diversity and ecological integrity are maintained				
• Environmental Values		• Native vegetation within the Pilbara bioregion comprising 9 identified vegetation types, with clearing of up to 646.9 ha to occur. • Populations of *Aristida lazaridis* (P2), *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) and *Seringia exastia* (T) (EPBC listed only) recorded within the Indicative Footprint.				
FVMP Purpose		To avoid adverse project-related impacts to flora and vegetation including significant flora and vegetation associations.				
Key Impacts and Risks		Potential risk to long term viability of local and regional populations of conservation significant flora and vegetation, due to direct impacts from clearing of native vegetation or direct and indirect impacts from construction or operational mining activities (**Appendix B)**				
Management Targets	**Management Priority**	**Management Actions**	**Monitoring**	**Timing**	**Responsible[1]**	**Reporting**
		• Dust awareness and dust management training shall be delivered to all personnel as part of the induction process. • Implement an appropriate rehabilitation plan (surface treatments; seed selection, collection, storage and management) in accordance with the approved MCP. • Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable.				

4. MONITORING AND EVALUATION

4.1 ENVIRONMENTAL INSPECTIONS

The Proponent will undertake flora and vegetation environmental inspections within the Development Envelope to monitor the implementation of the Management Actions required to meet the purpose and objectives of this FVMP (**Section 1.3**). Inspection frequency will be based on the inherent risks for different activities and/or work areas, nominally a minimum of monthly in areas with active clearing activities. Inspection frequency will be reviewed based on results of previous inspections, audits or in response to incidents. A monitoring schedule is outlined in Table 6 and Table 7.

4.2 ENVIRONMENTAL AUDITS

In accordance with the Proponent's Environmental Management System (EMS), an audit of the implementation of this FVMP will be completed annually. The key requirements of this FVMP audit include:

- Assessment of compliance of all FVMP components.
- Evaluation of performance against FVMP provisions.
- Assessment of adequacy of management actions, response actions and monitoring.
- Review of management actions, response actions and monitoring as required in order to meet the purpose and objectives of this FVMP.
- Additional audit(s) in response to significant incidents of non-conformance.

A person trained and competent in the use of the audit tool, with expertise in the area being audited shall undertake an audit of the FVMP. Results of all audits will be communicated and discussed at project management review meetings.

5. REPORTING PROVISIONS

5.1 ANNUAL REPORTING

Annual compliance reporting will be undertaken for the Project in line with regulatory requirements and relevant guidance documentation, including the preparation of an Annual Environmental Report (AER) and Compliance Assessment Report (CAR), as/if appropriate. The annual reports will document compliance with Project approval conditions, as well as requirements stipulated in this FVMP.

5.2 EXCEEDANCE REPORTING

The following exceedance reporting will be undertaken if a trigger (**Section 5.3**) or Threshold (**Section 5.4**) exceedance occurs or a management action has not been implemented (**Section 5.5**) or management target has not been achieved (**Section 5.6**) in accordance with the FVMP.

5.3 TRIGGER EXCEEDANCE

- Trigger exceedance will be reported promptly in accordance with internal procedures (prior to the end of shift the following day) and reported to appropriate management staff.
- Investigate to determine the cause of the trigger exceedance.
- Internal reporting and communication of corrective actions to be implemented that eliminate or reduce the likelihood of recurrence.

5.4 THRESHOLD EXCEEDANCE

- Notify the CEO of the DWER (or other regulatory agency if appropriate) in writing within 10 days of identifying and confirming the threshold exceedance, with a report provided via email including any corrective actions identified and investigation initiated.
- Investigate to determine the cause of the threshold exceedance.
- Investigate to determine the potential environmental harm or alteration of the environment that occurred as a result of the threshold exceedance. After finalisation of the investigation, provide a report to appropriate regulator.
- A follow up report detailing the adequacy of the response actions will also be submitted to the DWER within 12 months of the initial notification or within the Compliance Assessment Report (CAR).

5.5 MANAGEMENT ACTION HAS NOT BEEN IMPLEMENTED

- Notify the CEO of the DWER in writing within 10 days of identifying and confirming the failure to implement a management action, with a report provided via email including any corrective actions identified.
- Investigate to determine the cause of the management action not being implemented.
- Investigate to determine the potential environmental harm or alteration of the environment that occurred due to the failure to implement the management action(s).
- Provide a report to the CEO including any corrective actions identified, within 21 days of completing the investigation into the failure to implement a management action.

5.6 MANAGEMENT TARGET HAS NOT BEEN ACHIEVED

- Notify the CEO of DWER in writing within 21 days of identifying and confirming the non-achievement of the target.

- Investigate to determine the cause of the management target not being achieved.
- Provide a report to the CEO within 90 days of the non-achievement of the target being reported.
- Investigate to determine the potential environmental harm or alteration of the environment that occurred due to the failure to meet management target.
- The report shall include:
  - the cause(s) of the management targets not being achieved.
  - assessment of any impacts to the environment resulting from the failure to meet management target.
  - details of revised and/or additional management actions to be implemented to prevent reoccurrence of management target(s) not being met.
  - appropriate changes to Project activities/ corrective actions required.

5.7 INCIDENT REPORTING

Environmental incidents will be promptly reported in accordance with internal procedures and reported to appropriate management staff. Corrective actions, when appropriate, will also be developed and implemented that eliminate or reduce the likelihood of recurrence.

The minimum standards required in respect to non-conformance and corrective actions are to:

- Define and document what classifications of incidents and non-conformances are reportable to:
  - internal management.
  - contractors, suppliers and vendors.
  - regulatory authorities.
  - other external stakeholders.
- Report environmental incidents and non-conformances in line with established procedures and applicable legal and other obligations.
- Investigate incidents and non-conformance such that the root cause can be determined.
- Implement corrective actions that address the root cause(s) of the incidents and non-conformances that aim to eliminate or improve response capabilities to prevent reoccurrence.
- Retain documentation as evidence.

6. ROLES AND RESPONSIBILITIES

MinRes will ensure that all personnel and contractors are responsible for ensuring they comply with the company's environmental management requirements and that any action or inaction on their part does not result in harm to the environment. Delegation of responsibilities may occur to ensure that environmental management activities are coordinated at an appropriate level; however, accountability remains with the person designated those responsibilities. MinRes also expects this general principle of line management accountability to apply to all its contractors. Roles and responsibilities have been designated to ensure that environmental management requirements within this FVMP are met. The key personnel involved in implementation of the FVMP and their roles and responsibilities are listed in **Table 8.**

Table 8: Roles and Responsibilities

Role	Responsibility
MinRes	• Overall responsibility for implementing this FVMP. • Audit and compliance checks. • Engagement with Traditional Owners.
Manager Environment (may delegate all or part responsibility to an appropriately qualified person)	• Obtain relevant approvals from regulatory agencies for disturbance as required. • Monitor and report incidents. • Maintain clearing register to ensure compliance with approvals. • Undertake internal audits and inspections of clearing areas and compliance with FVMP. • Implement and maintain the FVMP, review its effectiveness and review the implementation as required. • Liaise with stakeholders and technical experts for advice and resolution of management aspects/objectives as required. • Ensuring the required resources are allocated to fulfil the requirements of this Management Plan. • Engagement with Traditional Owners. • Providing advice to others about weed hygiene procedures and about the identification of plants that may be weeds. • Undertaking or commission weed control activities. • Undertaking site inspections for weeds. • Keeping records of weed management - weed hygiene certificates, GIS data recording the location and extent of weed populations, control methods used etc. • Presenting ongoing weed management and control awareness training and inductions of personnel in accordance with the FVMP. • Report as required to regulating authorities.
Project Manager (may delegate all or part responsibility to an appropriately qualified person)	• Ensure construction and operational activities are implemented by employees (inclusive of contractors) in accordance with the FVMP
Supervisor	• Ensuring any vehicles or earthmoving equipment leaving a mine is cleaned down so that it is free of vegetation or dirt, and, following an inspection, a Weed Hygiene Certificate (WHC) is issued. • Ensuring that personnel involved in vehicle or equipment transfers are aware of this procedure and can competently meet their responsibilities.

Role	Responsibility
Employees (inclusive of contractors)	• Complete induction prior to commencement of work on site. • Toolbox. • Training. • Comply with requirements in FVMP. • Report potential weed occurrences and poorly cleaned machinery. • Stop works if impact to the environment is suspected or known. • Report any environmental concerns, opportunities for improvement, near misses or incidents to their supervisor ASAP.

7. ADAPTIVE MANAGEMENT AND REVIEW

Adaptive management practices will be implemented where change to management practices and monitoring may lead to more effective environmental outcomes. The adaptive management approach may include the following components:

- Evaluation of the management actions and targets:
  - if monitoring results or audits indicate that management objectives are not being achieved.
  - if new information is discovered during construction, operations or closure.
  - where any significant changes to Project design or operation have occurred.
- Evaluation of assumptions and uncertainties following further flora and vegetation monitoring.
- Review of data and information gathered over the review period that has increased understanding of the environment in the context of the regional ecosystem.
- Review of Management Actions as the Project progresses, and as new management measures and technologies become available that may be more effective for significant flora and vegetation management.
- Assessment of changes which are outside the control of the Proponent (e.g. a new project within the area or region, regional change affecting significant flora and vegetation management) and the revised management measures identified.
- Amendment to the monitoring program.

7.1 REVIEW OF THIS FVMP

This FVMP will be reviewed periodically during the Project phases (construction through operations and into closure), nominally once every 2 years. Other occasions when this FVMP will be reviewed include:

- upon significant changes to the Project activities or upon significant changes to key environmental values identified in this FVMP.
- following non-compliances or environmental incidents related to flora and vegetation management.
- if one or more management targets or performance indicators are not being met and adaptive management is required.
- upon regulatory approval of the Project by the DWER and the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS).

The review process this will ensure this FVMP remains current and adheres to regulatory requirements and the provisions of this FVMP. Any significant changes to this FVMP will be referred to the DWER for approval prior to implementation of such changes.

8. STAKEHOLDER CONSULTATION

The Proponent is committed to ongoing stakeholder engagement and communication through all stages of the Project.

8.1 ENGAGEMENT

Stakeholder engagement commenced in 2012 and specific stakeholder engagement activities undertaken have included:

- briefings and presentations with key regulatory authorities and potentially affected parties (e.g. Banjima People) to provide information on the Project, planned studies and request feedback.
- face to face meetings, telephone calls and written correspondence with potentially affected stakeholders to provide updates on the Project and obtain additional feedback.

Specifically, consultation between MinRes and the Banjima People, through the body corporate Banjima Native Title Aboriginal Corporation (BNTAC) and their consultants, regarding the preparation of various environmental regulatory approvals (State and Commonwealth) has been conducted, including reviews of this FVMP. Feedback from these engagements has been incorporated into the approval submission documents and this FVMP. On-country Social Surrounds engagement with the Banjima People has also been conducted and feedback from these consultations incorporated into management controls for the various environmental and social factors.

Through the variety of engagement forums, the Proponent has been able to identify the required studies and investigations and, importantly, key environmental and socials impacts, and associated mitigation strategies required to support the Project, to ensure the Project aligns with expectations.

8.2 KEY STAKEHOLDERS

The Proponent has identified key Project stakeholders, and these are listed in **Table 9**.

Table 9: Key Stakeholders for the Project

Stakeholder Sector	Organisation
Australian Government Agencies	Department of Climate Change, Energy, the Environment and Water
State Government Agencies & Members of Parliament	Department of Biodiversity, Conservation and Attractions
	Department of Jobs, Tourism, Science and Innovation
	Department of Energy, Mines, Industry Regulation and Safety
	Department of Planning, Lands and Heritage
	Department of the Premier and Cabinet (Ministers for Water and Environment)
	Department of Primary Industries and Regional Development
	Department of Transport
	Department of Water and Environmental Regulation - Environmental Protection Authority
	Department of Water and Environmental Regulation
	Development WA
	Main Roads WA
	Pilbara Port Authority
	Alinta Energy

Stakeholder Sector	Organisation
Local Government	Shire of East Pilbara
Traditional Owners	Banjima Native Title Aboriginal Corporation
	Martidja Banyjima (MIB) – Karijini Development Pty Ltd
Corporate and Community	Rio Tinto/Juna Downs Pastoral Lease
	BHP
	Bird Life Western Australia
	Wildflower Society of Western Australia
	Conservation Council of Western Australia
	Wilderness Society

8.3 STAKEHOLDER CONSULTATION

The Proponent is committed to continued engagement with stakeholders through all development phases of the Project, as documented in the Stakeholder Engagement Plan. The key stakeholder consultation and engagement activities undertaken to date by the Proponent are summarised in referral documentation under the EPBC Act and EP Act. Outcomes of these activities are recorded in a Stakeholder Consultation Register, which is a live document that interconnects with the Stakeholder Engagement Plan.

8.4 ONGOING ENGAGEMENT

Consultation will continue to be undertaken with the respective stakeholders identified in Table 9 to ensure the Project aligns with expectations, as well as in accordance with any approval or licensing conditions.

9. REFERENCES

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APPENDIX A
INDICATIVE WEED MANAGEMENT PLAN

Appendix A Indicative Weed Management Plan

A.1 Background

Introduced flora (weeds) have a detrimental effect on ecological values of communities in which they invade. Weeds outcompete native flora, alter the structure of vegetation, have an impact on fire regimes and change habitat characteristics for fauna; often leading to a decline in the quality of fauna habitat.

MinRes is committed to managing the introduction and spread of weeds as a result of Proposal through the development and implementation of a Weed Management Plan (WMP) and in accordance with the MinRes Draft Weed Hygiene and Control Procedure (MRL-EN-PRO-0007) Due to the spread of weeds through vectors such as wind and animal dispersal, it is unlikely that MinRes would be able to stop the introduction and/or spread of weeds entirely in the Proposal Area. As a result, this Plan will focus on the management of weeds rated as having a high or very high management priority (by DBCA) and managing the cover/abundance of these weeds throughout the Proposal Area.

A.2 Purpose

This indicative WMP has been developed to outline the control measures required to manage the potential weed impacts across the Proposal Area. This Plan applies to all exploration, design, construction, operation and decommissioning stages of the Proposal.

The purpose of the Plan is to:

- Ensure that the Proposal is carried out in a manner that minimises the direct and indirect impacts as a result of weeds.

This will be addressed by ensuring potential project-related impacts to flora and vegetation from weeds are avoided to the maximum extent practicable by:

- Identifying the risks and potential impacts from the Proposal in relation to weeds.
- Outlining management provisions for weeds, to avoid and minimise potential impacts to significant flora and vegetation.
- Preparing and implementing monitoring programs for weeds within the Proposal Area.
- Proposing corrective actions and response actions if triggers and thresholds are exceeded to avoid adverse impacts to vegetation resulting from weeds.

A.3 Rationale and Approach

MinRes is committed to avoiding and minimising potential impacts caused by the operations of the Proposal to flora and vegetation and their associated habitats to ensure the biodiversity and ecological integrity and function of flora and vegetation are maintained. The Proposal has been designed to avoid impacts to key environmental factors located within the footprint.

This Plan focuses on outcome-based and objective-based management provisions, including monitoring and evaluating success of management actions with respect to flora and vegetation within the Development Envelope, driven by triggers and thresholds.

A.4 Legislative Requirements

The following legislation is relevant to weed management for the Proposal:

- *Environmental Protection Act 1986.*
- *Agriculture and Related Resources Protection Act 1976.*
- *Biosecurity and Agricultural Management Act 2007.*
- *Biodiversity Conservation Act 2016.*
-

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- *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth) (EPBC Act)*

The Department of Primary Industries and Regional Development (DPIRD) regulates weeds under the *Biosecurity and Agriculture Management Act 2007* (BAM Act). Plants that are prevented entry into the State or have control or keeping requirements within the State are declared pests (**Table A 1**). Declared pests can be assigned to a C1, C2 or C3 category under the BAM Act Regulations 2013 (**Table A 2**).

TABLE A 1: PROHIBITED ORGANISMS CAN BE ASSIGNED TO A C1 OR C2 CONTROL CATEGORIES

Category	Description
Permitted organisms under section 11	Organisms that are allowed entry into Western Australia
Prohibited organisms under section 12	Organisms that are prohibited from entry into Western Australia
Unlisted organisms under section 14	If an organism cannot be categorised as either permitted or prohibited the organism will be unlisted
Declared pest under section 22	Pests that may be in the State but are under official containment, control or eradication

TABLE A 2: CATEGORIES OF DECLARED PESTS UNDER THE BAM ACT REGULATIONS

Category	Description
C1 Exclusion	Plants which should be excluded from part or all of Western Australia.
C2 Eradication	Plants which should be eradicated from part or all of Western Australia.
C3 Management	Plants that should have some form of management applied that will alleviate the harmful impact of the plant, reduce the numbers or distribution of the plant or prevent or contain the spread of the plant.

A.5 Weed Classification

Weeds are classified by different government departments based on their invasiveness and the risk they pose to the environment, people or agriculture (**Table A 3**).

TABLE A 3: DEFINITIONS AND CLASSIFICATION OF WEEDS

Term	Definition
Weed	A weed is defined in the Australian Weeds Strategy (NRMMC, 2007) as 'a plant that requires some form of action to reduce its harmful effects on the economy, the environment, human health and amenity'.
Declared Weeds	In order to protect agricultural interests, the Department of Primary Industries and Regional Development maintains a list of "Declared Plants" (weeds): https://www.agric.wa.gov.au/pests-weeds-diseases/weeds/declared-plants 'Declared Weeds', under the Agriculture and Related Resources Protection Act 1976, are those that landowners are required by law to control. They are required to be controlled as they are considered a significant risk to the Western Australian economy. Many weed species, however, are not declared under this Act as they may have an agricultural role. They may, however, be serious environmental weeds with the potential to affect native ecosystems.
Environmental Weeds	The Weed Prioritisation Process for the Department of Biodiversity, Conservation and Attractions (DBCA) prioritise weeds in each Parks and Wildlife region, termed 'environmental weeds'. 'Environmental weeds' is a secondary category of weeds, used to describe "plants that establish themselves in natural ecosystems and proceed to modify natural processes, usually adversely, resulting in the decline of communities they invade" (DEC, 1999); page iii).

Term	Definition
Weeds of National Significance	The Australian and state and territory governments have agreed a list of thirty two Weeds of National Significance (WONS), based on the weed species' invasiveness, The full list of WONS can be accessed at www.weeds.gov.au/weeds/lists/wons/html
Weed hygiene	Prevention of the introduction or spread of weeds through movement of earthmoving machinery, vehicles or soil containing weed seed.

A.6 Weeds Recorded in the Proposal Area

Seven introduced flora species (weeds) have been recorded within the Proposal Area (**Section A.6**). While none of these taxa were listed as Declared Pests (DPIRD, 2020) or Weeds of National Significance (Commonwealth of Australia, 2022), some species are rated as having 'High' ecological impact or 'Rapid' invasiveness in native vegetation. The ecological impact and invasiveness classifications (DPaW, 2013, 2015) for these weed species are provided in **Table A 4.** *Bidens bipinnata*, *Cenchrus ciliaris* and *C. setigera* were the most common introduced taxa in terms of numbers of locations and individuals recorded (**Table A 4**). Despite the High/Rapid ecological impact and invasiveness ratings of introduced taxa, none were widespread in the Study Area, and the vegetation was considered to be in mostly Excellent condition (Umwelt, 2022a).

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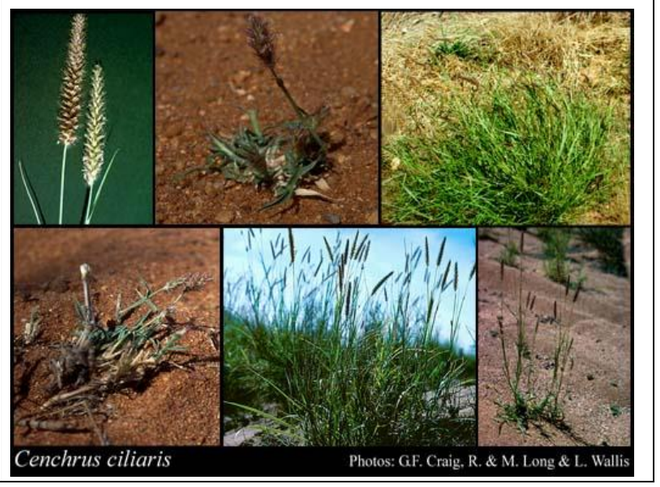
TABLE A 4: INTRODUCED FLORA SPECIES RECORDED IN THE FLORA AND VEGETATION SURVEY AREA

Species (common name)	Description	Number of Locations (Number of individuals)	DBCA Classification[1]		Control Techniques[2]				Photo ((WAH, 2023)
			Ecological Impact*	Invasiveness*	Chemical Control	Manual Control	Indicative seed set	Optimal timing for weed control	
Bidens bipinnata Bipinnate Begger's Tick	An erect annual, herb, between 0.1-1.5 m high. The species flowers between March and September with yellow flowers. It is found in alluvium, clay, loam over sandstone, limestone and along rivers and creeks as well as coastal areas and rocky hillsides (WAH, 2023)	31 (824)	Unknown	Rapid	Spot spraying with glyphosate generally well before flowering	Hand removal is only useful before seed set and all flowering material must be taken from site	All year	Chemical control year-round when plants not undergoing excessive stress, prior to seed set whenever possible	
Cenchrus ciliaris Buffel Grass	A tufted, or sometimes stoloniferous, perennial herb or grass-like species between 0.2-1.5 m high. The species flowers between February to October with purple flowers. It is found in white/red/ brown sand, stony red loam or black cracking clay (WAH, 2023).	13 (149)	High	Rapid	Spot spray with 1-2% glyphosate and follow-up with seedling control	Hand remove small populations and seedlings; entire plants with dormant buds must be removed	All year. May begin producing seeds from approximately 3 months of age	Wet season (four to six weeks after a rain event) when plants actively growing and not stressed, prior to seed set	

[1] Data from Department of Biodiversity, C. a. A. D. (2014). *Ecological Impact and Invasiveness Ratings from the Department of Parks and Wildlife Pilbara Region Species Prioritisation Process 2014* https://www.dbca.wa.gov.au/parks-and-wildlife-service/threat-management/plant-diseases/weeds

[2] Information from Weeds-Australia. (2014). *Weeds Australia - An Australian Weeds Committee National Initiative*. http://www.weeds.org.au/

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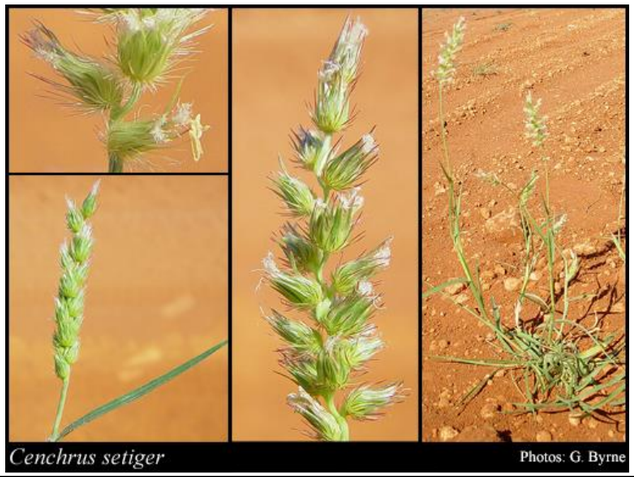
Species (common name)	Description	Number of Locations (Number of individuals)	DBCA Classification[1]		Control Techniques[2]				Photo ((WAH, 2023)
			Ecological Impact*	Invasiveness*	Chemical Control	Manual Control	Indicative seed set	Optimal timing for weed control	
Cenchrus setiger Birdwood Grass	An erect, tussocky, stoloniferous perennial herb or grass-like species up to 0.5 m high. The species flowers between April to May with cream-purple flowers. It is often found in brown sands, red loam, pindan spoils in sand dunes, plains, rangelands, stony hillsides or floodplains (WAH, 2023).	17 (2,654)	High	Rapid	Spot spray with 1-2% glyphosate and follow-up with seedling control	Hand remove small populations and seedlings; entire plants with dormant buds must be removed	All year	Wet season (four to six weeks after a rain event) when plants actively growing and not stressed, prior to seed set	 *Cenchrus setiger* Photos: G. Byrne
Malvastrum americanum Spiked Malvastrum	This species is an erect perennial herb or shrub that grows from 0.5 to 1.3 m high. It flowers between April to July and has orange or yellow flowers. It grows in orange, red and yellow sands, gritty alluvial sand, black/brown clay, alluvial cracking clays, limestone or calcrete. It favours stony ridges and hillsides, floodplains and drainage lines (WAH, 2023).	11 (70)	High	Rapid	Spot spray 0.5% glyphosate	Hand remove seedlings and small populations, removing whole plants	April to September	Wet season, when plants actively growing and not stressed, prior to seed set	*Malvastrum americanum* Photo: J.F. Smith & E. Wajon

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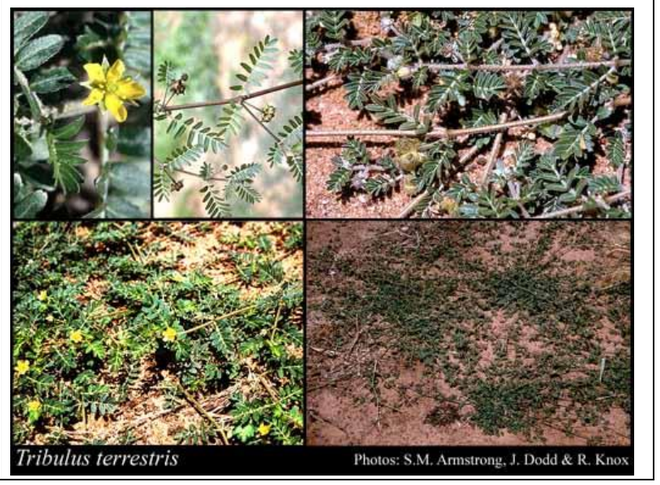
Species (common name)	Description	Number of Locations (Number of individuals)	DBCA Classification[1]		Control Techniques[2]				Photo ((WAH, 2023)
			Ecological Impact*	Invasiveness*	Chemical Control	Manual Control	Indicative seed set	Optimal timing for weed control	
Portulaca pilosa Pink Purslane	This species is a succulent, erect or prostrate annual herb that can grow to 0.2 m high. It flowers from January to July or November and has yellow or pink flowers. It favours sandy, loamy and clayey soils (WAH, 2023).	1 (1)	Not rated	Not rated	Spot spray with 0.5% glyphosate	Hand remove before flowering	Mostly Autumn	Chemical control year-round when plants not undergoing excessive stress, prior to seed set whenever possible	
Setaria verticillata Whorled Pigeon Grass	This species is a loosely tufted annual which is grass-like. It grows from 0.1 to 1.3 m high. It flowers from December or January to June and has green flowers. It grows on sand, clay or loam soils (WAH, 2023).	6 (20)	High	Rapid	Spot spray with 1-2% glyphosate and follow-up with seedling control	Hand remove seedlings and small populations, removing whole plants	All year	Wet season (four to six weeks after a rain event) when plants actively growing and not stressed, prior to seed set	Photo from Weeds Australia

Species (common name)	Description	Number of Locations (Number of individuals)	DBCA Classification[1]		Control Techniques[2]				Photo ((WAH, 2023)
			Ecological Impact*	Invasiveness*	Chemical Control	Manual Control	Indicative seed set	Optimal timing for weed control	
Tribulus terrestris Caltrop	A prostrate annual villous herb with 4-7 paired leaflets distinct divergent cocci and median spines 3-8 mm long. The species flowers between January to December with yellow flowers. It is often found on sandy soils throughout waste places (WAH, 2023).	3 (5)	Unknown	Moderate	Basal bark spray (for stems up to 10 cm in diameter) up to 30 cm above ground level application using 2% Picloram + 2,4-D amine (Enforcer) or cut stump using undiluted chemical	Cut plants at 10 to 20 cm below ground, remove reproductive parts. Remove whole plant if possible	All year	Chemical control year-round when plants not undergoing excessive stress, prior to seed set whenever possible	

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A.7 Weed Management

Commitments relating to weeds that have been included in **Table 7** in the FVMP have been incorporated into MinRes's weed management strategy as detailed within this section.

A.7.1 Potential impacts

The Proposal has the potential to spread existing weeds and to introduce new weed species into previously weed free areas. Weeds can impact the ecology and biodiversity of natural systems by out-competing native species for habitat, nutrients and water. Once established, weeds can also alter the composition and structure of vegetation communities.

Weeds may potentially impact natural systems and values through the following examples:

- Competition with native species for natural resources such as sunlight, water, nutrients and space.
- Reduction in natural biodiversity levels from smothering and out-competition (Smyth et al., 2009).
- Reduced resiliency of native species to disturbances, including the ability for regrowth following clearance and fire.
- Limited availability of native plants which provide important habitat and food sources for animals, and
- Alteration of fire regimes, with increased temperatures and intensity (DEC, 2011).

A.7.2 Application of the Mitigation Hierarchy

The Proposal will **avoid** impacts to significant flora and vegetation from project related weeds via the following:

- A Site Disturbance Permit and Land Clearing Procedure will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary.

The Proposal will **minimise** impacts to significant flora and vegetation from project related weeds via the following:

- Vehicles with ground engaging equipment to be cleaned, inspected and issued with a Weed Hygiene Certificate prior to entry to site or moving between areas on-site.
- Vehicles and equipment shall be restricted to designated roads and tracks.
- Weed awareness and weed hygiene training shall be delivered to all personnel as part of the induction process.
- Regular inspection and maintenance of vehicles and equipment shall be undertaken.
- Incident reporting of new weed species and new locations.
- Seasonal weed control programs shall be implemented, including herbicide spraying or physical removal, as required.
- Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable.

A.7.3 Management Provisions

This WMP focuses on outcome-based provisions, which are performance-based and can be applied. The objectives developed are measurable, and the success of management actions can be monitored and reported. Outcome-based provisions specify triggers and thresholds for direct impacts that are quantifiable and specifically relate to weeds (**Table A 5**). Suitable trigger and threshold actions have been established, with potential corrective actions also recommended.

A.7.4 Outcome-Based Provisions

The following outcome-based management provision to avoid or minimise project related impacts from weeds has been established:

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- Avoid facilitating the introduction of new weed species or the proliferation of existing weed species in the Proposal Area as a result of the Proposal.

A.7.5 Objective-Based Provisions

Objective-based provisions relate to environmental management actions that are not specifically measurable. They specify management actions according to management targets, particularly for indirect impacts that are not quantifiable. For project related weeds, as ongoing monitoring is undertaken and additional population data is gathered, these management targets may be reviewed, and quantifiable outcome-based provision(s) may be established accordingly. Two objective-based management provisions have been outlined in **Table A 6** to prevent project-related adverse impacts to flora and vegetation (including significant flora species) from weeds within proximity to the Proposal. These are supported by appropriate management targets, management actions, a monitoring approach, reporting requirements and contingency actions.

The following objectives-based provisions for weeds have been established:

- No new weed species introduced into the Proposal Area.
- No project-related adverse impacts to vegetation due to disturbance or a decline in health from the proliferation of existing weed species recorded in the Proposal Area.

A.7.5.1 Environmental Criteria

The development of triggers and thresholds for outcome-based provisions within the WMP are based on available data and information, with justification for these criteria provided in **Table A 5** and **Table A 6**. These criteria can be used to monitor and evaluate performance against the environmental objectives of this WMP. Due to the lack of available data in some instances, the triggers and thresholds are considered preliminary, until sufficient baseline data becomes available from further weed monitoring. During monitoring, where thresholds (outcome-based) or targets (objective-based) are exceeded, appropriate management or corrective actions have also been developed. Monitoring will inform adaptive management, with the revision of triggers and thresholds, or corrective actions where required.

A.7.6 Weed Awareness and Weed Hygiene Training Procedure

Induction and awareness training for weeds will be undertaken through the following procedure:

- All employees and contractors are required to participate in the site induction, which will provide an awareness of weeds, including risk species, and an overview of the weed hygiene process.
- Employees and contractors who are involved in movement or operation of earthworks equipment, off road vehicles, and land clearing will be specifically trained in weed hygiene procedures and documentation. This includes but is not limited to, exploration personnel, surveyors, environmental survey consultants, workshop and logistics personnel.
- Training or technical assistance may be required for site personnel to be able to recognise locally-occurring weed species.
- Specialist training (chemical handling, personal protection etc.) may be required if site personnel are involved in chemical methods of weed control.
- Tool box talks will be presented from time to time to refresh employees and contractors on weed hygiene procedures.

The movement of earthmoving equipment and vehicles may require use of a Weed Hygiene Certificate (WHC). This procedure cannot cover every situation but a WHC would generally be required when there is a medium to high risk. Medium to high-risk situations include:

- Movement of equipment that has been operating in borrow pits or in topsoil stockpiling or recovery operations.
- Light vehicles and drill rigs operating in an area with known weed occurrences.
- Any off-road earthmoving or heavy equipment moving from one mine site to another.

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WHCs are generally not required for low-risk situations. Low risk situations include:

- Light vehicles and support vehicles remaining on established roads.
- Excavators and dump trucks operating within multiple pits at one mine site.
- Drill rigs operating on overburden or ore within multiple pits after topsoil has been removed.
- Graders operating at one mine site (although regular clean down is recommended).

Where a WHC is required, the following procedure will be adhered to:

- The earthmoving equipment or vehicle must be cleaned to remove any seeds, plant material or mud that could contain seeds.
- Cleaning can be undertaken using wet or dry methods.
- Ensure any material cleaned from equipment and containing weed seed does not itself become a source of weeds. Disposal to landfill or other suitable alternative is required.
- Once the cleaning process has been completed and the Supervisor is satisfied the equipment or vehicle is clean, a WHC can be completed.
- The WHC remains with the equipment until its arrival at its destination.
- At this point, a further inspection is conducted by the ED or delegate to verify the Certificate is accurate, 'sign off' on the Certificate and free the equipment for use at the new location.
- Movement of vehicles or earthmoving equipment that does not comply with this procedure must be reported as an incident.

A.7.7 Weed Control

Weeds found in the Proposal area and their suggested control is outlined in **Table A 4.** The Draft Weed Hygiene and Control Procedure (MRL-EN-PRO-0007) outlines the process for controlling weeds on MinRes sites:

- If populations of declared or pest plants occur on site, control should be undertaken in consultation with DPIRD.
- If populations of environmental weeds occur on site, control should be undertaken where it is practical to do so. Some environmental weeds are so well established that control is not warranted.
- This procedure does not require control of other introduced species but control methods may be used in particular circumstances.
- Control methods may include spraying with herbicide or physical removal.
- Herbicide use will only be undertaken in accordance with the manufacturer's instructions. Users must consider their personal safety, the safety of others (e.g. people potentially exposed to herbicide through wind drift) and sensitive non-target plant species that occur nearby. If the target area is on a pastoral property, liaison with the pastoralist is required.
- Weeds that are physically removed should be disposed of to a landfill or waste rock landform and buried.
- Soil or material movement from areas that have or may have weeds should be done in consultation with the Environmental Advisors or delegates. Areas of risk include topsoil recovery or re-use and recovery of material from borrow pits.

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TABLE A 5:OUTCOME-BASED MANAGEMENT PROVISIONS FOR WEEDS

EPA Factor and Objective	**Flora and vegetation: To protect flora and vegetation so that biological diversity and ecological integrity are maintained**						
FVMP Purpose	*To avoid adverse project-related impacts to flora and vegetation including significant species.*						
Outcome-Based Management Objectives	Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
	Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
Avoid facilitating the introduction of new weed species or the proliferation of existing weed species in the Proposal Area as a result of the Proposal.	• Detection of new weed species rated high or very high management priority (by DBCA) at a potential impact site where it was not detected during baseline weed mapping of the Proposal Area and a significant increase in cover or abundance over successive monitoring events.	• Detection of a Declared Pest Plant or Weed of National Significance which was not detected during baseline weed surveys for the Proposal Area. • A significant increase in cover or abundance of an existing* Declared Pest Plant or Weed of National Significance over successive monitoring events. • New weed species rated high or very high management priority (by DBCA) (not detected during baseline weed surveys for the Proposal Area) becomes established** * No Declared Pest Plants or WONS are known to occur within the Proposal Area, however the baseline flora and vegetation surveys were not exhaustive and these species may potentially occur. ** Where 'established' means 'A weed species which has grown to maturity and reproduced. Weeds are producing a viable second generation of individual plants signifying persistence at a given location in spite of treatment.	• Report as incident internally. • Investigate cause of occurrence and review management strategies and implement changes to prevent future weed occurrences, where possible. • If exceedance is attributed to project-related activities, undertake a review of procedures to determine if impact can be minimised, develop corrective actions with consideration of the following: • Consider revising monitoring frequency for weeds; and educate staff on weed identification and weed hygiene practices. • Implement weed control as required. • Undertake weed control in accordance with the identified weed control techniques (**Table A 4**).	• Report any non-compliance to DWER within 7 days of identification. • Undertake investigation to determine source of the exceedance. • If project-related, undertake review to determine if impact can be minimised, develop actions to prevent recurrence and communicate findings to relevant personnel. • If continued increase in exceedance is recorded over three consecutive events, additional targeted weed control will be considered. • Revise weed monitoring schedule accordingly and monitor the success of corrective actions. • Undertake weed control in accordance with the identified weed control techniques (**Table A 4**).	• Biannual monitoring of the presence and abundance of weeds compared to baseline presence and abundance to determine the effectiveness of control programs.	• Bi-annually	• Monitoring reports. • Annual Compliance Assessment Report (ACAR).

TABLE A 6: OBJECTIVE-BASED MANAGEMENT PROVISONS FOR WEEDS

Objective-based Management Targets	Management Actions	Monitoring	Timing	Responsible	Reporting
1. No new weed species introduced into the Development Envelope as a result of construction and operation of the Proposal. 2. No new occurrences of existing weeds within the Development Envelope as a result of construction and operation of the Proposal.	**Avoid:** • A Land Access Permit and Land Clearing Procedure will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary. **Minimise:** • A Weed Management Plan shall be prepared and implemented as part of the FVMP, prior to construction and operation, to control access and movement of vehicles and construction personnel to prevent the introduction and spread of weeds into the Development Envelop, weed free areas, and between work areas. • Vehicles and equipment to be cleaned, inspected and issued with a Weed Hygiene Certificate prior to entry to site or moving between areas on-site. • Vehicles and equipment shall be restricted to designated roads and tracks. • Weed awareness and weed hygiene training shall be delivered to all personnel as part of the induction process, in accordance with the training procedure (Section A.7.6), including the environmental implications of the introduction and spread of weeds, identification of weed species, and the process for reporting observations. • Regular inspection and maintenance of vehicles and equipment shall be undertaken. • Restrict movement of topsoil at known weed locations. • Ensure timely response for the management of any declared weed occurrences or other weed infestations occurs. **Rehabilitate:** • Seasonal weed control programs shall be implemented, as required. • Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable. **Contingency Actions (if Management Targets not met):** • Investigate cause or source of infestation. • Inspect surrounding area to assess extent of infestation. • Review weed hygiene measures for efficacy. • Review training and implementation of weed hygiene measures. • Implement control measures (e.g. spraying, removal) at seasonally appropriate time. • Monitor success of control actions. • Review frequency and suitability of weed monitoring and control measures. • Revise areas of restrict access in accordance with occurrence of new weed species and/or new occurrences of existing weed species.	• Biannual monitoring of the presence and abundance of weeds (in accordance with the FVMP) compared to baseline presence and abundance to determine the effectiveness of control programs. • Inspection of cleared and rehabilitated areas to detect presence of new weed species and/or new occurrences of existing weed species to determine success of management actions. • Inspection of vehicles and equipment used for construction activities at entry and exit points. • Post-construction inspection of cleared areas to detect presence of new weed species and/or new occurrences of existing weed species.	• Bi-annually \ • Annually (as a minimum)	• Construction • Operations • Environment Team	• Compliance against these Management Targets will be included within a CAR, submitted as part of the AER for the Proposal. • Complete an incident report if new weed species and/or new occurrences of existing weed species are recorded.

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A.8 Roles Responsibilities

The key personnel involved in the implementation of the indicative WMP and their roles and responsibilities are listed below.

TABLE A 7: ROLES AND RESPONSIBILITIES FOR WEED MANAGEMENT MEASURES

Role Responsible	Weed Management Measure
Project Manager (may delegate all or part responsibility to an appropriately qualified person)	• Ensuring full compliance with the requirements of this Management Plan. • Ensuring training in weed hygiene requirements is provided to personnel responsible for the transfer of earthmoving equipment and vehicles between sites. • Ensuring the required resources are allocated to fulfil the requirements of this procedure.
Supervisor	• Ensuring any vehicles or earthmoving equipment leaving a mine is cleaned down so that it is free of vegetation or dirt, and, following an inspection, a Weed Hygiene Certificate (WHC) is issued. • Ensuring that personnel involved in vehicle or equipment transfers are aware of this procedure and can competently meet their responsibilities.
Manager Environment (may delegate all or part responsibility to an appropriately qualified person)	• Providing advice to others about weed hygiene procedures and about the identification of plants that may be weeds. • Undertaking or commission weed control activities. • Undertaking site inspections for weeds. • Keeping records of weed management - weed hygiene certificates, GIS data recording the location and extent of weed populations, control methods used etc. • Presenting ongoing weed management and control awareness training.
Employees (inclusive of contractors)	• Understand and meet the obligations of this procedure. • Report potential weed occurrences and poorly cleaned machinery.

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MINERAL RESOURCES

APPENDIX B
RISK ASSESSMENT

Appendix B Risk Assessment

A qualitative risk assessment was conducted in accordance with the Environmental Management Plan Guidelines (Commonwealth of Australia, 2014) to assess the risks of the proposal and is shown in **Table B 2**. Each environmental risk identified has been provided a likelihood and consequence rating using the criteria in **Table B 1** below to generate a risk rating of low, medium, high or severe.

TABLE B 1: RISK ASSESSMENT CRITERIA

	Consequence				
Likelihood	**Minor**	**Moderate**	**High**	**Major**	**Critical**
Highly likely	Medium	High	High	Severe	Severe
Likely	Low	Medium	High	High	Severe
Possible	Low	Medium	Medium	High	Severe
Unlikely	Low	Low	Medium	High	High
Rare	Low	Low	Low	Medium	High

Likelihood	
The following criteria has been used to determine the likelihood of the risk occurring	
Highly likely	The risk event is expected to occur in most circumstances
Likely	The risk event will probably occur during the life of the project
Possible	The risk event might occur during the life of the project
Unlikely	The risk event could occur but considered unlikely or doubtful
Rare	The risk event may only occur in exceptional circumstances
Consequence	
The following criteria has been used to determine the consequences of a risk occurring	
Minor	Minor incident of environmental damage that can be reversed
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts
High	Substantial instances of environmental damage that could be reversed with intensive efforts
Major	Major loss of environmental amenity and real danger of continuing
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage

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TABLE B 2: FLORA AND VEGETATION ENVIRONMENTAL RISK ASSESSMENT

Value	Potential Impacts	Inherent Risk			Management Measures	Residual Risk		
		Likelihood	Consequence	Risk		Likelihood	Consequence	Ranking
Flora and vegetation	Loss of native flora and vegetation due to unauthorised clearing	Unlikely	High	Medium	Management measures are outlined in Table B 2. Any potential loss of native flora and vegetation due to clearing is expected to be managed through suitable design and mitigation measures, with negligible impacts. Loss of native vegetation is considered a **LOW** risk, however due to its value for several significant fauna species it is proposed to be offset.	Rare	High	Low
Flora and vegetation	Take of significant flora taxa due to unauthorised clearing	Highly Likely	Moderate	High	Management measures are outlined in Table B 2. Any take of significant flora due to clearing is expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Possible	Minor	Low
Flora and vegetation	Potential for fragmentation of vegetation as a result of construction of linear corridors.	Likely	Moderate	Medium	Management measures are outlined in Table B 2. It is considered **unlikely** that fragmentation of habitat as a result of the Proposal will cause any significant impact to flora and vegetation, this risk event is considered **LOW**	Unlikely	Minor	Low
Dust	Dust generated as part of construction and operation activities has the potential to impact on local flora and reduced health and viability of a flora and vegetation.	Likely	Moderate	Medium	Management measures are outlined in Table B 2 of the Risk Assessment. Any potential decline or change in the health/composition of flora and vegetation arising from dust are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Possible	Slight	Low
Weeds	Introduction and/or spread of weed species leading to reduced flora species and system diversity.	Likely	Moderate	Medium	Management measures are outlined in Table B 2 of the Risk Assessment. Any potential decline or change in the health/composition of flora and vegetation arising from the introduction and/or spread of weeds are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Possible	Minor	Low
Fire	Construction activities have the potential to cause accidental bushfires which may lead to damage or death to surrounding flora and vegetation communities	Likely	High	High	Management measures are outlined in Table B 2 of the Risk Assessment. Any potential decline or change in the health/composition of fauna habitat arising from fire are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **MEDIUM**.	Unlikely	High	Medium
Hydrological change	Potential degradation or alteration of health/composition of vegetation arising from hydrological regime changes.	Likely	Moderate	Medium	Management measures are outlined in Table B 2. Any potential decline or change in the health/composition of fauna habitat arising from hydrological changes are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Possible	Minor	Low

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APPENDIX G
SIGNIFICANT FAUNA MANAGEMENT PLAN

MINERAL RESOURCES

MANAGEMENT PLAN

SIGNIFICANT FAUNA MANAGEMENT PLAN

LAMB CREEK IRON ORE PROJECT

25/09/2024 VERSION 0

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Revision History				
Version	**Issue Date**	**Prepared by**	**Approved By**	**Document Purpose**
0	25/09/2024	Carl Paton Adam Cross Neil Smith	Adam Parker – Manager Project Approvals	Regulatory Submission

Acknowledgement of Country

MinRes is committed to reconciliation and recognises and respects the significance of Aboriginal and Torres Strait Islander peoples' communities, cultures, and histories. MinRes acknowledges and respects Aboriginal and Torres Strait Islander peoples as the traditional custodians of the land.

EXECUTIVE SUMMARY

Table ES-1 summarises the purpose of the Significant Fauna Management Plan (SFMP) and Monitoring Program within the context of the Western Australia Environmental Protection Authority (EPA) objectives for the key environmental factor of Terrestrial Fauna (EPA 2016), but is also relevant for EPBC fauna considerations. The SFMP and Monitoring Program also aligns with the EPA (2021c) and Commonwealth of Australia (2014) Environmental Management Plan Instructions and Guidelines. The SFMP and Monitoring Program has been prepared for the Mineral Resources Lamb Creek Iron Ore Project. This Environmental Management Plan specifically addresses the Terrestrial Fauna environmental factor associated with the Project.

Summary Table ES-1 below presents the environmental outcomes and objectives for the environmental factor to be met through implementation of this SFMP, as well as the environmental criteria and management targets to measure achievement of the associated environmental outcomes and objectives.

Table ES-1: Significant fauna Management plan Summary

Project Title	Lamb Creek Iron Ore Mine	
Short Description	Open pit iron ore mine located approximately 130 km northwest of Newman to produce up to 10 million tonnes per annum (Mtpa) of crushed and screened iron ore over a period of three to five years. This will comprise a multi-stage crushing and screening process plant and associated mine infrastructure including, but not limited to, site offices, maintenance and equipment service area, water pipelines, fuel storage, power generation, telecommunications and an accommodation village for site personnel. The total disturbance footprint of the Project is 646.9 ha (Indicative Footprint), within a Development Envelope of 874 ha (**Figure 1**). Iron ore product will be loaded onto road trains and transported 16 km on a dedicated private haul road to its intersection with Great Northern Highway, where it will be transported 320 km to ship load-out facilities at the Utah Point berth in Port Hedland.	
Proponent Name	Process Minerals International (PMI) a wholly owned subsidiary of Mineral Resources Limited (MinRes) (ACN 118 549 910)	
Ministerial Statement No.	TBA	
Scope And Purpose Of SFMP	The purpose of the Significant Fauna Management Plan (SFMP) is to present a robust and implementable environmental management framework to protect the environmental values of the Project and to demonstrate that the EPA's objectives are met during the construction and operation of the Project (also relevant for EPBC fauna considerations).	
Key Environmental Factor and Objective	Terrestrial Fauna:	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.
Outcome-based Management Provisions	Ensure development and operation of the Project meets the objective of protecting significant fauna and fauna habitat to maintain biological diversity and ecological integrity.	
Objective-based Management Provisions	No clearing of critical fauna habitat shall occur outside of approved, demarcated, clearing area(s) during construction or operations. Feral predator management effectively implemented to avoid increasing impacts on native fauna populations as a result of the Project. Effective operation of the Project to avoid Project related fire. Minimise fauna mortality from construction and operation of Project infrastructure and operations caused by; open water sources, open trenches/excavations, vehicle strike.	

Condition Clauses	TBA
Key Components In the SFMP	Key provisions are detailed in Section 3
Proposed Construction and Operation Dates	The forecast key milestones for construction and commissioning are: construction Q3 to Q4 2025. commence commissioning Q1 2026. commence operation from Q1 2026 to Q2 2026.
SFMP Required Pre-construction	Yes - this SFMP will be required to be implemented during installation of access tracks and roads into the site, following granting of licensed tenements

Declaration of accuracy

In making this declaration, I am aware that section 491 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed	
Full name (please print):	Celine Mangan
Organisation (please print):	Mineral Resources Ltd
Date	25/09/2024

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Appendices

Appendix A Cave Closure and Cave Disruption Protocol

Appendix B Vibration Monitoring

Appendix C Feral Animal Monitoring and Control Plan

Appendix D Risk Assessment

ABBREVIATIONS

Abbreviation	Definition
AER	Annual Environment Report
BC Act	Biodiversity Conservation Act 2016
CAR	Compliance Audit Report
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEMIRS	Western Australian Department of Energy Mines, Industry, Regulation, and Safety
DWER	Western Australian Department of Water and Environmental Regulation
EMS	Environmental Management System
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EP Act	Environmental Protection Act 1986
EPA	Western Australian Environmental Protection Authority
FVMP	Flora and Vegetation Management Plan
GWOS	Groundwater Operating Strategy
Ha	Hectare
LiDAR	Light Detection and Ranging
MCP	Mine Closure Plan
PMI	Process Minerals International
PEOF	Pilbara Environmental Offsets Fund
RSD	Referral Supporting Document
SOP	Standard Operating Procedure
SFMP	Significant Fauna Management Plan
SWMP	Surface Water Management Plan
WRL	Waste Rock Landform

1. CONTEXT, SCOPE AND RATIONALE

1.1 PROJECT BACKGROUND

Process Minerals International (PMI; the Proponent), a wholly owned subsidiary of Mineral Resources Limited (MinRes) (ACN 118 549 910), proposes to develop the Lamb Creek Iron Ore Project (the Project), located approximately 130 kilometres (km) northwest of Newman, in the East Pilbara Local Government Authority (LGA) in Western Australia (WA).

Open pit iron ore mine located approximately 130 km northwest of Newman to produce up to 10 million tonnes per annum (Mtpa) of crushed and screened iron ore over a period of three to five years. This will comprise a multi-stage crushing and screening (two or three stages) process plant and associated mine infrastructure including, but not limited to, site offices, maintenance and equipment service area, water pipelines, fuel storage, power generation, telecommunications and an accommodation village for site personnel. Project Iron ore product will be loaded onto road trains and transported 16 km on a dedicated private haul road to its intersection with Great Northern Highway, where it will be transported 320 km to ship load-out facilities at the Utah Point berth in Port Hedland.

The Project is being referred under s. 38 of the Environmental Protection Act 1986 (EP Act) as it has the potential to significantly affect key environmental factors, defined by the WA Environmental Protection Authority (EPA) in its Statement of environmental principles, factors, objectives and aims of EIA (Environmental Protection Authority, 2021b). The Project is also being referred under the Environment Protection and Biodiversity and Conservation Act 1999 (EPBC Act) as it is likely to have a significant impact on Matters of National Significance (MNES). A Native Vegetation Clearing Permit (NVCP) under Part V of the EP Act will also be sought for the area of the Project that intersects the Great Northern Highway Road Reserve.

As a result of the various approvals being sought for the Project, there are subtle differences in the Development Envelopes (DE) and Indicative Footprints, however the overall clearing associated with the Project is the same. The maximum DE or Proposed Action Area for the EPBC referral is 897.5 ha, as the EPBC referral was based on an earlier, now revised, DE footprint. The EPBC referral DE is also slightly larger than that for the s. 38 Referral, due to the splitting of the DE between the approvals under Part IV and Part V of the EP Act. This Significant Fauna Management Plan (SFMP) has been prepared to support the submission of the Referral Supporting Document (RSD), Mining Proposal, NVCP and EPBC Referral to detail the management actions proposed to reduce adverse environmental impacts to the key environmental factor of Terrestrial Fauna and MNES.

Key nomenclature used throughout this document is summarised below:

The Project: This refers to the boundary within which the elements of the proposed activities are situated.

Project Area (897.5 ha): Refers to the maximum proposed Development Envelope (as for EPBC) within R47/19 (to be converted to M47/1592) and L47/1008, which overlie the Juna Downs pastoral lease (LPL N050471). A small portion of the access road and Great Northern Highway intersection area is within railway corridor L021124 (Hamersley Iron Pty Ltd- Yandicoogina Rail) that is excised from Juna Downs. This Project Area also includes the area of the intersection with the Great Northern Highway which is entirely within Main Roads WA road reserve.

Development Envelope (874 ha): delineates the area within which the Project components are located (**Figure 1**). and is a combination of the development envelopes included in the Part IV and Part V applications.

Indicative Footprint (646.9 ha): refers to the area that is proposed to be directly disturbed by the Project (e.g. clearing of native vegetation) (**Figure 1**) occurs entirely within the Development Envelope. The

layout of the Indicative Footprint may be subject to change; however, total disturbance will not exceed the maximum disturbance for the Development Envelope.

Terrestrial Fauna Survey Area (1645 ha): refers to the boundary within which all Terrestrial Fauna investigations and field surveys were undertaken.

This SFMP has been prepared in accordance with the *How to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans: Instructions* (Environmental Protection Authority 2021a).

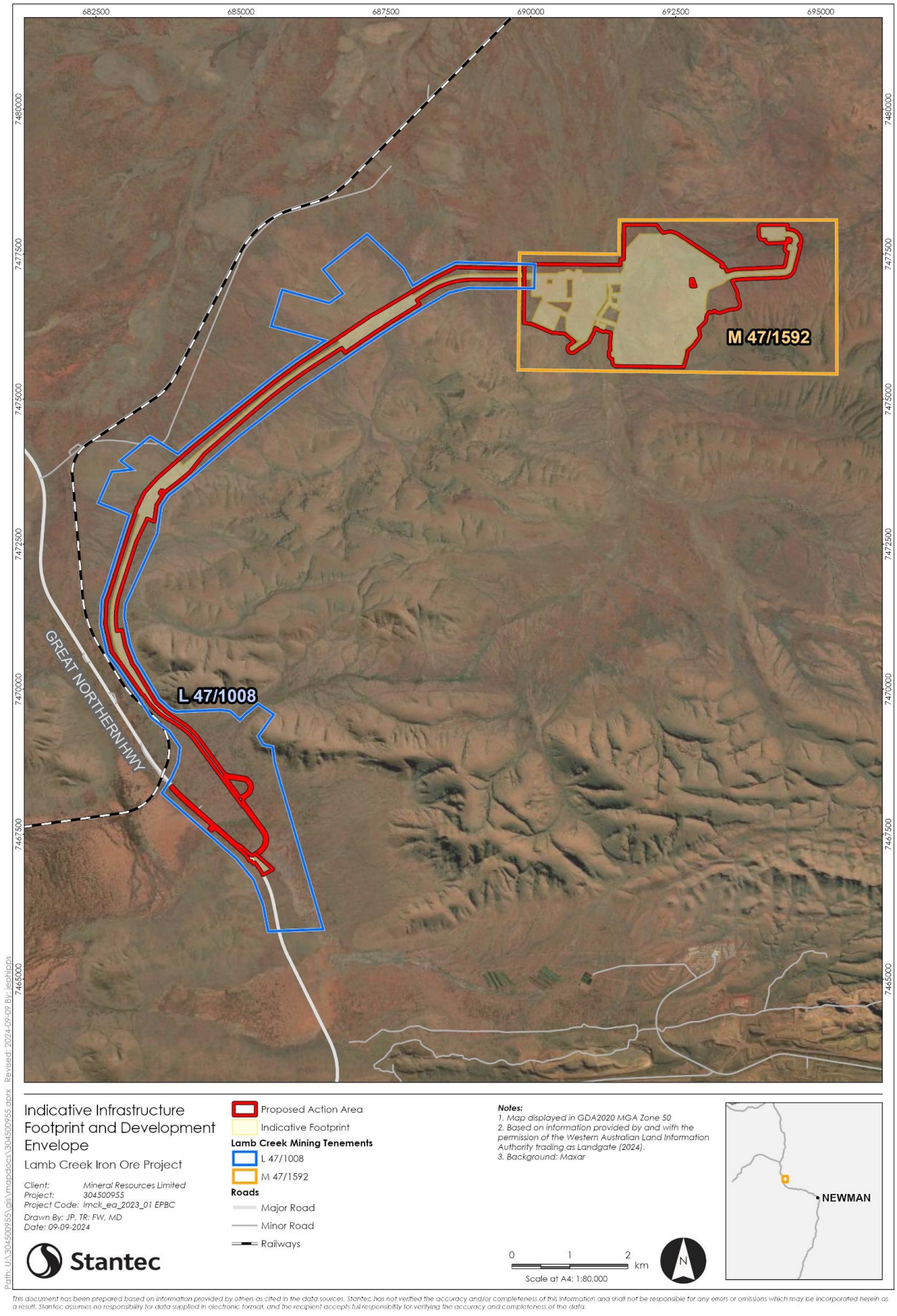

Figure 1: Development Envelope and Indicative Footprint

1.2 KEY ENVIRONMENTAL FACTOR – TERRESTRIAL FAUNA

The EPA's objective for the environmental factor of Terrestrial Fauna is "To protect terrestrial fauna so that biological diversity and ecological integrity are maintained" (Environmental Protection Authority 2016). In the context of this objective, ecological integrity is the composition, structure, function and processes of ecosystems, and the natural range of variation of these elements. Terrestrial Fauna is considered a key environmental factor for the Project due to the potential for direct and indirect impacts during construction and operation activities. Comprehensive surveying identified 21 significant species as occurring within the Study Area. Several of the fauna species are Matters of National Environmental Significance (MNES), listed at the Commonwealth and/or State level. Of the significant fauna with the potential to occur in the Study Area, the following five species were considered likely to occur in the Lamb Creek Project area and one species, the Fork-tailed Swift, was recorded:

- Northern Quoll (Dasyurus hallucatus) – Endangered.
- Ghost Bat (Macroderma gigas) – Vulnerable.
- Pilbara Leaf-nosed Bat (Rhinonicteris aurantia) – Vulnerable.
- Pilbara Olive Python (Liasis olivaceus barroni) – Vulnerable.
- Grey Falcon (Falco hypoleucos) – Vulnerable.
- Fork-tailed Swift (Apus pacificus) – Migratory, recorded.

The Proponent considers the Project can be managed to meet the EPA's objective for Terrestrial Fauna, aided by the conceptual design, planned construction and operational procedures that will be implemented to avoid, mitigate and maintain terrestrial fauna values. In addition, residual impacts from the clearing of supporting habitat for several significant fauna species is proposed to be offset through the Pilbara Environmental Offsets Fund (PEOF), managed via the Native Vegetation Clearing Permit process in accordance with Part V s 51I(2)(b) of the EP Act and in alignment with the native vegetation clearing principles in accordance with Schedule 5 cl 1 of the EP Act. These proposed offsets (to be finalised, agreed with DWER) include 42.0 ha of critical habitat (foraging and dispersal) for Northern Quoll, and 622.3 ha of supporting habitat (foraging) for Ghost Bat, and lesser portions of this 622.3 ha as supporting habitat for the Pilbara leaf-nosed Bat and Pilbara Olive Python .

1.3 PURPOSE AND OBJECTIVE

The purpose of this SFMP is to document the Proponent's approach to managing the potential impacts of construction and operation of the Project on significant fauna species to:

- Ensure that the Project is carried out in a manner that minimises the direct and indirect impacts to significant fauna species; and
- Ensure there is no direct or indirect adverse impacts to significant fauna species within the Project Area and immediate surrounds.

The Proponent is committed to avoiding and minimising potential impacts from the Project during construction and operation to ensure the biodiversity and ecological integrity of terrestrial fauna are maintained.

The objective of this SFMP is to meet the EPA's objective for the environmental factor of Terrestrial Fauna using the EPA's mitigation hierarchy of avoid, minimise, rehabilitate and offset (Government of Western Australia 2014). This will be addressed by ensuring potential impacts to significant fauna from the Project are avoided to the maximum extent practicable by:

- Identifying the risks and potential impacts from the Project on significant fauna species.

- Outlining management provisions for terrestrial fauna, to avoid and minimise potential impacts to significant fauna populations.
- Preparing and implementing monitoring programs for populations recorded within the Development Envelope; and
- Proposing corrective and response actions if triggers and thresholds are exceeded to avoid impact to significant fauna populations.

1.4 RATIONALE AND APPROACH

The SFMP focuses on outcome-based management provisions including monitoring and evaluating success of management actions with respect to significant fauna populations within the Project Area, driven by triggers and thresholds. Assessment of the pathways over which impacts may occur provides the rationale for choice of provisions and choice of appropriate indicators to measure against the environmental outcome and/or objective.

This SFMP is subject to approval by the EPA and Department of Climate Change, Energy, the Environment and Water (DCCEEW) and will subsequently be implemented.

1.5 LEGISLATION, POLICY AND GUIDANCE

This SFMP has been written in accordance with Western Australian (WA) and Commonwealth policies and guidance, including:

- Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans; (EPA 2021b).
- Environmental Impact Assessment (Divisions 1 and 2) Procedures Manual (EPA 2021a).
- Environmental Management Plan Guidelines (Commonwealth of Australia 2014).
- Outcomes-based conditions policy (DoE 2016b).
- Outcomes-based conditions guidance (DoE 2016a).
- National Light Pollution Guidelines for Wildlife (DCCEEW 2023a).
- Biodiversity Conservation Act 2016 (WA).
- Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth).

The following management plans and strategies are also relevant to the SFMP, specific to the Project and include:

- Flora and Vegetation Management Plan (FVMP).

State and Commonwealth plans and management prescriptions that are relevant to the terrestrial fauna include:

- Environmental Factor Guideline – Terrestrial Fauna (EPA 2016);
- Commonwealth Listing Advice on Northern Quoll (Dasyurus hallucatus) (Threatened Species Scientific Committee 2005).
- National Recovery Plan for the Northern Quoll Dasyurus hallucatus (Hill and Ward 2010).
- EPBC Act referral guideline for the endangered Northern Quoll Dasyurus hallucatus (DoE 2016c).
- Conservation Advice Macroderma gigas Ghost Bat (TSSC 2016).
- A review of Ghost Bat ecology, threats and survey requirements (Bat Call WA 2021a).
- Conservation Advice Rhinonicteris aurantia (Pilbara form) Pilbara Leaf-nosed Bat (TSSC 2016).
- A review of Pilbara Leaf-nosed Bat ecology, threats and survey requirements (Bat Call WA 2021c).

- Approved Conservation Advice for Liasis olivaceus barroni (Olive Python – Pilbara subspecies) (TSSC 2008).
- Conservation Advice Falco hypoleucos Grey Falcon (Threatened Species Scientific Committee 2020).
- Referral guideline for 14 birds listed as migratory species under the EPBC Act (Department of the Environment 2015).
- Matters of National Environmental Significance. Significant impact guidelines 1.1 - Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth of Australia 2013).
- Survey Guidelines for Australia's Threatened Birds (DEWHA 2010).
- Survey Guidelines for Australia's Threatened Reptiles (DSEWPaC 2011b).
- Survey Guidelines for Australia's Threatened Mammals (DSEWPaC 2011a).
- Threat Abatement Plan for Competition and Land Degradation by Feral Goats (DEWHA 2008a).
- Threat Abatement Plan for Competition and Land Degradation by Feral Rabbits (DEE 2016).
- Threat Abatement Plan for Predation by Feral Cats (DEWHA 2008b).
- Threat Abatement Plan for Predation by the European Red Fox (DEWHA 2008c).

2. TERRESTRIAL FAUNA

2.1 SURVEY AND STUDY FINDINGS

The rationale for the proposed management approach in this SFMP is supported by desktop, detailed and targeted fauna surveys that have been completed over the Lamb Creek Project area since 2012 (Rapallo 2012;2021;2022a;b; Western Wildlife 2020). The findings of these surveys are summarised in the following sections and have been used to inform the impact assessment within the RSD and EPBC Referral, and to develop mitigation measures detailed in this SFMP (**Table 2**). Surveys and studies undertaken include:

- Level 2 Fauna Survey and Targeted Northern Quoll Survey of the Lamb Creek for Process Minerals International Pty Ltd (Rapallo 2012).
- Lamb Creek and Wedge Project: Vertebrate Fauna Desktop Assessment March (Western Wildlife 2020).
- Baseline Short-range Endemic Invertebrate Survey of the Lamb Creek Iron Ore Project (Rapallo 2022a).
- Detailed Vertebrate Fauna Survey of the Lamb Creek Project (Rapallo 2022b);
- Targeted Ghost Bat Survey for the Lamb Creek Iron Ore Project (Phoenix Environmental Sciences 2023).
- Significance Assessment regarding Ghost bat Prescence at Lamb Creek (Bat Call WA 2023b).
- Ghost Bat Cave Closure at Lamb Creek (Bat Call WA 2023a).

2.2 FAUNA HABITATS

A total of 10 broad habitat types (excluding cleared areas) have been identified by Rapallo (2022b) in the Terrestrial Fauna Survey Area, and are described in detail in Section 4.6 of the EPBC Preliminary Documentation, and includes:

- gorge, gully, and rocky breakaway;
- tussock grassland plain;
- hill crests and hill slopes;
- hummock grassland;
- stony plains;
- rocky ridge and gorge;
- drainage line (minor and medium);
- rocky hills and plateaus;
- Mulga / *Corymbia* spp. plain; and
- Mulga plain.

Fauna habitats of value for significant species within the scope of this SFMP are described in **Table 3** below and shown in **Figure 2.**

Table 2: Summary of Terrestrial Vertebrate Fauna Surveys Conducted for the Project

Survey (Reference)	Study Type / Dates	Proximity to Project Area	Survey Effort	Key Findings	
				Fauna Assemblage	Significant Fauna
Level 2 Fauna Survey and Targeted Northern Quoll Survey of the Lamb Creek for Process Minerals International Pty Ltd (Rapallo 2012);	Scope Level 2 fauna survey of the Terrestrial Fauna Survey Area and adjacent areas of similar habitat. Targeted Northern Quoll survey of the Terrestrial Fauna Survey Area. Timing 19 – 20 March 2012 (reconnaissance survey). 26 March – 12 April 2012 (field surveys).	Location Study Area. Survey Area Not stated.	Desktop assessment Database searches (max 50 km buffer). Review of relevant reports. Field survey Reconnaissance survey (2 days; 10 motion cameras for two weeks). Vertebrate fauna trapping (12 Pitfall traps for 852 nights; 20 Elliot traps for 1420 nights; ten funnel traps for 710 nights). Bird surveys (two-hectare bird surveys each day). Bat surveys (two ultrasonic recorders, and Harp Traps deployed each night) Spotlighting (30-minute surveys in each habitat type). Active searching and habitat assessments (effort not stated). Remote sensing cameras (Ten motion detecting cameras at seven sites for two weeks and at an additional seven sites for six days). Opportunistic records SRE surveys (14 sites were foraged for SRE taxa and leaf litter samples collected). Targeted Northern Quoll survey (six sites of ten cage traps for five nights).	152 taxa including: 22 mammals taxa (including seven species of bats). 58 reptiles taxa. 76 birds taxa.	Fork-tailed Swift (MI, MI).
Lamb Creek and Wedge Project: Vertebrate Fauna Desktop Assessment March	Scope Desktop assessment including database searches and a review of previous fauna surveys in the region.	Location Study Area. Survey Area 3,110 ha.	Desktop assessment Database searches (within 35 km of Proposed Action Area). Review of relevant reports.	296 taxa including: 36 native mammal taxa. Nine introduced mammal taxa. 112 reptile taxa. Nine frog taxa. 130 bird taxa.	Pilbara Olive Python (VU, VU) Grey Falcon (BC Act, VU) Night Parrot (BC Act, CR; EPBC Act, EN), Northern Quoll (EN, EN)

(Western Wildlife 2020)					Bilby (VU, VU) Pilbara Leaf-nose Bat (VU, VU) Ghost Bat (VU, VU)
Baseline Short-range Endemic Invertebrate Survey of the Lamb Creek Iron Ore Project (Rapallo 2022a)	Scope Desktop assessment including invertebrate database searches and review of relevant reports undertaken. Invertebrate field survey. Timing 16 – 25 February 2021.	Location Study Area. Survey Area 1,645 ha.	Desktop assessment Database searches. Review of relevant reports. Field survey (51 sites) Habitat assessment. Spider/scorpion burrow searching. Foraging.	Desktop assessment 13 potential SRE invertebrate taxa within survey area. Field survey 25 potential SRE invertebrate taxa within survey area.	Ten undescribed or previously unsequenced potential SRE taxa.
Detailed Vertebrate Fauna Survey of the Lamb Creek Project (Rapallo 2022b)	Scope Desktop assessment including database searches and review of relevant reports undertaken. Refine 2012 fauna habitat mapping and extend fauna habitat mapping into areas not previously mapped within the Terrestrial Fauna Survey Area. Level 2 fauna survey of Terrestrial Fauna Survey Area. Timing 16 – 28 April 2020 (vertebrate fauna survey). 17 – 23 February 2021 (supplementary field work).	Location Study Area. Survey Area 1,645 ha.	Desktop assessment Five database searches (max 50 km buffer). Review of relevant reports. Field survey Systematic trapping (10 sites - 840 Pitfall trap nights; 1400 Elliot trap nights; 840 funnel trap nights). Bird surveys (500 minutes). Acoustic recording for bats (33 detector nights). Acoustic recording for night parrot (8 detector nights). Active searching (foraging and leaf litter) (2310 minutes). Opportunistic observations. Camera trapping (279 nights at transects, 73 nights at trap sites).	Desktop assessment 301 vertebrate taxa including: 157 bird taxa. 46 mammal taxa. 91 reptile taxa. 7 amphibian taxa. Field survey 128 vertebrate taxa including: 63 bird taxa. 20 mammal taxa. 44 reptile taxa. One amphibian taxa.	Pilbara Olive Python (VU, VU) Northern Quoll (EN, EN) Ghost Bat (VU, VU) Western Pebble-mound Mouse (BC Act, P4) Fork-tailed Swift (MI, MI)

Targeted Ghost Bat Survey for the Lamb Creek Iron Ore Project (Phoenix Environmental Sciences 2023)	Scope Targeted Ghost Bat survey, comprising searches for roost sites, ultrasonic recordings and scat collection and analysis. Timing 12 - 14 September 2022. 18 October 2022.	Location Study Area. Survey Area 4,397 ha.	Desktop assessment Protected Matters Search Tool DCCEEW (2023) (40 km buffer). DBCA Threatened and Priority Fauna Database (2021) (40 km buffer). Atlas of Living Australia (Atlas of Living Australia 2023) (40 km buffer). Review of relevant reports. Field Survey Habitat assessment. Habitat/cave searches (Five caves). Bat echolocation recordings. Scat collection and analysis. Cave status assessment.	Desktop assessment 113 Ghost Bat records including: Three within the survey area; and 110 in wider search extent Field survey Seven bat species including: Ghost Bat (Macroderma gigas). Greater Northern Free-tailed Bat (Chaerephon jobensis). Common Sheathtailed Bat (Taphozous georgianus). Hill's Sheath-tailed Bat (Taphozous hilli). Gould's Wattled Bat (Chalinolobus gouldii). Little Broad-nosed Bat (Scotorepens greyii). Finlayson's Cave Bat (Vespadelus finlaysoni).	Ghost Bat (VU, VU)

Table 3: Vertebrate Fauna Habitat Types in the Study Area and Indicative Footprint, by Value

Habitat Type (Rapallo 2022b)	Description	Value to Significant Fauna	Extent within the Survey Area - ha	Area within Indicative Footprint - ha (% within survey area)
Gorge, gully, and rocky breakaway	Wide rocky gullies and gorges that bisect the hillcrest / hillslopes of the higher elevation areas containing caves, deep cracks, and crevices. Breakaways occur at the rugged edges of hillslopes. Spinifex hummock grassland with mixed shrubland patches or occasional *Ficus* spp. occurring in shaded locations or occasional *Eucalyptus leucophloia*.	High Value: • Potential foraging and dispersal habitat for Pilbara Olive Python, Northern Quoll, Ghost Bat and Peregrine Falcon. • Potential breeding habitat for Pilbara Olive Python, Northern Quoll and Peregrine Falcon. • Potential shelter habitat for Pilbara Olive Python and Northern Quoll. • Potential habitat for Pilbara Barking Gecko (*Underwoodisaurus seorsus*) and Gane's Blind Snake (*Anilios ganei*).	54.64	0.00 (0%)
Hillcrests / hillslope	Slopes and hill crests of higher elevation areas. Spinifex hummock grassland dominated with scattered *Eucalyptus leucophloia* trees and mallee, and *Acacia* spp. and *Grevillea* spp. shrubs on rocky, red skeletal soils (loams to clay/loam).	Moderate Value: • Possible foraging and dispersal habitat for Ghost Bat, Western Pebble-mound Mouse and Northern Quoll. • Possible breeding habitat for Western Pebble-mound Mouse.	318.48	50.42 (15.83%)
Mulga / *Corymbia* spp. plain	Open Mulga shrubland patches over spinifex hummock or tussock grassland on loam to sandy clay loam occurring in areas of sheet flow drainage. The Mulga patches are surrounded by run-off zones of stonier plain with open spinifex / tussock grassland under very open Mulga / *Corymbia deserticola* shrubland.	Moderate Value: • Possible foraging and dispersal habitat for Ghost Bat and Grey Falcon. • Possible habitat for Gane's Blind Snake.	290.88	180.78 (62.15%)
Minor drainage	Smaller narrow drainage channels and shallow gullies that bisect the stony plain habitat and hill slopes, forming flow zones on the valley floor. Mixed open shrubland, to shrubland often over tussock grass and herbs with occasional fringing trees (scattered *Eucalyptus leucophloia*, *Corymbia* spp. or *Eucalyptus gamophylla*).	Moderate Value: • Possible foraging and dispersal habitat for Ghost Bat, Grey Falcon, Peregrine Falcon, Pilbara Olive Python and Northern Quoll.	210.36	75.23 (35.76%)

Habitat Type (Rapallo 2022b)	Description	Value to Significant Fauna	Extent within the Survey Area - ha	Area within Indicative Footprint - ha (% within survey area)
Tussock grassland plain	Tussock grass (*Aristida inaequiglumis*, *Aristida contorta*, *Themeda triandra*) dominated, largely undefined drainage plain. Contains occasional open Mulga woodland stands or scattered Mulga individuals on brown sandy clay loam to loams. Contains patches of spinifex.	Moderate Value: • Possible foraging and dispersal habitat for Ghost Bat, Grey Falcon and Peregrine Falcon. • Potential habitat for Gane's Blind Snake.	137.33	6.08 (4.43%)
Medium drainage	Wide loamy drainage channels to undefined drainage (gravelly) containing occasional emergent *Corymbia hamersleyana* over patches of low mixed shrubs over Buffel Grass and tussock grass dominated understory on low relief. Contains very occasional Mulga stands in loamier soils.	Moderate Value: • Possible foraging and dispersal habitat for Ghost Bat, Grey Falcon, Pilbara Olive Python, Northern Quoll and Peregrine Falcon. • Possible breeding and nesting habitat for Grey Falcon. • Potential habitat for Gane's Blind Snake.	112.97	43.41 (38.43%)
Stony plain	Plains and lower slopes of spinifex hummock grasslands (or in small patches, tussock grass) on red sandy clay loam to loam soil. Typically, with a mantle of gravel (less so on the valley floor adjacent to drainage, where soils are loamier). Little to no overstory aside from scattered trees or patches of mixed shrubs often regenerating from fire. Generally, *Eucalyptus leucophloia* occurs on the slopes and *Eucalyptus gamophylla* on lower slopes, with *Corymbia hamersleyana* typically associated with drainage.	Low Value: • Possible foraging and dispersal habitat for Ghost Bat, Grey Falcon, Western Pebble-mound Mouse and Pilbara Olive Python. • Possible breeding and shelter habitat for Western Pebble-mound Mouse.	517.07	266.35 (51.51%)
Bitumen Road	N/A	N/A	0.83	0.32 (38.55%)
Unmapped*	N/A	N/A	29.94	24.28 (81.10%)
Total			1642.56	646.87 (39.38%)

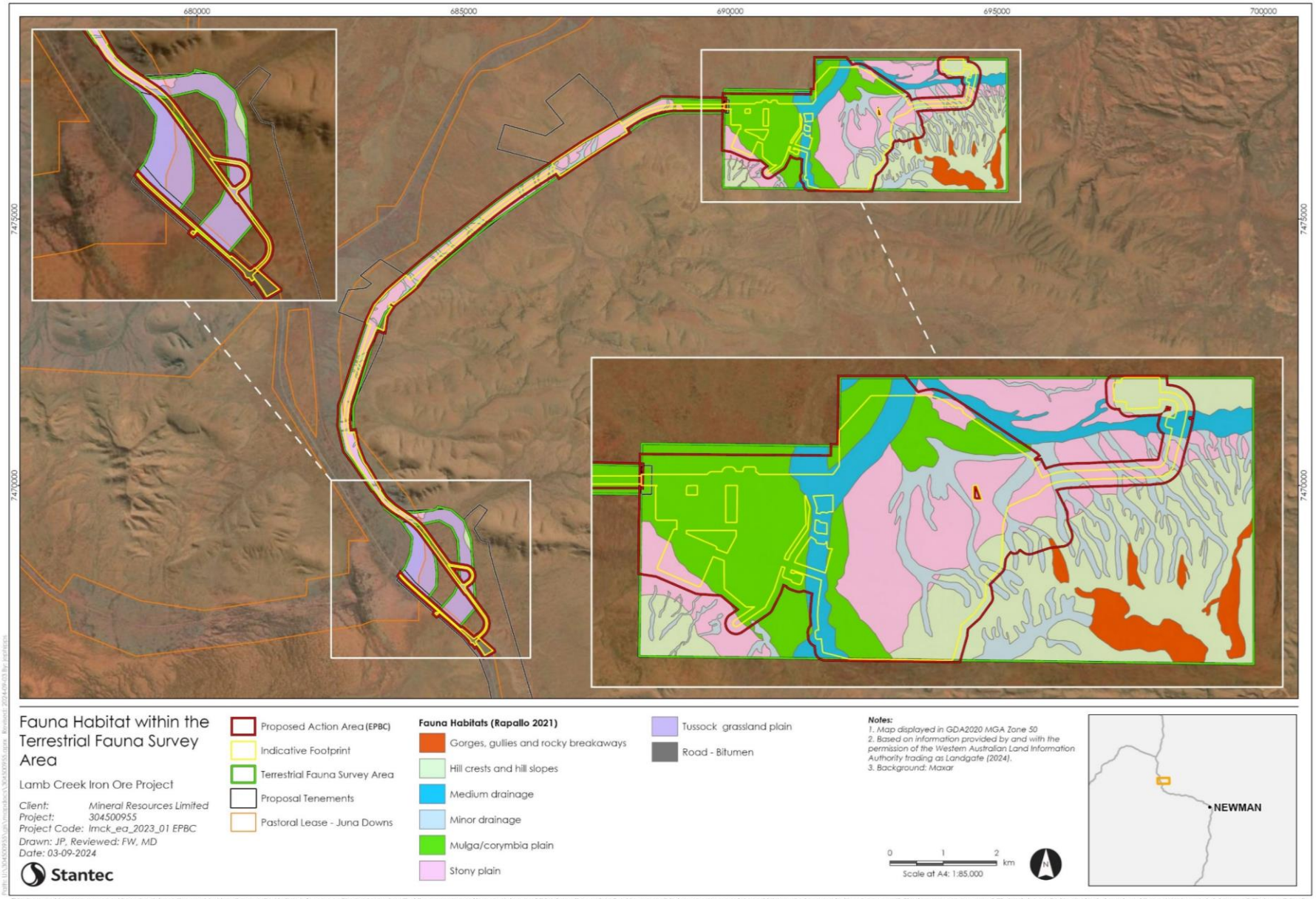

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Figure 2: Fauna Habitat Within the Terrestrial Fauna Survey Area

2.3 FAUNA ASSEMBLAGE

2.3.1 Desktop Study

Desktop assessments indicate a predicted fauna assemblage of up to 301 species of terrestrial vertebrate fauna recorded within 50 kilometres of the survey area (Rapallo 2022b). These included 157 species of birds, 46 mammals, 91 reptiles and 7 amphibians. The Rapallo 2022b desktop study identified 29 taxa of conservation significant fauna, of which 12 were assessed as possible, likely or confirmed to occur within 50 km of the Survey Area (**Table 4:** Desktop Results for Significant Fauna Species Either Confirmed or Considered Possible or Likely to Occur Within 50 Km of the Survey Area.). The other 17 taxa of conservation significant fauna were considered unlikely or highly unlikely to occur in the Study Area due to the absence of suitable habitat and are therefore not addressed further in this SFMP.

Table 4: Desktop Results for Significant Fauna Species Either Confirmed or Considered Possible or Likely to Occur Within 50 Km of the Survey Area.

Common Name	Scientific Name	Likelihood
Fork-tailed Swift	Apus pacificus	Confirmed
Peregrine Falcon	Falco peregrinus	Likely
Night Parrot	Pezoporus occidentalis	Possible
Grey Falcon	Falco hypoleucos	Possible
Letter-winged Kite	Elanus scriptus	Possible
Ghost Bat	Macroderma gigas	Confirmed
Short-tailed Mouse	Leggadina lakedownensis	Possible
Northern Quoll	Dasyurus hallucatus	Confirmed
Western Pebble-mound Mouse	Pseudomys chapmani	Confirmed
Pilbara Olive Python	Liasis olivaceus barroni	Confirmed
Pilbara Barking Gecko	Underwoodisaurus seorsus	Likely
Gane's Blind Snake	Anilios ganei	Likely

2.3.2 Introduced Fauna Species

Rapallo (2022b) identified 10 introduced (feral) fauna as potentially occurring within the Terrestrial Fauna Survey Area. Of these, four were recorded within the Terrestrial Fauna Survey Area during fauna surveys (Rapallo 2012;2022b;Table 4: Desktop Results for Significant Fauna Species Either Confirmed or Considered Possible or Likely to Occur Within 50 Km of the Survey Area.**Table 5:** Desktop Results for Introduced (Feral) Fauna Recorded Within 50 Km of the Survey Area). Introduced fauna species such as foxes and cats are declared pests which present key threats to the native mammals likely to occur within the Development Envelope, such as the Northern Quoll (Department of the Environment 2016).

Table 5: Desktop Results for Introduced (Feral) Fauna Recorded Within 50 Km of the Survey Area

Common Name	Scientific Name	Likelihood
Rock Dove	*Columba livia	Unlikely
European Cattle	*Bos taurus	Confirmed
Dromedary, Camel	*Camelus dromedarius	Confirmed
Dog	*Canis familiaris familiaris	Confirmed
Red Fox	*Vulpes vulpes	Likely
Donkey	*Equus asinus	Unlikely
Horse	*Equus caballus	Unlikely
Cat	*Felis catus	Confirmed
Rabbit	*Oryctolagus cuniculus	Likely
House Mouse	*Mus musculus	Confirmed

2.3.3 Significant Fauna Species

Of the 29 taxa of conservation significant fauna identified by the desktop study (Rapallo 2022b), 10 fauna species of significance were either confirmed from field surveys or considered likely to occur within the Development Envelope based on desktop and habitat assessments undertaken during field surveys (Rapallo 2012;2021; Western Wildlife 2020). These are discussed below. For the Night Parrot, given the lack of suitable habitat, recent fire activity and the absence of any detections within the Study Area, the species is considered unlikely to occur and is therefore not addressed within the SFMP. The Letter-winded Kite is also not addressed as no species were recorded and the Development Envelope is outside of the species known distribution.

2.3.3.1 Significant Fauna Recorded in the Development Envelope

Two fauna species of significance were confirmed within the Development Envelope based on the detailed in-field fauna surveys (Rapallo 2012;2022b). These species are:

- Western Pebble-mound Mouse (Pseudomys chapmani) (P4 under BC Act).
- Fork-tailed Swift (Apus pacificus) (MI, MI).

The Fork-tailed Swift occurs within the Project Area but is almost entirely aerial and will not be impacted by the Project. Therefore, it is not addressed within the SFMP.

2.3.3.2 Significant Fauna Likely to Occur in the Development Envelope

Eight fauna species of significance are considered likely to occur within the Development Envelope, based on desktop assessments and habitat assessments undertaken during field surveys (Rapallo 2012;2021; Western Wildlife 2020), these species are:

- Ghost Bat (Macroderma gigas) (En, En);
- Pilbara Leaf-nosed Bat (Rhinonicteris aurantia) (Vu, Vu);
- Northern Quoll (Dasyurus hallucatus) (En, En);
- Pilbara Olive Python (Liasis olivaceus barroni) (Vu, Vu);

- Gane's Blind Snake (Anilios ganei) (P1 under the BC Act);
- Pilbara Barking Gecko (Underwoodisaurus seorsus) (P2 under the BC Act);
- Grey Falcon (Falco hypoleucos) (Vu, Vu); and
- Peregrine Falcon (Falco peregrinus) (Other specially protected species under the BC Act).

The conservation significant species confirmed or considered likely to occur within the Development Envelope are described in detail in the RSD and are the focus of this SFMP. The six species classed as MNES are discussed in the EPBC Preliminary Documentation (Northern Quoll, Ghost Bat, Pilbara Leaf-nosed Bat, Pilbara Olive Python, Grey Falcon and Fork-tailed Swift). A summary of environmental values and outcomes relevant to these nine species are summarised in **Table 6**. Significant fauna records are shown in Figure 3: Significant Fauna Recorded from Lamb Creek**Figure 3.**

Table 6: Environment Values and Outcomes

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
Ghost Bat (*Macroderma gigas*) - VU / VU	**Description** The Ghost Bat is a large, cave-dwelling, microbat species. **Distribution** The species was once widely distributed across Australia, but is now largely restricted to northern Australia, including parts of the Pilbara and Kimberley regions of WA. **Ecology** Its preferred habitat is within arid spinifex hillsides, black soil grasslands, monsoon forest, open savannah woodland, tall open forest, deciduous vine forest, tropical rainforest, sandstone caves, boulder piles, limestone caves and abandoned mines. The Ghost Bat can forage over large areas up to 12 km from their diurnal roost with a preference for productive plain areas with thin mature woodland over patchy or clumped tussock or hummock grass (*Triodia* spp.) on sandy or stony	Threatening processes: • Habitat loss and degradation (McKenzie and Hall 2008; TSSC 2016). • altered hydrological regimes. • exposure to pollutants. • barbed wire fences. • human visitation / disturbance.	Potential Impacts to Ghost Bats as a result of this Project include: • loss of potential foraging and roost habitat ('rocky ridge' and 'gorge') due to clearing. • loss or abandonment of potential foraging and roost habitat due to blasting. • Direct mortality of individuals if present within the Development Envelope.	• No Ghost Bat caves have been located within the Development Envelope. • Ghost Bats have been recorded within the Terrestrial Fauna Survey Area as have Ghost Bat roosting caves. • No night, diurnal or maternity roosts have been found within the Development Envelope. • Two Ghost Bat roost caves (one Category 2 and one Category 3) are present outside (approximately 750 m to the south) of the Development Envelope. • A cluster of caves occurs in the southern extent of the Project Area close to the proposed haul road near its intersection with the Great Northern Highway intersection (Category 2, Category 3). • The Project will result in clearing of up to 622.3 ha of foraging habitat comprising the following broad fauna habitat types	• The loss of 622.3 ha of foraging habitat for the Ghost Bat as a result of the Project may be considered to be a **significant residual impact within** the Hamersley Bioregion (Environmental Protection Authority 2014). However, the Proponent considers that this impact can be managed via the Native Vegetation Clearing Permit process in accordance with Part V s 51I(2)(b) of the EP Act and in alignment with the native vegetation clearing principles in accordance with Schedule 5 cl 1 of the EP Act. • The proposed removal of 622.3 ha of supporting habitat is considered **likely to have a significant impact** on the Ghost Bat when assessed

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	ground (Bat Call WA 2021a). **Cultural Importance** Cultural importance of this species to Traditional Owners, as well as cultural appropriateness of control/mitigation methods was raised at the June 2024 on Country engagement with Banjima and no specific concerns were raised. Banjima considers all fauna to be important.			occurring within the Indicative Footprint. These comprise the following habitats, and the percentage of the mapped extent of this habitat type mapped within the broader Terrestrial Fauna Survey Area: • hill crests and hill slopes (50.42 ha, 18.83%). • medium drainage (43.41 ha, 38.43%). • minor drainage (75.23 ha, 35.76%). • Mulga/*Corymbia* spp. plain (180.77 ha, 18.83%). • stony plain (266.35 ha, 51.51%). • tussock grassland plain (6.08 ha, 4.43%). • The Project will not result in direct disturbance to or the loss of critical Ghost Bat caves. • Given the distance from known caves to proposed operation and blasting areas, it is unlikely that blasting will cause any	against the DCCEEW criteria and is proposed to be offset as it has the potential to: • adversely affect habitat critical to the survival of a species.

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
				physical damage to known Ghost Bat roost caves. It is also considered unlikely that the structural integrity of caves, or roosting site viability, will be adversely impacted by blasting or other operational elements such as vibration from the Project. • Cave 1 will be temporarily closed during construction and operation to prevent impacts to Ghost Bats while the mine is operational (Bat Call WA 2023a).	
Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*) – VU / VU	**Description** The Pilbara Leaf-nosed Bat is of moderate size, having short fur, relatively small, pointed ears and a fleshy diamond-shaped noseleaf surrounding the nostrils. **Distribution** The Pilbara Leaf-nosed Bat occurs throughout the Pilbara and upper Gascoyne regions of WA, with the Pilbara population considered to be a single interbreeding	Threatening processes: • Habitat loss and degradation. • altered hydrological regimes. • exposure to pollutants. • barbed wire fences.	Potential impacts to Pilbara Leaf-nosed bats as a result of this Project include: • loss of potential foraging and roost habitat ('rocky ridge' and 'gorge') due to clearing. • loss or abandonment of potential foraging and	• This species has not been recorded in the Development Envelope. • No Critical habitat (as defined by (DBCA et al. 2023)) identified within the Development Envelope • No caves or permanent / semi-permanent surface water pools were identified within the Development Envelope; therefore, this species is likely to	No significant residual impact expected to occur to the Pilbara Leaf- nosed Bat: • No Critical habitat (as defined by (DBCA et al. 2023) identified within the Development Envelope • The proposed removal of 622.3 ha of potential foraging habitat (within Development Envelope) for Pilbara Leaf- nosed Bat species

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	population comprising multiple colonies (Threatened Species Scientific Committee 2016). The Pilbara Leaf-nosed Bat population of the Pilbara and Gascoyne regions is considered an important population as it comprises multiple colonies that form one interbreeding population (Threatened Species Scientific Committee 2016). **Ecology** The species requires warm, humid daytime roost sites and forages in gorges along watercourses and over low spinifex-covered hills (Threatened Species Scientific Committee 2016). The breeding cycle for the Pilbara Leaf-nosed Bat occurs over a nine-month period with mating occurring in July, parturition occurring in late December or early January (following a prolonged gestation period), resulting in the young becoming independent between	• human visitation / disturbance.	roost habitat due to blasting. • direct mortality of individuals if present within the Development Envelope.	use the potential foraging habitat for the species within the Development Envelope as a foraging visitor intermittently, only.	is likely to be used as a foraging visitor intermittently, only.

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	February and March (Armstrong 2001b). Foraging in a variety of habitats including the characteristic Triodia hummock grasslands of the Pilbara, the Pilbara Leaf-nosed Bat favours the highly productive and structurally complex riparian zones where water is permanently available and insect biomass is sufficiently high (Armstrong 2001a; McKenzie and Bullen 2013). Critical habitat, as defined by (DBCA *et al.* 2023) , includes permanent diurnal (categories 1 and 2) roosts that are essential for the daily and long-term survival of the Pilbara Leaf-nosed Bat; semi-permanent diurnal (category 3) roosts that are essential for the long-term survival of the Pilbara Leaf-nosed Bat; and any permanent pools close to permanent diurnal roosts. **Cultural Importance** A June 2024 on-Country Social Surrounds				

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	engagement with the Banjima People included enquiries on the cultural importance of fauna species as well as cultural appropriateness of control/mitigation methods. No specific information or concerns were raised, other than stating that all fauna are considered important.				
Northern Quoll (*Dasyurus hallucatus*) – EN / EN	**Description** The Northern Quoll is a nocturnal marsupial and the smallest of the four Australian quoll species. **Distribution** It is currently moderately common within the Pilbara and is found scattered across the four subregions of the Pilbara. (Rapallo 2022b). **Ecology** The Northern Quoll favours rocky habitats (e.g., escarpments, mesas, gorges, breakaways, boulder fields and some waterways) for shelter and breeding, with foraging occurring in adjacent vegetation. Northern Quolls have	Threatening processes: • predation by invasive fauna (e.g., feral cats and foxes) (DCCEEW 2023b). • poisoning from cane toads. • loss of suitable habitat. • altered fire regimes.	Potential impacts to the Northern Quoll as a result of this Project include: • loss of potential foraging and dispersal habitat ('medium and minor drainage, and hillcrest/hillslope habitats) due to clearing. • direct mortality of individuals if present within the Development Envelope. Indirect impacts due to increased	• The Northern Quoll has not been recorded in the Development Envelope. • The Northern Quoll was recorded approximately 5 km south of the Development Envelope within the Terrestrial Fauna Survey Area during 2012 (Rapallo 2012) indicating that a low-density population may occur in the Development Envelope surrounds, or that the records to date can be attributed to individuals dispersing from nearby populations. No evidence of the species was found during the 2020 survey (Rapallo 2022c).	The removal of 42 ha of critical habitat and 125.6 ha of supporting habitat for Northern Quoll is considered **likely to have a significant impact,** when assessed against the DCCEEW criteria and is proposed to be offset as it has the potential to: • adversely affect habitat critical to the survival of a species.

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	short life spans, with males living for approximately one year and the oldest recorded female in the wild being three years of age. The species breed once each year exhibiting synchronous reproduction within each year at each site. **Cultural Importance** A June 2024 on-Country Social Surrounds engagement with the Banjima People included enquiries on the cultural importance of fauna species as well as cultural appropriateness of control/mitigation methods. No specific information or concerns were raised, other than stating that all fauna are considered important.		predation from feral animals.	• Based on the absence of records and minimal denning habitat (0.06 ha) present within the Development Envelope, it is unlikely that an important high-density population of Northern Quoll as defined by the DoE (2016c) occurs within the Development Envelope. However the Northern Quolls recorded within the Proposed Action Area are considered a low density important population based on the records occurring in habitat which is free from cane toads and is therefore considered important for the long-term survival of the Northern Quoll (Hill and Ward 2010). • No potential denning habitat for the Northern Quoll (gorges, gullies, rocky breakaways) is proposed for clearing. Clearing of up to 43.41 ha of suitable foraging and dispersal habitat (medium drainage lines)	

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
				representing 38% of the mapped extent of this habitat for the species within the broader Terrestrial Fauna Survey Area has the potential to impact this species.	
Pilbara Olive Python (*Liasis olivaceus barroni*) – VU / VU	**Description** The Pilbara Olive Python is a dull olive-brown or rich brown python with a white/cream belly that can grow up to 4 m in length. **Distribution** The subspecies is restricted to ranges in the Pilbara and is known from relatively few localities. **Ecology** The species' preferred habitat is often associated with open water, such as swamps and surface water pools. Typical habitat is found along larger waterways in environments with rocky hills, escarpments, and plains dominated by dense vegetation such grassy mounds of *Triodia*. **Cultural Importance** A June 2024 on-Country Social Surrounds	Threatening processes: • predation by invasive fauna (e.g., feral cats and foxes). • competition for food sources with invasive fauna. • habitat destruction as a result of resource project development (TSSC 2008).	Threats to the Pilbara Olive Python as a result of this Project include: • loss of potential dispersal habitat ('medium drainage system') due to clearing. • direct mortality of individuals if present within the development envelope.	• This species has not been recorded in the Development Envelope but is considered likely to occur in the Development Envelope at least as a foraging visitor. • No clearing of potential denning habitat for the Pilbara Olive Python (gorges, gullies, rocky breakaways) is proposed. • The Project will result in the clearing of up to 118.6 ha of suitable foraging and dispersal habitat (medium and minor drainage lines) representing 36.69% of the mapped extent of this habitat for the species within the broader Terrestrial Fauna Survey Area.	The proposed clearing of 118.6 ha of supporting habitat for Pilbara Olive Python is **likely to have a significant impact,** when assessed against the DCCEEW criteria and is proposed to be offset as it has the potential to adversely affect habitat critical to the survival of a species.

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	engagement with the Banjima People included enquiries on the cultural importance of fauna species as well as cultural appropriateness of control/mitigation methods. No specific information or concerns were raised, other than stating that all fauna are considered important.				
Western Pebble-mound Mouse (*Pseudomys chapmani*) – P4	**Description** The Western Pebble-mound Mouse is a small, burrowing and mound building rodent. **Distribution** The species is currently restricted to the non-coastal central, eastern and southern parts of the Pilbara bioregion. **Ecology** The Western Pebble-mound Mouse lives in pebbly soils in arid tussock grassland and Acacia woodland. The species is associated with eroding sands at natural features that expose pebbles. **Cultural Importance**	Threatening processes: • loss of suitable habitat; and • predation by invasive fauna (e.g., feral cats and foxes).	Potential impacts to the Western Pebble-mound Mouse as a result of this Project include: • habitat loss due to clearing; and • direct mortality of individuals.	• This species is commonly recorded within suitable habitat throughout the Hamersley and Chichester subregions of the Pilbara bioregion. • A total of 29 Western Pebble-mound Mouse mounds have been identified within the EPBC Development Envelope and 19 of these are also within the Indicative Footprint. This represents 47.5% of the total number of mounds of this species that have been found during surveys of the area (40 mounds) most of which were deemed to be active (Rapallo 2022c).	**No significant residual impacts** to Western Pebble-mound Mouse due to habitat clearing, fragmentation or direct mortality of individuals are expected.

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	The Western Pebble-mound Mouse has been reported to be of special cultural importance to the Banjima People. During the June 2024 on-Country Social Surrounds engagement presented information showing the mouse was relatively common in the area and the Project design footprint had avoided known mounds as much as practicable. Banjima did not have any additional information or further concerns to offer other than that all fauna ae considered important.			• There are numerous records of this species in the surrounding area (Rapallo 2022c). • Threats to the Western Pebble-mound Mouse as a result of this Project include habitat loss resulting from clearing, and direct mortality of individuals. • Stony plain habitat represents preferred habitat for the Western Pebble-mound Mouse; however, this habitat occurs extensively throughout the Hamersley subregion. • The Project will result in the loss of no more than 266.4 ha preferred habitat (stony plain) for this species comprising 51.5% of the mapped extent of this habitat type in the broader Terrestrial Fauna Survey Area.	
Gane's Blind Snake (*Anilios ganei*) – P1	**Description** The species grows to about 30 cm in length. The upper body is a deep	Threatening processes: • loss of suitable habitat.	Potential impacts to the Gane's Blind Snake as a result of this Project include:	• Gane's Blind Snake was not recorded in the Development Envelope during fauna surveys (Rapallo 2022c).	**No significant residual impacts** are expected to occur for this species and the Project is not expected to adversely affect the

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	grey-brown, the belly cream. **Distribution** The species is only known from a few locations and/or specimens. **Ecology** Potential habitat for this species may include the gorge, gully, breakaway, medium drainage, tussock grassland and Mulga / Corymbia spp. plain habitats. **Cultural Importance** A June 2024 on-Country Social Surrounds engagement with the Banjima People included enquiries on the cultural importance of fauna species as well as cultural appropriateness of control/mitigation methods. No specific information or concerns were raised, other than stating that all fauna are considered important.	• predation by invasive fauna (e.g., feral cats and foxes).	• habitat loss due to clearing. • direct mortality of individuals if present within the Development Envelope.	• Potentially suitable habitat for this species occurs within the Development Envelope, comprising gorge, gully, breakaway, medium drainage, tussock grassland and Mulga / Corymbia spp. plain habitats. • Suitable habitat for this species is widespread outside of the Development Envelope within the broader Terrestrial Fauna Survey Area.	conservation status of Gane's Blind Snake.
Pilbara Barking Gecko (*Underwoodisaurus seorsus*) – P2	**Description** The Pilbara Barking Gecko is a large carphodactylid gecko, with a large head, long slender limbs and digits.	Threatening processes: • loss of suitable habitat.	Potential impacts to the Pilbara Barking Gecko as a result of this Project include: • habitat loss due to clearing.	• The Pilbara Barking Gecko has not been recorded within the Development Envelope. • Potentially suitable habitat, such as gorge /	**No significant residual impacts** are expected to occur for this species and the Project is not expected to adversely affect the

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	Distribution The species is known from a few locations and/or specimens within the Hamersley Range area of the Pilbara bioregion. **Ecology** Its preferred habitat is in rocky areas and gullies. **Cultural Importance** A June 2024 on-Country Social Surrounds engagement with the Banjima People included enquiries on the cultural importance of fauna species as well as cultural appropriateness of control/mitigation methods. No specific information or concerns were raised, other than stating that all fauna are considered important.	• predation by invasive fauna (e.g., feral cats and foxes).	• direct mortality of individuals if present within the Development Envelope.	gully and breakaway habitats occur within the Development Envelope and surrounds. • Preferred habitat for this species occurs at higher elevation which would coincide with the location of the proposed pit; however, relatively limited clearing is required in this area of the Indicative Footprint, comprising 15.8% of the total hill crests and hill slopes habitats within the mapped extent in the Terrestrial Fauna Survey Area.	conservation status of the Pilbara Barking Gecko.
Grey Falcon (*Falco hypoleucos*) – VU / VU	**Description** The Grey Falcon is a compact, pale grey falcon with a heavy thick chest, long wings and dark wing tips. **Distribution** The species occurs in arid and semi-arid Australia, including the Murray-Darling Basin, Eyre Basin,	Threatening processes (TSSC 2020): • predation by invasive fauna (e.g., feral cats and foxes).	Potential impacts to the Grey Falcon as a result of this Project include: • habitat loss due to clearing. • direct mortality of individuals if present within the	• The Grey Falcon has not been recorded from the Development Envelope. • This species is considered is likely to occur in the Development Envelope occasionally while foraging (Rapallo 2022c). • Large areas of foraging habitat for this species	**No significant residual impacts** are expected to occur for this species and the Project is not expected to adversely affect the conservation status of the Grey Falcon.

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	central Australia and Western Australia. **Ecology** Its preferred habitat is usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast (Menkhorst *et al.* 2019). The Grey Falcon forages over timbered plains, including *Acacia* shrublands, also ranging out onto treeless plains. It nests in tall trees on watercourses (Threatened Species Scientific Committee 2020) and occasionally on man-made structures such as transmission line towers. **Cultural Importance** Further consultation is required to determine the cultural importance of this species to Traditional Owners, as well as cultural appropriateness of control/mitigation methods, if needed.	• loss of suitable habitat. • Increased temperatures in arid and semi-arid Australia (i.e., climate change).	Development Envelope.	occurs in the Development Envelope and surrounds including hills/ranges, stony plain, and lower slopes/hillslopes habitat. Preferred nesting habitat for this species occurs at higher elevation which would coincide with the location of the proposed pit; however, relatively limited clearing (50.4 ha) is required in this area of the Indicative Footprint, 15.8% of the total hill crests and hill slopes habitats within the mapped extent in the Terrestrial Fauna Survey Area.	
Peregrine Falcon (*Falco peregrinus*)	**Description**	Threatening processes:	Potential impacts to the Peregrine Falcon	• The Peregrine Falcon has not been recorded from	**No significant residual impacts** are expected to

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
Other specially protected species	A large falcon with a blue-grey back, barred white underparts, and a black head. Distribution The species is known to occur across Australia, but not common in any areas of its Australian range. **Ecology** The Peregrine Falcon is found in most habitats, from rainforest to arid habitats, including coastal and alpine regions. It prefers coastal and inland cliffs, or open woodlands near water. In arid areas, it is most often encountered along cliffs above rivers, ranges and wooded watercourses where it hunts birds (Johnstone and Storr 1998). This species typically nests on rocky ledges occurring on tall, vertical cliff faces between 25 m and 50 m high (Olsen and Olsen 1988). **Cultural Importance** Further consultation is required to determine the cultural importance of	• predation by invasive fauna (e.g., feral cats and foxes); • loss of suitable habitat; and • Increased temperatures in arid and semi-arid Australia (i.e., climate change).	as a result of this Project include: • habitat loss due to clearing; and • direct mortality of individuals if present within the Development Envelope.	the Development Envelope. • The Peregrine Falcon is considered uncommon in the Hamersley Range, nesting in cliff type habitat. • Peregrine Falcon forage over a wide area and would use most habitats within the Development Envelope while foraging. • Preferred nesting habitat for this species occurs at higher elevation which would coincide with the location of the proposed pit; however, relatively limited clearing (50.4 ha) is required in this area of the Indicative Footprint, 15.8% of the total hill crests and hill slopes habitats within the mapped extent in the Terrestrial Fauna Survey Area.	occur for this species and the Project is not expected to adversely affect the conservation status of the Peregrine Falcon.

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	this species to Traditional Owners, as well as cultural appropriateness of control/mitigation methods, if needed.				

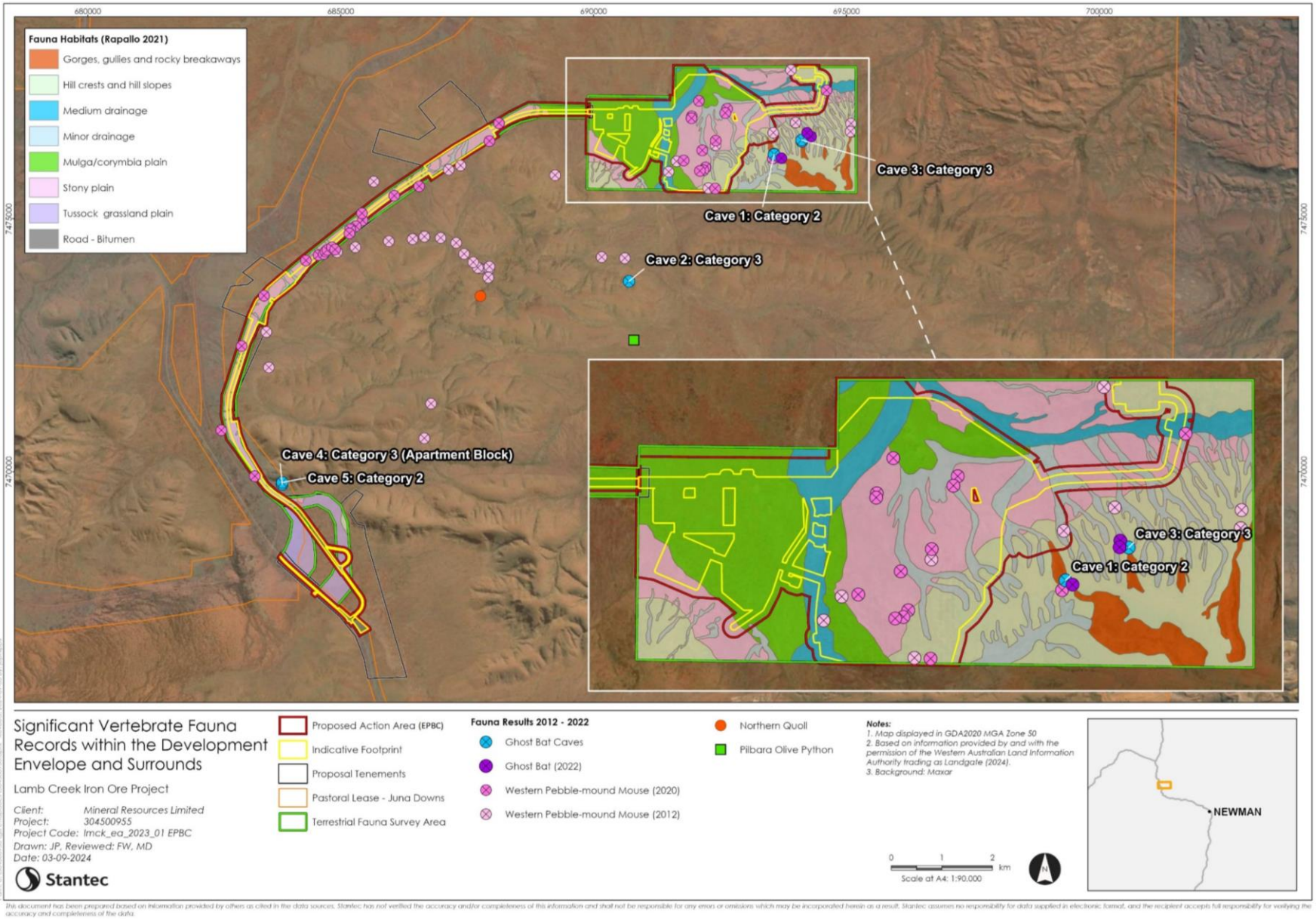

Figure 3: Significant Fauna Recorded from Lamb Creek

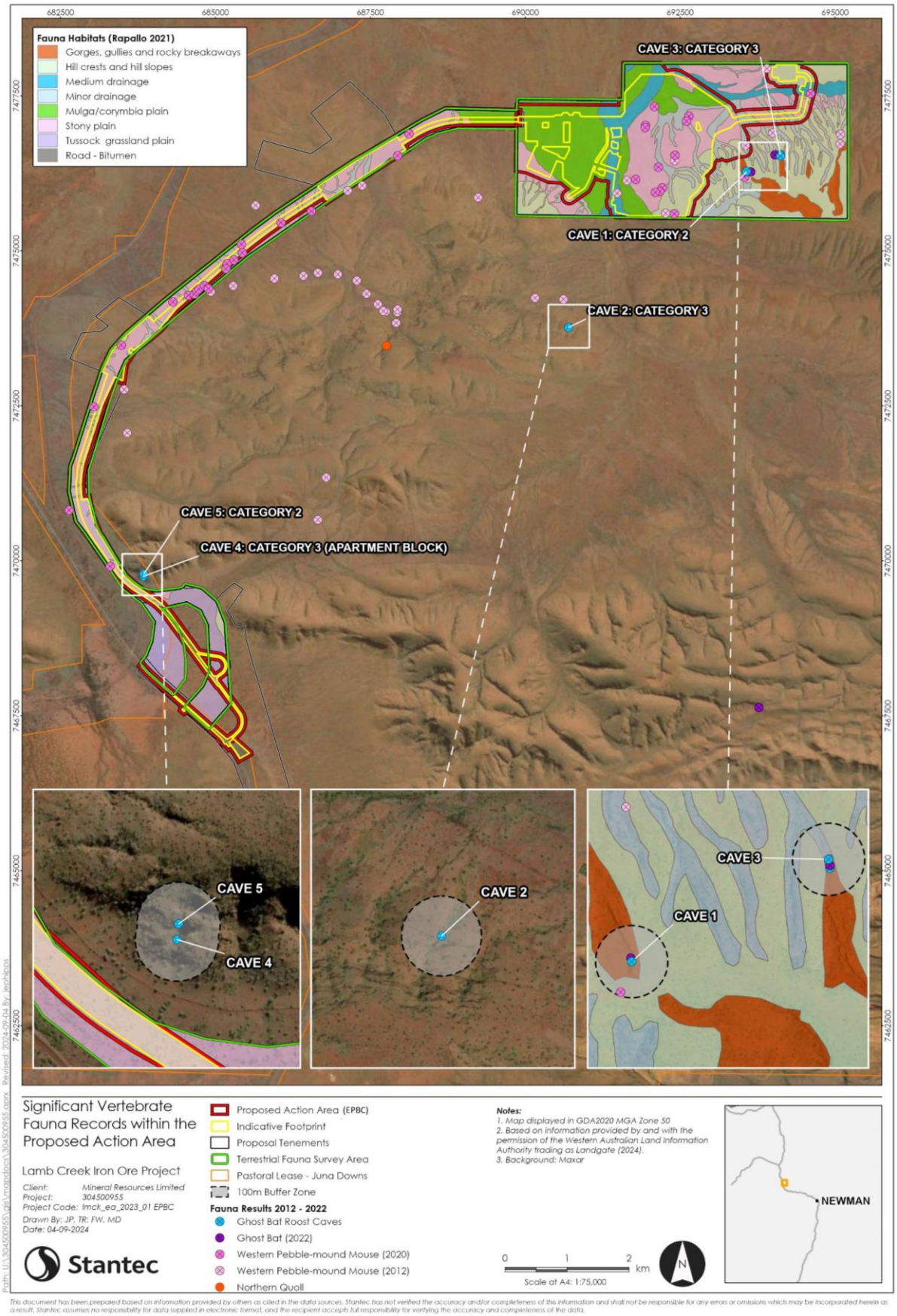

Figure 4: Ghost bat category 2 and category 3 roost caves and associated exclusion zones

2.4 KEY ASSUMPTIONS AND UNCERTAINTIES

The key assumptions and uncertainties that apply to terrestrial fauna are summarised as follows:

- It is assumed that the fauna surveys that were undertaken accurately report the distribution and status of fauna of significance, and their preferred habitats, in the Terrestrial Fauna Survey Area.
- It is assumed that the likelihood and severity of predicted impacts to terrestrial fauna are described accurately.
- The majority of significant fauna species identified are highly mobile with notably large home ranges, such that point location records for individuals represent the usage of available foraging/breeding habitat (rather than fixed permanent locations of individuals).
- It is assumed that, by applying the EPA's mitigation hierarchy (avoid, minimise, rehabilitate, offset) throughout the life of the Project, the impacts of the Project on significant species will be minimised.
- The Terrestrial Fauna Survey Areas experienced fires in recent years prior to the 2020 terrestrial fauna surveys being undertaken, and the vegetation over most of the survey area was regenerating and relatively sparse compared to unburnt conditions. This is likely to have influenced the overall diversity and abundance of species; however, where possible, trap sites were positioned in areas of unburnt habitat within the burn mosaic. Therefore, results may be conservative with regard to the presence and distribution of significant species and their habitat.
- The Project is located in the Pilbara bioregion where the presence, activity and detectability of fauna is driven by climatic conditions, particularly rainfall events. Climatic factors are outside of the Proponent's control and may impact on the health and extent of populations of significant fauna.
- Natural seasonal and spatial fluctuations of populations of significant species make it more difficult to determine whether population changes are due to natural causes or can be attributed to the Project.

2.5 POTENTIAL PROJECT IMPACTS

The Project may directly and indirectly impact on terrestrial fauna and short-range endemic (SRE) invertebrate fauna, with the potential direct impact identified as:

- clearing of native vegetation resulting in habitat loss.
- fragmentation of fauna habitat.
- fauna injury or mortality as a result of ground disturbance, machinery, blasting, vehicle strikes and entrapment.

The potential indirect impacts have been identified as:

- fauna mortality as a result of a potential increase in the prevalence of introduced species and feral predators.
- noise, vibration and/or artificial light disrupting natural foraging and breeding behaviours.
- potential decline or change in the health/composition of fauna habitat arising from dust, weeds, fire regime or hydrological regime changes.'

An assessment of the potential impacts and risks to the MNES resulting from the Project has been undertaken and is included as **Appendix D**. Results of the risk assessment have been used to develop management measures that form part of this SFMP.

2.6 APPLICATION OF THE MITIGATION HIERARCHY

Mitigation measures for potential impacts of the Project on terrestrial fauna are detailed within **Section 5.3** of the EPBC Referral Supporting Document and have been updated and consolidated within this

SFMP. Mitigation measures have focused on significant fauna, where relevant, aligning with the management provisions.

The Project will **avoid** impacts to significant fauna via the following:

- Proposed clearing has been minimised as far as practicable to reduce the extent of disturbance required; the Proponent has revised the Development Envelope from 1,399 ha to 874 ha (898 ha for EPBC).
- Placement of infrastructure in the high significance habitat of gorges, gullies and rocky breakaways has been fully avoided for example through the re-design and relocation/reduction of the northern WRL and northern topsoil stockpile. In addition disturbance of the high significance habitat of hills, ranges and plateaus has been minimised through the re-design of the access road and camp location.
- A Land Access and Land Clearing Procedure will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary. This includes requirements for weed hygiene to prevent introduction or spread of weeds.
- The area to be cleared shall be clearly demarcated and machinery operators made aware of the operational boundary, following confirmation with the relevant manager. Some heavy equipment used may have in-cab GPS mapping and alarm functions however in the absence of this functionality, pegging of clearing boundaries supplemented with other control measures such as the use of spotters and/or restricting clearing to the daylight hours will be used to prevent unauthorised clearing.
- Habitat and fauna surveys have been undertaken to identify key areas and species to avoid.
- Cave 1 to be temporarily closed during construction and operation which will eliminate risk of habitation and nursing by Ghost Bats which may be impacted from mining activity (e.g., vibration from blasting, excavation, haulage and overburden stacking). The cave structural integrity should be protected and when reopened after operations Ghost Bats are expected to return to the cave.
- No Barbed wire in new fencing will be used by the Proponent, subject to consultation with the pastoralist. If however, the pastoralist requires use of barbed wire for effective stock management, bat deflectors/reflectors between the top two strands will be used within the Project Area.
- Prohibit feeding of all fauna.
- Prohibit entry to caves, unless authorised.
- Ensure artificial lighting is not directed toward habitat of high significance.
- Demarcate areas that may not be entered by personnel and/or machinery.
- Intersection of the haul road with GNH, and an additional 100 m past the intersection, will be sealed to reduce the generation of dust.
- Road haulage iron ore loads will be covered.
- Ground clearing (including topsoil stripping) shall not be undertaken during periods of high winds (unless soil moisture levels are also elevated enough to inhibit dust formation).
- Off-road driving shall be prohibited unless authorised by management.
- Avoid hot work in fire sensitive areas and during high fire risk days.
- Haul road and Development Envelope design shall consider surface water flow to minimise obstruction to seasonal overland water flow to the loamy drainage flats proximal to the GNH.
- The Project will **minimise** impacts to terrestrial fauna via the following:
- Spatially restricted Indicative Footprint and short life of mine.
- Implement SFMP.
- Where placement of infrastructure such as the pit shell cannot avoid habitat of higher significance (e.g. drainage lines), minimise clearing as far as practicable.

- Minimise noise from vehicles / machinery and blasting etc. to avoid disturbance to roosting bats through appropriate selection of machinery reducing the number and duration of operating machines required to achieve the work.
- Replace the top strands of barbed wire in fences in the Project Area with single-strand wire, subject to consultation with pastoralist. If however the pastoralist requires use of barbed wire for effective stock management, bat deflectors/reflectors between the top two strands will be used within the Project Area
- Implement a 100 m radius exclusion zone around recorded Category 2 and Category 3 Ghost Bat roosts.
- Vehicles and equipment shall be restricted to designated roads, tracks, and cleared areas.
- Laydown areas will be situated in previously disturbed locations.
- Temporary Closure of Cave 1. Closure of Cave 1 is likely to be closed by using a lightweight steel frame fitted to the entrance and bird aviary steel netting or any heavier style with apertures not exceeding 100 mm. This would exclude Ghost bats but smaller species up to 10g such as Pilbara leaf-nosed bats (Rhinonicteris aurantia) or Finlayson's cave bat (Vespadelus finlaysoni) would be able to pass through unharmed. Other small fauna of a similar size including reptiles, frogs and snakes would also be able to access the cave. With regard to larger fauna such as Quolls, Dingoes and/or Macropod species that will be excluded by the closures, Lamb Creek Cave 1 is situated in an area with numerous alternative deep overhangs and shallow caves that are suitable for their foraging and/or resting activities. Each of these species is known to travel significant distances on a daily basis (Bat Call WA 2023a).
- Avoid providing accessible artificial water sources.
- Driving between dusk and dawn shall be minimised and light vehicle use will be limited with crews to be bused to and from camp to minimise traffic during start and end of shift.
- Machinery and vehicle movements that must be undertaken between dusk and dawn will be limited to low speeds on access tracks.
- Excavations and trenches will be kept open only as long as needed to undertake the work and egress points will be provided dependant on depth / morphology of the excavation.
- Any steep-sided holes (e.g., sumps) will be fitted with egress matting or another method of escape to avoid fauna entrapment.
- Regular inspection of all excavations and sumps shall be undertaken to minimise fauna mortality in accordance with **Table 8**.
- Native fauna shall not be fed or intentionally harmed.
- Environmental responsibility awareness training shall be delivered to all personnel as part of the induction process.
- Ensure food waste is disposed of appropriately so it cannot be accessed by fauna.
- Targeted control program to be implemented (e.g., shooting or trapping) where increased presence of feral animals are observed on site.
- Noise, vibration and artificial light awareness shall be delivered to all personnel as part of the induction process.
- Regular inspection and maintenance of vehicles and equipment shall be undertaken to ensure no excessive operating noise is experienced from faulty machinery and noise suppression equipment is operating adequately.
- Ensure blasting is undertaken during daylight hours and is strictly controlled to minimise air blast and ground vibration.
- Minimise the use of artificial lighting needed for safe operation, use directional and / or screened lighting, and when required for safety, avoid light spill onto important habitats (e.g., rocky outcrops).

- Implement the FVMP.
- Dust suppression shall be implemented to manage dust emission on cleared areas and iron ore handling areas.
- Stockyard ore product will be conditioned through addition of water to ensure dust extinguishing moisture limits are maintained (as per export license stipulations)
- Speed limits shall apply on sealed and unsealed roads.
- Blasting plans will consider meteorological conditions to minimise dust lift off.
- Dust awareness and dust management shall be delivered to all personnel as part of the induction process.
- A Weed Management Plan shall be prepared and implemented as part of the FVMP, prior to construction and operation, to control access and movement of vehicles and construction personnel to prevent the introduction and spread of weeds into the Development Envelope, weed free areas, and between work areas.
- Vehicles and equipment to be cleaned, inspected and issued with a Weed Hygiene Certificate prior to entry to site or moving between known weed infested areas on-site, (as per controls in Flora and Vegetation Management Plan).
- Weed awareness and weed hygiene shall be delivered to all personnel as part of the induction process.
- Fire management awareness shall be delivered to all personnel as part of the induction process.
- Firebreaks will be incorporated into mine layout planning in accordance with the local government firebreak notice under s. 33 of the Bush Fires Act 1954.
- Smoking will only be permitted in designated areas, which shall be appropriately signed and contain self-arresting cigarette butt disposal containers.
- An Emergency Response Plan shall be prepared and implemented.
- An Emergency Response Team shall be formed in accordance with requirements regulated by DEMIRS.
- The Emergency Response Team will ensure that sufficient fire suppression equipment is located as per the Emergency Response Plan.
- Hot Work shall be completed under a Hot Work Permit and in accordance with MRL-SAF-PRO-0081 Hot Work Procedure.
- Traffic Management Plan shall be prepared and implemented.
- All vehicles and machinery will be fitted with fire extinguishers and/or in-plant fixed water suppression.
- Implement surface and groundwater management strategies in accordance with the Surface Water Management Plan (SWMP) and Groundwater Operating Strategy (GWOS).
- The Project will **rehabilitate** impacts to terrestrial fauna via the following:
- Progressive rehabilitation of foraging habitat within close proximity of roost habitat (<2 km from Category 2 and Category 3 Ghost Bat caves).
- Drainage management structures identified as remaining post-closure shall meet recognised Australian drainage design specifications.
- The open pit will be backfilled to a minimum of 5 m above the baseline groundwater level.
- Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable.
- Implement an appropriate rehabilitation plan (surface treatments; seed selection, collection, storage and management) in accordance with the approved Mine Closure Plan (MCP).
- Seasonal weed control programs shall be implemented, as required.

- Weeds which are physically removed will be disposed of within the backfilled pit or waste rock landform and buried.
- Salvage and stockpile particular vegetation types, soil, or habitat features (e.g., vegetation, stumps, logs, and boulders) for use in rehabilitation programs.
- Rehabilitation shall include spatially heterogenous habitat with appropriate refuge areas to increase ability for animals to disperse between patches.
- Ensure all drill holes are capped as soon as reasonably practicable.
- The Project will **offset** impacts to terrestrial fauna via the following:
- Impacts to terrestrial fauna associated with the Proposed Action will be managed and mitigated to ensure that potential impacts to terrestrial fauna are managed to an acceptable level. Residual impacts to habitat areas from clearing and construction are proposed to be offset for 42.0 ha of critical habitat for the Northern Quoll, and 622.3 ha of supporting habitat for the Ghost Bat.

3. MANAGEMENT PROVISIONS

3.1 OVERVIEW

The SFMP outlines the requirements to avoid, minimise, manage, monitor, and rehabilitate direct and indirect impacts to significant fauna from the Project, aligning with the EPA's mitigation hierarchy. The subsequent sections identify the management provisions that will be implemented by the Proponent for the Project to ensure that the environmental objectives, criteria, targets, and outcomes are met for terrestrial fauna. Where unacceptable environmental outcomes remain post the implementation to controls measure such as permanent loss of significant species habitat, offset strategies will be proposed. The SFMP will be reviewed and updated as required, following an adaptive management approach (Section 7).

3.2 OUTCOME BASED PROVISIONS

This SFMP focuses on outcome-based provisions, which are performance-based and can be applied. The objectives developed are measurable, and the success of management actions can be monitored and reported. Outcome-based provisions specify triggers and thresholds (environmental criteria) for direct impacts that are quantifiable and specifically relate to terrestrial fauna (**Table 7**). Where required, suitable response and corrective actions are also recommended for the environmental criteria. The following outcomes-based provisions have been established:

- No unauthorised clearing within exclusion zones around recorded Category 2 and Category 3 Ghost Bat roosts.
- No statistically significant project-related increase in feral animal abundance as a result of project-related activities
- No adverse impacts to critical Ghost Bat cave (Cave 1) resulting from vibration levels from blasting activities; and
- Maintain the structural integrity of Cave 1.

3.3 OBJECTIVE-BASED PROVISIONS

Objective-based provisions relate to environmental management actions that are not specifically measurable. They specify management actions according to management targets, particularly for indirect impacts that are not quantifiable. The objective-based management provisions have been outlined in (**Table 8**) and are intended to prevent project-related adverse impacts to terrestrial fauna (including significant fauna species) within proximity to the Project with appropriate management actions and monitoring actions. The following objectives-based provisions have been established:

- No clearing of vegetation shall occur outside of the approved, demarcated clearing area(s) during construction or operation.
- Minimise Project-related direct interactions per year (e.g., vehicle strike, interaction with fencing) for significant fauna resulting in injury or mortality.
- Minimise adverse impacts to significant fauna as a result of increase in feral animal abundance.
- Minimise Project related disturbance of significant fauna from noise, vibration and artificial light.
- Minimise Project related decline to fauna habitat quality (e.g. vegetation health) due to dust, weeds, and hydrocarbon or chemical leaks and altered hydrological regimes.
- Effective operation of the Project to minimise the risk of Project related fire.

3.4 ENVIRONMENTAL CRITERIA, TARGETS AND JUSTIFICATION

The development of environmental objectives and criteria for outcome-based provisions within the SFMP are based on available data and information and align with the purpose of the SFMP. Outcome-based provisions utilise monitoring and reporting to assess against the measurable environmental criteria. In addition to these outcome-based provisions, objective-based provisions have been applied with management targets.

During monitoring, where threshold criteria (outcome-based) or management targets (objective-based) are exceeded, and are project-related, response and corrective actions are provided, and will be implemented, as appropriate. Monitoring will inform adaptive management, with the revision of environmental criteria, and response or corrective actions, as required (**Section 7**).

Justification for the management provisions outlined in the SFMP are based on the following:

- Clearing of critical habitat for significant fauna species has the potential to result in direct impacts to individuals and indirect impacts through habitat loss. The management approach focuses on minimising clearing undertaken where possible through design and the implementation of progressive rehabilitation. In addition to this, exclusion zones will be placed around recorded Category 2 and Category 3 Ghost Bat roosts within proximity to the Development Envelope.
- Feral animals are an existing key threat to significant species in the vicinity of the Project. An indicative Feral Animal Monitoring and Control Plan has been proposed within **Appendix C**. This feral animal monitoring and control program aims to reduce predation pressure on significant fauna for populations that are potentially impacted by the Project for the life of the Project. It is anticipated that monitoring will demonstrate a decrease in feral animal numbers below that of baseline levels over the duration of the control program.
- The Project has the potential to negatively impact upon the occurrence of significant species through indirect impacts, in particular vibration from blasting to bat habitat in proximity to the Development Envelope. The indicative cave closure procedure and vibration monitoring (**Appendix A**, **Appendix B**) aims to reduce potential impacts to roosting Ghost Bats in proximity to the Development Envelope and allow for Ghost Bats to return to roost at viable caves post-operations and removal of any temporary cave closure structures (where structural integrity has been retained) post mining.
- Habitat degradation through altered fire regimes, contamination or the introduction of weeds could negatively impact upon critical habitat for significant species and in some instances may increase the risk of fire. Weed introduction and spread will be managed and monitored as part of the FVMP. Mitigation to minimise the risk of project related fire within the SFMP focuses on avoidance through maintaining equipment, training, and the implementation of fire prevention practices.

Table 7: Significant Fauna Outcome-based Management provisions

EPA Factor and Objective		Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.						
SFMP Purpose		*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*						
Outcomes-Based Management Objectives		Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
		Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			

TF1	No unauthorised clearing within exclusion zones around recorded Category 2 and Category 3 Ghost Bat roosts.	Clearing occurs within 50 m of the 100 m radius exclusion zone around recorded Category 2 and Category 3 Ghost Bat roosts.	Clearing occurs within 100 m buffer implemented around exclusion zone around recorded Category 2 and Category 3 Ghost Bat roosts.	• If unplanned clearing within 50 m of the 100 m radius exclusion zone, report internally as an incident in accordance with internal procedures.
				• Investigate details of clearing within 50 m of 100 m exclusion zone to confirm activity approved and met conditions (e.g. Land Activity Permit (LAP)).
				• If clearing not approved or conditions not adhered to, review management strategies and implement changes to prevent future occurrences
					• Undertake investigation to determine source of disturbance. If source is project-related, undertake a review to determine if impact can be minimised, develop actions to prevent recurrence and communicate findings to relevant personnel.
					• Suitably qualified person to undertake an assessment of degree of potential impact(s) resulting from the unauthorised clearing incident to significant fauna population and habitat which may include:
					  ○ Area and extent of habitat cleared.
					  ○ Monitor significant fauna population, as appropriate.
					• Undertake rehabilitation of unauthorised clearing as required, in accordance with rehabilitation procedures, with the aim
						• Monitoring of clearing register for compliance to approvals.
						• Internal audit and inspection of areas of clearing.
						• Clearing activities will be audited regularly to ensure compliance with LAP conditions, including prior to LAP close out. This includes confirmation that all clearing has been completed within the LAP boundary).
							• Post clearing
							• Post clearing
							• Post clearing
							• Annual
							•
								Regular reporting:
								• Monitoring reports- clearing register and Internal clearing permits (LAP).
								• Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER.
								• Internal incident reporting and investigation process. Report any non-compliances with the LAP and Land Clearing Procedure.
								Exceedance Reporting:
								• Trigger threshold exceedance (report in accordance with Section 5.3
								• Threshold exceedance (report in accordance with Section 5.4

EPA Factor and Objective	Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.						
SFMP Purpose	*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*						
Outcomes-Based Management Objectives	Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
	Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
			which may include the following: Audit and review of training and staff inductions (increase staff training and awareness to include information on buffers, legislative requirements, and appropriate clearing procedures). Review of the potential impact(s) of unauthorised clearing and report any non-compliance to appropriate regulator within 10 days of identification. Installation of signage where appropriate.	to reinstate habitat for significant fauna. • Report as a non-compliance to appropriate regulator within 10 days of confirmed identification. • Investigation report to be submitted to appropriate regulator with remediation actions proposed within 28 days of original notification. <u>Contingency action:</u> • Temporarily cease clearing activities. • Should unauthorised clearing take place in critical habitat, consult with DBCA about any additional management actions required.	• Land disturbance will be reconciled annually, as a minimum, for compliance and reporting purposes. •		
	Actual and planned clearing within Development Envelope exceeds 90% of the approved	Actual clearing within the Development Envelope exceeds the approved clearing limit (646.9 ha).	• Report internally as an incident in accordance with internal procedures. • Notify Registered Manager • Confirm extent of existing approved	• Cease all clearing activities: • Undertake investigation to: • Identify likely cause of incident. • Report incident to DWER			

EPA Factor and Objective		Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.						
SFMP Purpose		*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*						
Outcomes-Based Management Objectives		Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
		Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
		clearing limit (646.9 ha).		ground disturbance via audit of clearing records. • Do not authorise any further LAPs if threshold criterion may be exceeded.	• Undertake consultation with relevant government authorities (DWER and DCCEEW) and stakeholders. • Undertake corrective rehabilitation, as required. • Review of relevant approvals, in consultation with DWER and DCCEEW • Undertake further education and awareness training			
TF2	No statistically significant increase in feral animal abundance, in comparison to baseline levels. as a result of project-related activities.	Monitoring data indicate a marked increase in the abundance or activity of feral animals.	Monitoring indicates a significant increase in the abundance or activity of feral animals over two consecutive monitoring events, in comparison to baseline levels.	• Report internally as an incident in accordance with internal procedures • Review management strategies and implement changes to prevent future occurrences. • Identify key causes for increased feral animal population and investigate	• Report any confirmed non-compliance to appropriate regulator within 10 days of identification. • Identify key causes for increased feral animal population and investigate possible causes, for example poor waste management, artificial ponding of water that may attract fauna. Examples of Project related activities which may contribute to an	• Monitor feral animals in accordance with the Feral Animal Monitoring and Control Plan (**Appendix C**). • Record observations of feral animals in accordance with Feral Animal Monitoring	• Undertake 2 years baseline feral animal monitoring prior to and during construction and early operations. In accordance with **Appendix C**. • As triggered.	Regular reporting: • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER . • Feral animal control contractor reports. Exceedance Reporting: • Trigger threshold exceedance (report in accordance with Section 5.3). • Threshold exceedance (report in accordance with Section 5.4).

EPA Factor and Objective	Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.					
SFMP Purpose	*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*					
Outcomes-Based Management Objectives	Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
	Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
			possible causes, for example poor waste management, artificial ponding of water that may attract fauna. • If increase in presence of feral animals is attributed to project-related activities, undertake a review of procedures to determine if impact can be minimised, develop corrective actions with consideration of the following: • Incident Reporting Procedure to record sightings of feral animals. • Educate staff and local traffic on the	increase in feral animal numbers include: • Animals accessing artificial water sources. • An increase in numbers following construction of linear infrastructure: Feral animals readily use roads, tracks and other cleared access ways over denser vegetation or complex topography. • Accessing food waste not properly disposed of; and • Incidences where feral animals are being fed. • If increase in presence of feral animals is attributed to project-related activities, undertake a review of procedures to determine if impact can be minimised, develop corrective actions with consideration of the following:	and Control Plan (**Appendix C**). • Internal incident reporting and investigation process.		

EPA Factor and Objective	Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.						
SFMP Purpose	*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*						
Outcomes-Based Management Objectives	Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
	Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
			importance of not feeding feral animals and correct waste disposal as well as reporting all sightings. • Conduct a review of waste management practices and improve practices accordingly. • Revise Feral Animal Monitoring and Control Plan (**Appendix C**) accordingly: Increase frequency and intensity of feral control actions, as appropriate. Audit and review of training and staff inductions (increase staff training and awareness around feral animal control).	• Audit and review of training and staff inductions (increase staff training and awareness around feral animal control, ensure awareness material is included in inductions). • Increase frequency and intensity of feral animal control actions if required as per Feral Animal Monitoring and Control Plan (**Appendix C**). Investigate and implement additional/alternative control measures to control feral animal populations according to industry best practice for example review the waste management plan. Contingency Action: • Should multiple threshold exceedances occur, undertake a review of the effectiveness of threshold value with respect to			

EPA Factor and Objective		Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.						
SFMP Purpose		*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*						
Outcomes-Based Management Objectives		Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
		Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
					baseline data and implement adaptive management process in consultation with DBCA/ DWER/ DCCEEW accordingly.			
TF3	No adverse impacts to Cave 1 resulting from vibration levels from blasting activities.	In situ vibration levels from blasting approaches modelled vibration predictions recorded (between 20 and 24.99 mm/sec PPV modelled to occur at Cave 1).	In situ vibration levels from blasting exceeds modelled vibration predictions of 25 mm/sec PPV at Cave 1 and damage to the structural integrity of Cave 1 occurs.	• Temporarily cease blasting activities until inspection of Cave 1 is undertaken, prior to the next planned blast. • Report internally as an incident in accordance with internal procedures • Cave inspection to be undertaken by an appropriately qualified person at the discretion of the Registered Mine Manager in consultation with the Environmental Manager, after blast to ensure that no structural damage to cave 1 has occurred	• Temporarily cease blasting activities. • Report any confirmed non-compliance to appropriate regulator within 10 days of identification. • Undertake Cave assessment after blast to determine extent of structural damage to cave 1 (following appropriate safety procedures ensuring that cave structural integrity can be assessed safely by personnel). • Review management strategies and implement changes to prevent future occurrences. • Blast engineer to review and re-calibrate blast conditions accordingly.	• Vibration monitoring (**Appendix B**). • Internal incident reporting and investigation process.	• During blasting (data logger). • As triggered.	Regular reporting: • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. • Vibration monitoring reporting. • Internal incident reporting (in accordance with Section 5.7). Exceedance Reporting: • Trigger threshold exceedance (report in accordance with Section 5.3). • Threshold exceedance (report in accordance with Section 5.4).

EPA Factor and Objective		Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.						
SFMP Purpose		*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*						
Outcomes-Based Management Objectives		Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
		Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
				(following appropriate safety procedures ensuring that cave structural integrity can be assessed safely by personnel). • Should no structural damage to Cave 1 be reported, the blast engineer to review and re- calibrate blast conditions accordingly to within modelled predictions, prior to undertaking subsequent blast.				
	Maintain the structural integrity of Cave 1	Minor (e.g. small rockfall not obscuring entrance to cave with minimal disturbance to roosting bats) Structural damage occurs at Cave 1	Moderate to Major (e.g. large rock fall obscuring cave entrance, cavity/ piercing of the lateral extent of the cave impacting the cave microclimate)	• Report internally as an incident in accordance with internal procedures • Ensure cave remains closed in accordance with procedure in Appendix A • Investigate the cause and the extent of the structural damage	• Investigate the cause and the extent of the structural damage to the cave (following appropriate safety procedures ensuring that cave structural integrity can be assessed safely by personnel). • Ensure cave remains closed in accordance with procedure in Appendix A.	• Vibration monitoring (**Appendix B**) • Internal incident reporting and investigation process.	• In accordance with **Appendix B** • As triggered.	Regular reporting: • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. • Vibration monitoring reporting. • Geotechnical/photographic cave assessment monitoring reports.

EPA Factor and Objective		Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.						
SFMP Purpose		*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*						
Outcomes-Based Management Objectives		Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
		Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
			related structural damage occurs to Cave 1	to the cave (following appropriate safety procedures ensuring that cave structural integrity can be assessed safely by personnel). • Review management strategies and implement changes to prevent future occurrences. • Audit and review of training and staff inductions (increase staff training and awareness). • Revise monitoring schedule, accordingly, for example increase frequency of inspections, photographic monitoring and/ or LiDAR capture/ geotechnical assessment of the cave	• Undertake additional LiDAR and/or photographic recording of the cave. • The appropriate regulator will be notified within 10 days of a confirmed breach of a Management Target(s) being known, with a report provided via email including any corrective actions identified once an investigation has been completed. • A follow up report detailing the adequacy of the response actions will also be submitted to the appropriate regulator within 12 months of the initial notification or within the ACAR. • Review management strategies and implement changes to prevent future occurrences. • Undertake appropriate corrective rehabilitation of the cave in consultation with DBCA/ DWER as soon as practicable			• Internal incident reporting (in accordance with Section 5.7). Exceedance Reporting: • Trigger threshold exceedance (report in accordance with Section 5.3). • Threshold exceedance (report in accordance with Section 5.4).

Table 8: Significant Fauna Objective-based Management provisions

EPA Factor and Objective	Terrestrial Fauna: To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.
Significant Fauna Values	Nine conservation significant fauna species and associated habitat recorded or considered likely to occur in the Development Envelope: • Ghost Bat (Macroderma gigas) (En, En); • Pilbara Leaf-nosed Bat (Rhinonicteris aurantia) (Vu, Vu); • Northern Quoll (Dasyurus hallucatus) (En, En); • Pilbara Olive Python (Liasis olivaceus barroni) (Vu, Vu); • Gane's Blind Snake (Anilios ganei) (P1 under the BC Act); • Pilbara Barking Gecko (Underwoodisaurus seorsus) (P2 under the BC Act); • Grey Falcon (Falco hypoleucos) (Vu, Vu); and • Peregrine Falcon (Falco peregrinus) (Other specially protected species under the BC Act).
SFMP Purpose	To avoid adverse project-related direct and indirect impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.
Key Impacts and Risks	Potential risk to long term viability of local and regional populations of conservation significant fauna, due to direct impacts from clearing of native vegetation or direct and indirect impacts from mining activities (**Appendix D**)

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting

No clearing of vegetation shall occur outside of the approved, demarcated clearing area(s) during construction or operation.	High	• Implement the LAP process and Procedure.
		• Clearing awareness training is to be undertaken by all personnel involved in clearing activities, including specific information on significant fauna within the Development Envelope, the requirements for clearing, and the LAP and Land Clearing Procedure processes.
			• Visual inspections for evidence of:
			  • adherence to boundary demarcation compliance.
			  • unauthorised access or clearing (e.g., observations of vehicles or machinery, vehicle tracks, damage to fencing or vegetation).
				• During construction (pre-clearing clearing and post-clearing activities).
				• Imagery analysis annually, or as required, to monitor clearing extent.
				• As triggered.
					• Project Manager
					• Construction
					• Operations
					• Environment Manager
					• Environment Team.
						Regular reporting:
						• Monitoring reports-clearing register and Internal clearing permits.
						• Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER.
						• Internal incident reporting and investigation process. Report any non-compliances with the

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting

		• Proposed clearing has been minimised as far as practicable to reduce the extent of disturbance required; the Proponent has revised the Development Envelope from 1,399 ha to 874 ha (898 ha for EPBC).
		• A LAP and the Land Clearing Procedure will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary.
		• The area to be cleared shall be clearly demarcated and machinery operators made aware of the operational boundary, following confirmation with the relevant manager. Some heavy equipment will have in-cab GPS mapping and alarm functions, however in the absence of this functionality, other control measures such as the use of spotters and/or restricting clearing to the daylight hours could be used to prevent unauthorised clearing.
			• Monitoring of clearing register for compliance to approvals:
			  • Clearing activities will be audited regularly to ensure compliance with LAP conditions, including prior to LAP close out. This includes confirmation that all clearing has been completed within the LAP boundary.
			  • Land disturbance will be reconciled annually, as a minimum, for compliance and reporting purposes.
			• Internal incident reporting and investigation process.
						LAP and Land Clearing Procedure.
						Exceedance Reporting:
						• Management action has not been implemented (report in accordance with Section 5.5).
						• Management target has not been achieved (report in accordance with Section 5.6).

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		• Delineate clearing boundary areas by qualified surveyors in the field and confirmed cleared areas via survey after clearing. • Coordinates for clearing extents will be provided to the Construction Contractor. • Vehicles and equipment shall be restricted to designated roads, track and cleared areas unless authorised under a LAP.				
No statistically significant increase in feral animal abundance. as a result of project-related activities.	High	• Avoid providing accessible artificial water sources. • Prohibit feeding of all fauna. • Spatially restricted Indicative Footprint and short life of mine. • Environmental responsibility awareness training shall be delivered to all personnel as part of the induction process. • Ensure food waste is disposed of appropriately so it cannot be accessed by fauna. • Feral animal monitoring and subsequent	• Record and monitor the presence and abundance of feral fauna compared to baseline presence and abundance to determine the effectiveness of control programs. • Implement feral animal control at seasonally appropriate time. • Maintain a register of all introduced fauna sightings.	• Baseline monitoring of feral animal presence to be undertaken over 2 year period prior to and during construction and early operational activities. In accordance with (**Appendix C**) • Control programs - Opportunistically.	• Construction personnel. • Operations personnel. • Environment Manager • Environment Team.	Regular reporting: • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. • Feral animal control contractor reports. Exceedance reporting: • Management action has not been implemented (report in accordance with Section 5.5). • Management target has not been achieved (report in accordance with Section 5.6).

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		targeted control program to be implemented (**Appendix C**).				
No significant adverse impacts to significant fauna as a result of project related altered hydrological regimes.	High	Hydrological Regimes: • Haul road and Development Envelope design shall consider surface water flow to minimise obstruction to seasonal overland water flow to the loamy drainage flats proximal to the Great Northern Highway. • Implement surface and groundwater management strategies in accordance with the SWMP and GWOS. • Drainage management structures identified as remaining post closure shall meet recognised Australian drainage design specifications. • The open pit will be backfilled to a minimum of 5 m above the baseline groundwater level. • Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable.	• Implement surface and groundwater monitoring as required in accordance with the Surface Water Management Plan (SWMP) and Ground Water Operating Strategy (GWOS).	• In accordance with schedule in the SWMP and GWOS. •	• Project Manager • Construction personnel. • Operations personnel • Environment Manager • Environment Team.	Regular reporting: • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. • SWMP monitoring reports. Exceedance reporting: • Management action has not been implemented (report in accordance with Section 5.5) • Management target has not been achieved (report in accordance with Section 5.6).

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
Effective operation of the Project to minimise the risk of Project related fire.	High	• Off-road driving shall be prohibited unless authorised under a LAP. • Avoid hot work in fire sensitive areas and during fire risk days. • Fire awareness shall be delivered to all personnel as part of the induction process. • Firebreaks will be incorporated into mine layout planning in accordance with the local government firebreak notice under s. 33 of the *Bush Fires Act 1954*. • Smoking will only be permitted in designated areas, which shall be appropriately signed and contain self-arresting cigarette butt disposal containers. • An Emergency Response Plan shall be prepared and implemented. • An Emergency Response Team shall be formed, in accordance with requirements regulated by DEMIRS. • The Emergency Response Team will ensure that sufficient operational fire suppression equipment is	• Inspection and maintenance of fire breaks in accordance with the local government firebreak notice under s. 33 of the *Bush Fires Act 1954*. • Regular inspection of vehicles and fire response equipment shall be undertaken.	• As required in accordance with the local government firebreak notice under s. 33 of the *Bush Fires Act 1954*. • Quarterly	• Project Manager • Construction personnel. • Operations personnel • Environment Manager • Environment Team.	Regular reporting: • Internal incident reporting, emergency response and investigation process in the event of a fire, in accordance with internal incident reporting procedure. • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. Exceedance reporting: • Management action has not been implemented (report in accordance with Section 5.5). • Management target has not been achieved (report in accordance with Section 5.6).

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		located as per the Emergency Response Plan. • A Traffic Management Plan shall be prepared and implemented. • Implement a Hot Work Permit system for high ignition risk work activities. • Regular inspection and maintenance of vehicles and equipment shall be undertaken. • All vehicles and machinery will be fitted with fire extinguishers and/or in-plant fixed water suppression, and water carts will be fitted with firefighting equipment. • All fuel stored on site is to be contained within a secure bund or other facility. • Implement an appropriate rehabilitation plan (surface treatments; seed selection, collection, storage and management) in accordance with the approved MCP, following fire.				

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
No significant increase in project-related direct significant fauna interactions per year (e.g., vehicle strike, interaction with fencing) resulting in injury or mortality.	Low	• Develop and implement a Traffic MP. • Maintain a fauna mortality register. • Close Cave 1 prior to the critical female breeding period of October to December. • Temporary closure of Cave 1 during construction and operation to ensure no inadvertent loss of mothers and/or pups will occur in the event of mining activity (e.g., blasting, excavation, haulage, overburden stacking) in proximity to caves. • The area to be cleared shall be clearly demarcated and machinery operators made aware of the operational boundary, following confirmation with the relevant manager. • New fencing shall not use barbed wire, subject to consultation with pastoralist. The Proponent is committed to replacing barbed wire fences with three or four strand wire fencing in the Project area (in consultation with the	• Undertake periodic compliance checks with site speed limits. • In the event that fauna is injured during clearing, construction or operations, the animal shall be taken to an authorised veterinarian or trained wildlife carer, or if not possible, humanely euthanised in accordance with *Standard Operating Procedure: Humane Killing Of Animals Under Field Conditions* (Department of Biodiversity Conservation and Attractions 2018). • Check trenches for trapped fauna and ensuring egress points are functional.	• In accordance with section 4.2. • As triggered. • Twice daily trench inspections	• MinRes • Construction. • Operations • Environment Team.	Regular Reporting: • Record known injuries to, or deaths of, significant fauna species in the internal Conservation Significant Fauna Interaction Register as soon as possible, as the injury or death is identified. • Internal incident reporting, and investigation process in accordance with internal incident reporting procedure. • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. Exceedance Reporting: • Report significant fauna mortalities within 48 hours to DBCA in accordance with legislative requirements. • Management action has not been implemented (report in accordance with Section 5.5) • Management target has not been achieved (report in

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		Juna Downs pastoralist). If however the pastoralist requires use of barbed wire for effective stock management, bat deflectors/reflectors between the top two strands will be used within the Project Area. • Spatially restricted Indicative Footprint and short life of mine. • Implement a 100 m radius exclusion zone around recorded Category 2 and Category 3 Ghost Bat roosts. • Driving between dusk and dawn shall be minimised, for example buses to transport staff between camp and work site at shift changes. Machinery and vehicle movements that must be undertaken between dusk and dawn will be limited to low speeds (site-specific but typically 40km/h) on access tracks. • Excavations and trenches will be kept open only as long as needed to undertake the work and egress points will be provided dependant on depth /				accordance with Section 5.6) •

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		morphology of the excavation. • Any steep-sided holes (e.g., sumps) will be fitted with egress matting or another method of escape to avoid fauna entrapment. • Regular inspection of all excavations (including open trenches) shall be undertaken to minimise fauna mortality. • Environmental responsibility awareness training shall be delivered to all personnel as part of the induction process. • Vehicles and equipment shall be restricted to designated roads, tracks and cleared area, unless authorised under a LAP. • Signage will be installed along access roads to warn road users of areas where they will be entering critical fauna habitat area and will advise of applicable speed reduction. • Ensure all drill holes are capped as soon as reasonably practicable.				

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
Minimise project related disturbance of significant fauna from noise, vibration and artificial light.	Low	• Implement staff training to enable staff to implement procedures related to minimisation of noise, dust, vibration, and artificial light. • Avoid placement of infrastructure in any habitat of high significance. • Prohibit entry to caves, unless authorised by Management. • Undertale monitoring/inspection of Cave 1 prior to and after the first blast as per Appendix B. • Avoid placing artificial lighting in key significant fauna habitat. • As practicable while providing lighting required for safe operation, implement best practice light management (DCCEEW 2023a) within proximity to significant bat species' habitat through maintaining natural darkness in and near all significant bat species' habitats is the most effective impact mitigation method. Where lighting exists or is introduced, effective management and	• Cave closure (**Appendix A**) and vibration monitoring (**Appendix BAppendix B**). • Undertake Blast vibration monitoring for Cave 1 to ensure no disturbance to significant fauna, or degradation or loss of significant fauna habitat (Cave 1) occurs. • Photo monitoring Cave 1 **(Appendix B**) • Regular inspection and maintenance of vehicles and equipment shall be undertaken.	• In accordance with **Appendix A.** • In accordance with **Appendix B**. • Quarterly during first year, six-monthly thereafter if no change • Daily	• Construction. • Operations. • Environment Team.	Regular Reporting: • Internal incident reporting, and investigation process in accordance with internal incident reporting procedure. • Noise and vibration monitoring reporting. • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. Exceedance Reporting: • Management action has not been implemented (report in accordance with Section 5.5). • Management target has not been achieved (report in accordance with Section 5.6).

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		mitigation approaches to reduce potential impacts to may include: • maintaining dark roost sites. • creating dark corridors from roosts to foraging/watering sites. • keeping light intensities low and redirecting light away from habitats. • longer wavelength (red) artificial light appears to have the least impact on several bat species. • Demarcate areas that may not be entered by personnel and/or machinery. • Noise, vibration and artificial light awareness training shall be delivered to all personnel as part of the induction process. • Regular inspection and maintenance of vehicles and equipment shall be undertaken. • Ensure blasting is undertaken during daylight hours and is strictly controlled to				

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		minimise air blast and ground vibration. • Minimise the use of artificial lighting needed for safe operation, use directional and / or screened lighting, and when required for safety, avoid light spill onto important habitats (e.g., rocky outcrops). • As practicable while providing lighting required for safe operation, adhere to DCCEEW (2023a) Light pollution guidelines best practice lighting design to minimise potential impacts from artificial light sources to significant fauna by incorporating the following design principles: • start with natural darkness and only add light for specific purposes. • use adaptive light controls to manage light timing, intensity and colour. • light only the object or area intended – keep lights close to the ground, directed, and shielded to avoid light spill.				

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		• use the lowest intensity lighting appropriate for the task. • use non-reflective, dark-coloured surfaces. • use lights with reduced or filtered blue, violet and ultraviolet wavelengths.				

Minimise project related decline to fauna habitat due to dust, weeds, and hydrocarbon or chemical leaks and altered hydrological regimes.	Low	Dust Management:
		• Intersection of the haul road with Great Northern Highway, and an additional 100 m past the intersection, will be sealed to reduce the generation of dust.
		• Road haulage iron ore loads will be covered.
		• Ground clearing (including topsoil stripping) shall not be undertaken during periods of high wind (unless soil moisture levels are also elevated enough to inhibit dust formation).
		• A LAP and the Land Clearing Procedure will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary.
			• Monitoring of daily wind conditions will be taken into consideration when planning clearing or blasting activities.
			• Visual assessment of dust suppression performance
			• Bi-annual monitoring of the presence and abundance of weeds compared to baseline presence and abundance to determine the effectiveness of control programs.
				• Daily
				• Daily
				• Bi-annual
					• Construction.
					• Construction
					• Operations.
						Regular Reporting:
						• Internal incident reporting, and investigation process in accordance with internal incident reporting procedure for example:
						  • Excessive dust
						  • New weed species and/or new occurrences of existing weed species are recorded.
						  • Vehicles reported outside authorised areas/ tracks.
						• Dust monitoring reporting.
						• Biannual weed monitoring reporting.
						• Submit an annual compliance assessment report as part of the Annual

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		• Spatially restricted Indicative Footprint and short life of mine. • Vehicles and equipment shall be restricted to designated roads, tracks and cleared areas unless authorised under a LAP. • Dust suppression shall be implemented to manage dust emission on cleared areas and iron ore handling areas. This will be visually assessed on an ongoing basis. • Reduced speed limits to be applied on unsealed roads (site-specific but typically 40 kph). • Blasting plans will consider meteorological conditions to minimise dust lift off. • Dust awareness training shall be delivered to all personnel as part of the induction process. • Implement an appropriate rehabilitation plan (surface treatments; seed selection, collection, storage and management) in accordance with the approved MCP.				Environment Report to the DWER. Exceedance Reporting: • Management action has not been implemented (refer to Section 5.5). • Management target has not been achieved (refer to Section 5.6)

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		• Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable. Weed Management: • A LAP and the Land Clearing Procedure will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary. • A Weed Management Plan shall be prepared and implemented as part of the FVMP, prior to construction and operation, to control access and movement of vehicles and construction personnel to prevent the introduction and spread of weeds into the Development Envelope, weed free areas, and between work areas. • Vehicles with ground engaging equipment to be cleaned, inspected and issued with a Weed Hygiene Certificate prior to entry to site or moving between areas with known weed infestations on-site.				

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		• Vehicles and equipment shall be restricted to designated roads, tracks and cleared areas, unless authorised under a LAP. • Weed awareness and weed hygiene training shall be delivered to all personnel as part of the induction process. • Regular inspection and maintenance of vehicles and equipment shall be undertaken. • Seasonal weed control programs shall be implemented, including herbicide spraying or physical removal, in accordance with the FVMP. • Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable. • Hydrocarbon or chemical spill management: Hydrocarbon and/or chemical leaks and spills (expected to be rare) will be managed using bunding techniques, leak detection mechanisms and spill kits to restrict impacts.				

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		• Spill response equipment available (including on all Haul Trucks). • Spill response training for all personnel and contractors. • Dedicated workshop for maintenance. • Maintain high standard of housekeeping around processing plant. • Prevent chemical / hydrocarbon spill from spreading to native vegetation. • Management of sites as per the Contaminated Site Act 2003. • Develop and implement a Hazardous Substances Management Plan (HSMP) and Procedure. • Develop and implement an Emergency Response Plan. • Develop and implement a Spill Response Plan. • Develop and implement a Controlled Waste Management Procedure. • Develop and implement a Contaminated Sites Register. • Develop and implement a Waste Management Procedure.				

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		• Routinely check sumps for fauna. •				

4. MONITORING AND EVALUATION

A monitoring schedule has been developed with performance targets (**Table 9**) to assess the effectiveness of the management measures outlined in this SFMP (**Section 4**). The performance targets have been aligned with the outcomes-based objectives and associated environmental criteria, with associated measurement parameters, monitoring frequencies and responsibilities.

In addition to the monitoring schedule, Monitoring Programs have been developed to align with the SFMP and are presented in **Appendix B** and **Appendix C.** Monitoring has been developed to achieve the following objectives:

- Monitor the success of mitigation and management measures in the SFMP and detect potential impacts to significant fauna and habitat.
- Evaluate effectiveness and monitor for exceedance against trigger, threshold, and management target criteria (management provisions).
- Assess the effectiveness of the environmental criteria to inform adaptive management and revision where required.

Table 9: Monitoring Schedule

Management Targets	Monitoring Event	Monitoring Action	Timing	Responsibility
No clearing of vegetation shall occur outside of the approved, demarcated clearing area(s) during construction or operation.	Clearing inspections	Visual inspections for evidence of: • adherence to boundary demarcation compliance. • unauthorised access or clearing (e.g., observations of vehicles or machinery, vehicle tracks, damage to fencing or vegetation).	During clearing, construction, pre-clearing and post-clearing activities.	Manager Environment. Staff and contractors.
		Monitoring of clearing register for compliance to approvals: • clearing activities will be audited regularly to ensure compliance with LAP conditions, including prior to LAP close out. This includes confirmation that all clearing has been completed within the LAP boundary. • Land disturbance will be reconciled annually, as a minimum, for compliance and reporting. •	Imagery analysis annually, or as required, to monitor clearing extent.	
		Internal incident reporting and investigation process	As triggered.	
No significant increase in Project-related direct significant fauna interactions per year (e.g., vehicle strike, interaction with fencing) resulting in injury or mortality.	Signage	Undertake periodic compliance checks with site speed limits.	Quarterly signage inspections.	Manager Environment. All staff and contractors. Suitably qualified persons, as required.
	Fauna mortality or injury register	In the event that fauna is injured during clearing, construction or operations, the animal shall be taken to an authorised veterinarian or trained wildlife carer, or if not possible, humanely euthanised in accordance with Standard Operating Procedure: Humane Killing Of Animals Under	In accordance with Section 4.2	

		Field Conditions (Department of Biodiversity Conservation and Attractions 2018)		
	Trench inspections	Check trenches for trapped fauna and ensuring egress points are functional.	Twice daily trench inspection	
No statistically significant increase in feral animal abundance as a result of Project related activities.	Feral fauna monitoring	Record and monitor the presence and abundance of feral fauna compared to baseline presence and abundance to determine the effectiveness of control programs.	Baseline monitoring undertaken over 2 consecutive years prior to and during early construction activities.	Manager Environment. Environment Team. Suitably qualified person, as required.
	Feral fauna control	Implement feral fauna control at seasonally appropriate time	In accordance with **Appendix C**.	
	Introduced fauna register	Maintain a register of all introduced fauna sightings.	Opportunistically (i.e. when observed).	
Minimise Project related disturbance of significant fauna from noise, vibration and artificial light.	Vibration monitoring	Cave closure (**Appendix A**) and vibration monitoring (**Appendix B**).	In accordance **Appendix A.**	Manager Environment. Environment Team. Project Manager.
		Undertake Blast vibration monitoring for Cave 1 to ensure no disturbance to significant fauna, or degradation or loss of significant fauna habitat (Cave 1) occurs.	In accordance with **Appendix B**.	
	Photo monitoring	Photo monitoring Cave 1	As per **Appendix B.**	
Minimise Project related decline to fauna habitat due to dust, weeds, and hydrocarbon or chemical leaks and altered hydrological regimes.	Dust monitoring	Monitoring of daily wind conditions will be taken into consideration when planning clearing or blasting activities.	Daily.	Manager Environment. Environment Team.
	Weed monitoring	Bi-annual monitoring of the presence and abundance of weeds compared to baseline presence and abundance to determine the effectiveness of control programs.	Biannual. As per Flora and Vegetation Management Plan	

	Surface and groundwater monitoring	Implement surface and groundwater monitoring as required in accordance with the Surface Water Management Plan (SWMP) and Ground Water Operating Strategy (GWOS).	In accordance with schedule in the SWMP and GWOS.	
Effective operation of the Project to minimise the risk of Project related fire.	Routine fire inspection	Inspection and maintenance of fire breaks in accordance with the local government firebreak notice under s. 33 of the *Bush Fires Act 1954*.	As required in accordance with the local government firebreak notice under s. 33 of the *Bush Fires Act 1954*.	Manager Environment. Environment Team.
		Regular inspection of vehicles and fire response equipment shall be undertaken.	Quarterly.	
Maintain Structural integrity of Cave 1	Cave monitoring	Photographic, geotechnical assessment monitoring of Cave 1	As per Appendix B.	Manager Environment Environment Team

4.1 ENVIRONMENTAL AUDITS

In accordance with the Proponent's Environmental Management System (EMS), an audit of implementation of this SFMP will be completed annually. The key requirements of this SFMP audit include:

- Assessment of compliance of all SFMP components.
- Evaluation of performance against SFMP provisions.
- Assessment of adequacy of management actions, response actions and monitoring.
- Review of management actions, response actions and monitoring as required in order to meet the purpose and objectives of this SFMP.
- Additional audit(s) in response to significant incidents of non-conformance.

SFMP audits shall be conducted by personnel trained and competent in the use of the audit tool and have expertise in the area being audited. Results of all audits will be communicated and discussed at project management review meetings.

4.2 CAPTURE AND RELEASE

Should capture and release be required, it is important that any capture and release is undertaken by qualified licensed personal in accordance with relevant DBCA standard operating procedures (SOPs) such as:

- Transport and temporary holding of wildlife SOP No: SC22-11 (DBCA 2023b)
- Cage traps for live capture of terrestrial vertebrates SOP No: SC22-07(DBCA 2023a)
- Animal handling and restraint using soft containment SOP No: SC22-12
- Hand capture of wildlife SOP No: SC22-12 (DBCA 2022c)(DBCA 2022)
- Hand restraint of wildlife (DBCA 2017b)
- Care of evicted pouch young SOP No.SC22-16 (DBCA 2023c)

An appropriate DBCA fauna license will be required to undertake capture and release.

4.3 INJURED FAUNA MANAGEMENT FOR SIGNIFICANT FAUNA

In unlikely event that an injured significant fauna individual is found, an assessment needs to be undertaken to determine if the fauna is safe to approach. If capture is necessary, the following management actions will be undertaken by a qualified fauna handler:

- If handling is the preferred method, safely confine (wrap the animal in towel and place in cardboard box) ensuring the animal can breathe.
- Keep box closed but not sealed to allow for ventilation and place box in a dry, warm, dark and quiet place.
- The DBCA (2023b) – Standard Operating Procedure (SOP) Transport and Temporary Holding of Wildlife procedure will be adhered to if the injured animal is to be transported:
  - Where transportation of the injured animal is to occur on foot or vehicle.
  - Individuals shall be kept within a box with ventilation for secure transport.
  - Temperature of vehicle will not exceed 25 degrees Celsius during transportation.
- First response wound management will be undertaken in accordance with DBCA (2017a) - SOP First aid for animals:

- Due to the remote location of the Project any medical attention required to the animal is to be assessed on a case-by-case basis in consultation with the fauna handler, a veterinarian and the Environment Manager.
- In the event the animal is injured (or is dependent young) and is not able to be re-released (based on veterinarian advice), the DBCA shall be consulted for rehabilitation options.
- No relocation of nests or rehabilitated fauna individuals is to occur (unless in extenuating circumstances where prior consultation has occurred with EPA, DCCEEW and DBCA and approval and a permit to handle and move significant fauna has been granted).
- Euthanasia of an animal will only be undertaken under the instruction of a veterinarian, however, DBCA (2018) - SOP Human Killing of Animals under Field Conditions will be considered, where appropriate.

5. REPORTING PROVISIONS

5.1 ANNUAL REPORTING

Annual compliance reporting will be undertaken for the Project in line with regulatory requirements and relevant guidance documentation, including the preparation of an AER and CAR. The annual reports will document compliance with Project approval conditions, as well as requirements stipulated in this SFMP.

5.2 EXCEEDANCE REPORTING

The following exceedance reporting will be undertaken if a trigger (**Section 5.3**) or Threshold (**Section 5.4**) exceedance occurs or a management action has not been implemented (**Section 5.5**) or management target has not been achieved (**Section 5.6**) in accordance with the SFMP.

5.3 TRIGGER EXCEEDANCE

- Trigger exceedance will be reported promptly in accordance with internal procedures (prior to the end of shift the following day) and reported to appropriate management staff.
- Investigate to determine the cause of the trigger exceedance.
- Internal reporting and communication of corrective actions to be implemented that eliminate or reduce the likelihood of recurrence.

5.4 THRESHOLD EXCEEDANCE

- Notify the CEO of the DWER in writing within 10 days of identifying and confirming the threshold exceedance, with a report provided via email including any corrective actions identified once an investigation has been completed.
- Investigate to determine the cause of the threshold exceedance.
- Investigate to determine the potential environmental harm or alteration of the environment that occurred as a result of the threshold exceedance.
- A follow up report detailing the adequacy of the response actions will also be submitted to the DWER within 12 months of the initial notification or within the ACAR.

5.5 MANAGEMENT ACTION HAS NOT BEEN IMPLEMENTED

- Notify the CEO of the DWER in writing within 10 days of identifying and confirming the failure to implement a management action, with a report provided via email including any corrective actions identified once an investigation has been completed.
- Investigate to determine the cause of the management action not being implemented.
- Investigate to determine the potential environmental harm or alteration of the environment that occurred due to the failure to implement the management action(s).
- Provide a report to the CEO including any corrective actions identified, within 21 days of the initial notification of failure to implement a management action being identified.

5.6 MANAGEMENT TARGET HAS NOT BEEN ACHIEVED

- Notify the CEO of DWER in writing within 21 days of identifying and confirming the non-achievement of the target.
- Investigate to determine the cause of the management target not being achieved.

- Provide a report to the CEO within 90 days of the non-achievement of the target being reported.
- The report shall include:
  - the cause(s) of the management targets not being achieved.
  - details of revised and/or additional management actions to be implemented to prevent reoccurrence of management target(s) not being met.
  - appropriate changes to Project activities/ corrective actions required.

5.7 INCIDENT REPORTING

Environmental incidents will be promptly reported in accordance with internal procedures and reported to appropriate management staff. Corrective actions, when appropriate, will also be developed and implemented that eliminate or reduce the likelihood of recurrence.

The minimum standards required in respect to non-conformance and corrective actions are to:

- Define and document what classifications of incidents and non-conformances are reportable to:
  - internal management.
  - contractors, suppliers and vendors.
  - regulatory authorities.
  - other external stakeholders.
- Report environmental incidents and non-conformances in line with established procedures and applicable legal and other obligations.
- Investigate incidents and non-conformance such that the root cause can be determined.
- Implement corrective actions that address the root cause(s) of the incidents and non-conformances that aim to eliminate or improve response capabilities to prevent reoccurrence.
- Retain documentation as evidence.

6. ROLES AND RESPONSIBILITIES

MinRes will ensure that all personnel and contractors are responsible for ensuring they comply with the company's environmental management requirements and that any action or inaction on their part does not result in harm to the environment. Delegation of responsibilities may occur to ensure that environmental management activities are coordinated at an appropriate level; however, accountability remains with the person designated those responsibilities. MinRes also expects this general principle of line management accountability to apply to all its contractors. Roles and responsibilities have been designated to ensure that environmental management requirements within this SFMP are met. The key personnel involved in implementation of the SFMP, and their roles and responsibilities are listed in Table 10.

Table 10: Roles and Responsibilities

Role	Responsibility

MinRes	• Overall responsibility for implementing this SFMP.
	• Ensure the development and implementation of procedures and plans in the SFMP:
	  • Hazardous Substances Management Plan (HSMP) and Procedure.
	  • Emergency Response Plan.
	  • Spill Response Plan.
	  • Controlled Waste Management Procedure.
	  • Contaminated Sites Register.
	  • Waste Management Procedure.
	  • Traffic Management Plan
	  • Emergency Response Plan
	  • Weed Management Plan
	  • FVMP.
	  • Audit and compliance checks.
	  • Engagement with Traditional Owners.

Project Manager (may delegate all or part responsibility to an appropriately qualified person)	• Ensure construction and operational activities are implemented by employees (inclusive of contractors) in accordance with the SFMP
Manager Environment (may delegate all or part responsibility to an appropriately qualified person)	• Obtain relevant approvals from regulatory agencies for disturbance as required. • Undertake Monitoring in accordance with the SFMP. • Incident Reporting and Monitoring in accordance with the SFMP. • Maintain clearing register to ensure compliance with approvals. • Undertake internal audits and inspections of clearing areas and compliance with SFMP. • Implement and maintain the SFMP, review its effectiveness and review the implementation as required. • Undertake training and inductions of personnel in accordance with the SFMP. • Liaise with stakeholders and technical experts for advice and resolution of management aspects/objectives as required. • Engagement with Traditional Owners. • Report as required to regulating authorities.
Employees (inclusive of contractors)	• Complete induction prior to commencement of work on site. • Toolbox. • Training. • Comply with requirements in SFMP. • Stop works if impact to the environment is suspected or known. • Report any environmental concerns, opportunities for improvement, near misses or incidents to their supervisor ASAP.

7. ADAPTIVE MANAGEMENT AND REVIEW

Adaptive management practices will be implemented where change to management practices and monitoring may lead to more effective environmental outcomes. The adaptive management approach may include the following components:

- Evaluation of the management actions and targets:
  - if monitoring results or audits indicate that management objectives are not being achieved.
  - if new information is discovered during construction, operations or closure.
  - where any significant changes to Project design or operation have occurred.
- Evaluation of assumptions and uncertainties following further significant fauna monitoring and management.
- Review of data and information gathered over the review period that has increased understanding of the environment in the context of the regional ecosystem.
- Review of Management Actions as the Project progresses, and new management measures and technologies become available that may be more effective for significant fauna management.
- Assessment of changes which are outside the control of the Proponent (i.e., a new project within the area or region, regional change affecting significant fauna management) and the revised management measures identified.
- Amendment to the monitoring program.

7.1 REVIEW OF THIS SFMP

This SFMP will be reviewed periodically during the phases (construction, operations and into closure), nominally once every 2 years. Other occasions when this SFMP will be reviewed include:

- Upon significant changes to the Project activities or upon significant changes to key environmental values identified in this SFMP.
- Following non-compliances or environmental incidents related to significant fauna management.
- If one or more management targets or performance indicators are not being met and adaptive management is required.
- Upon regulatory approval of the Project by the DWER and the Department of Mines, Industry Regulation and Safety (DMIRS).

The review process will ensure that this SFMP remains current and adheres to regulatory requirements and the provisions of this SFMP. Any significant changes to this SFMP will be referred to the DWER for approval prior to implementation of such changes.

8. STAKEHOLDER CONSULTATION

The Proponent is committed to ongoing stakeholder engagement and communication through all stages of the Project.

8.1 ENGAGEMENT

Stakeholder engagement for the Project commenced in 2012 and specific stakeholder engagement activities undertaken have included:

- Briefings and presentations with key regulatory authorities and potentially affected parties to provide information on the Project, planned studies and request feedback.
- Face to face meetings, telephone calls and written correspondence with potentially affected stakeholders to provide updates on the Project and obtain additional feedback.
- Specifically, consultation between MinRes and the Banjima People, through the body corporate Banjima Native Title Aboriginal Corporation (BNTAC) and their consultants, regarding the preparation of various environmental regulatory approvals (State and Commonwealth) has been conducted, including reviews of this SFMP. Feedback from these engagements has been incorporated into the approval submission documents and this SFMP.

Through the variety of engagement forums, the Proponent has been able to identify the required studies and investigations and, importantly, key environmental and socials impacts, and associated mitigation strategies required to support the Project, to ensure the Project aligns with expectations. A detailed summary of stakeholder communications is provided in Chapter 3 of the EPBC Preliminary Document.

8.2 KEY STAKEHOLDERS

The Proponent has identified key Project stakeholders, and these are listed in **Table 11.**

Table 11: Key Stakeholders for the Project

Stakeholder Sector	Organisation
Australian Government Agencies	Department of Climate Change, Energy, the Environment and Water
State Government Agencies & Members of Parliament	Department of Biodiversity, Conservation and Attractions
	Department of Jobs, Tourism, Science and Innovation
	Department of Energy, Mines, Industry Regulation and Safety
	Department of Planning, Lands and Heritage
	Department of the Premier and Cabinet (Ministers for Water and Environment)
	Department of Primary Industries and Regional Development
	Department of Transport
	Department of Water and Environmental Regulation - Environmental Protection Authority services
	Department of Water and Environmental Regulation
	Development WA
	Environmental Protection Authority

Stakeholder Sector	Organisation
	Main Roads WA
	Pilbara Port Authority
	Alinta Energy
Local Government	Shire of East Pilbara
Traditional Owners	Banjima Native Title Aboriginal Corporation
	Martidja Banyjima (MIB) – Karijini Development Pty Ltd
Corporate and Community	Rio Tinto/Juna Downs Pastoral Lease
	Bird Life Western Australia
	BHP
	Wildflower Society of Western Australia
	Conservation Council of Western Australia
	Wilderness Society

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APPENDIX A
CAVE CLOSURE AND CAVE DISRUPTION PROTOCOL

Appendix A Cave Closure and Cave Disruption Protocol

A.1 Background

A conservative protocol (Cave Closure and Cave Disruption Protocol) is recommended by Bat Call WA (2023a) to protect reproducing Ghost Bat females and their young during the most important part of their reproductive cycle. This covers the periods when:

- Gravid females are subject to premature birth due to either capture and handling or repeated flushing of the bats from their diurnal roost caves.
- Females carrying newborns are subject to dropping them due to capture or disturbance.
- Non-volant young in nurseries are subject to abandonment due to repeated disturbance of the mothers.
- Newly volant young during the early adolescent period are subject to premature abandonment due to repeated disturbance of the mothers and/or young.

For Ghost Bat category 1, category 2, and category 3 roost caves (**Figure 4**) that are part of an important cave grouping, the following cave disturbance protocols will be followed as recommended by Bat Call WA (2023a) :

1. Surveys with higher disturbance to Ghost Bats (i.e., when Ghost Bats are captured, or are present and are disturbed) will be limited to once per cave during August, September, and January.
2. Multiple lower disturbance survey entries per cave are allowed in August, September, and January. The surveys should be done by one ecologist working quietly to minimise stressing the bats present and hopefully not flushing them from the cave. If a Ghost Bat(s) is disturbed and flushed from the cave, the caves and their entrance areas should be vacated to allow the bat(s) to return and settle. Restrictions per item 1 above then apply.
3. No cave entries should be carried out in October, November and December, including entry to inspect caves within the potential impact zone of a drilling/blasting program. Any damage assessments required during blasting operations in this time period should be carried out from the cave entrance.
4. Where category 2 and 3 caves are within the impact zone of a drilling/blasting program (Cave 1 as shown in **Figure 4**), and after it is proven that there are no Ghost Bats inside, the caves may be temporarily sealed prior to 1 October and remain inaccessible to Ghost Bat throughout the female's reproductive period.

A.2 Procedure for Temporary Closure of Cave 1

The methodology for closure of Cave 1 will be developed in consultation with DBCA. However, it is anticipated that the closure of Cave 1 is likely to be temporarily closed by using a lightweight steel frame fitted to the entrance and bird aviary steel netting or any heavier style with apertures not exceeding 100 mm. This would exclude Ghost bats from entering the cave but smaller species up to 10g such as Pilbara leaf-nosed bats (*Rhinonicteris aurantia*) or Finlayson's cave bat (*Vespadelus finlaysoni*) would be able to pass through unharmed. Other small fauna of a similar size including reptiles, frogs and snakes would also be able to access the cave. With regard to larger fauna such as Quolls, Dingoes and/or Macropod species that will be excluded by the closures, Cave 1 is situated in an area with numerous alternative deep overhangs and shallow caves that are suitable for their foraging and/or resting activities. Each of these species is known to travel significant distances on a daily basis (Bat Call WA 2023a).

Cave closure is viable as there is Ghost Bat habitat in close proximity (within 25 km to the east, south and west of the Development Envelope) that will allow the bats to relocate during mining operations and return to the retained caves once mining is complete (Bat Call WA 2023a). Experience at other Iron Ore mines has shown that Ghost Bats return to roost at viable caves that have been (structurally) retained after several years (Bat Call WA 2021b; Bullen and Creese 2014). The cave will remain closed for the life of mine (approximately 3 years) then reopened after completion of mining.

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APPENDIX B
VIBRATION MONITORING

Appendix B Vibration Monitoring

Ground vibrations as a result of the release of explosive energy from the blasting process can spread through adjacent rock and soil to surrounding structures, slopes, and benches. Vibration monitoring is to be undertaken at Cave 1 to ensure the structural integrity of the cave is maintained during the blasting process.

Methods for vibration monitoring will be determined in consultation with DBCA to ensure that there is no impact to the cave's structural integrity.

Additional noise monitoring will not be required as the cave will be closed in accordance with the procedure outlined in **Appendix A** of this SFMP and no Ghost Bats will be present within the cave during blasting operations.

The following indicative methodology is proposed:

- A permanent location for vibration monitoring will be established at Cave 1 as close as possible to the nearest part of the cave to the pit, as confirmed through survey pickup.
- Vibration will be measured at the monitoring location at Cave 1 prior to and during each blast (monitoring equipment with data logger). Vibration data loggers will be connected via telemetry with appropriate safety procedures and protocols developed and implemented prior to vibration monitoring being undertaken.
- All monitoring equipment used will be in accordance with the Australian Standard for Blast Monitoring (AS2187.2-2006) which provides guidelines for the type of equipment required to monitor ground vibration (peak particle velocity, or PPV).
- The Proponent has conducted a geotechnical assessment, including peak particle velocity (PPV) analysis of Cave 1 indicating that the conservative limit of 25 mm/sec PPV (Bat Call WA 2023a) will ensure that the structural integrity of the cave will not be affected by the modelled vibration from blasting. Modelled predictions will require calibration for actual on-site conditions throughout the blasting process. This will be achieved by the blasting engineer comparing the results of initial blasts with the predictions of the model.
- Cave inspections to be undertaken before and after the first blast in the pit to assess for any signs of instability. This would include a geotechnical photographing structural assessment. Subsequent to these initial visitations drone surveys would be undertaken quarterly to monitor the structural integrity of the cave during the first year and six-monthly thereafter if conditions are unchanged. Additional cave inspections to be conducted if Trigger or Threshold PPV limits exceeded, as per **Table 6** in the SFMP.
- Develop appropriate safety procedures ensuring that cave structural integrity can be assessed safely by personnel.

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MINERAL RESOURCES

APPENDIX C
FERAL ANIMAL MONITORING AND CONTROL PLAN

Appendix C Feral Animal Monitoring and Control Plan

C.1 Background

Feral and pest fauna, specifically feral cats and foxes have been implicated in the significant decline of multiple species of vertebrate fauna (DEWHA 2008b;c). Feral animal monitoring will be undertaken to monitor for a potential increase in the numbers of feral animals.

A detailed feral animal monitoring plan design will be completed in consultation with DBCA.

C.2 Feral Animal Monitoring

It is anticipated that annual population monitoring of introduced fauna will consist of the following:

- Deployment of cameras to establish baseline numbers. The Proponent proposes to establish baseline feral animal numbers over a two-year period prior to and during construction and early operations.
- Quantitative and systematic recording of introduced animals undertaken through the deployment of cameras at permanent locations within the Project Area will be identified with star pickets as follows:
    - Monitoring for feral animal presence will be undertaken on a quarterly basis.
    - Feral animal monitoring will be undertaken at control sites (those with the potential to be impacted by the Project) and reference locations (not impacted by the Project). Areas with the potential to attract feral animals such as the camp, waste storage facilities and key infrastructure areas will be a focus for monitoring.
    - Opportunistic visual observations whereby site personnel and contractors will be required to record sightings of feral animals at the site, including date, time, location and species. Those observations will be considered in relation to the annual monitoring results, to inform management of site activities.

C.3 Reporting

The results of feral animal monitoring and control activities will be summarised in the Proponent's Annual Environmental Report**.**

The feral animal monitoring report will include a summary of results of systematic monitoring and recording of opportunistic sightings of introduced fauna (e.g. feral cats and foxes), through annual monitoring, feral animal control reports and incident reports.

C.4 Review

Results of the monitoring program will be reviewed annually. Where required, modifications to the program will be implemented to achieve the stated targets. Details of material changes to the feral animal management approach will be described in the Annual Environment Report.

C.5 Feral Animal Control Program

The feral animal control program will be undertaken annually within areas potentially impacted by the Project with a focus on:

- Areas where significant fauna have been recorded in proximity to the Project Area.
- Areas likely to attract feral animals, for example the camp, waste facilities, areas with accessible water and key infrastructure areas.

Feral animal control will include appropriate measures to control feral animals, as required, and may include:

- Baiting.
- Shooting.
- Grooming traps.
- Trapping.

C.6 Licences:

Depending on the method of feral animal control, different licences and permits are likely to be required. This may include, but not be limited to:

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- Department of Health 1080 landholder application and permit.
- DPIRD License to Use Animals for Scientific Purposes.
- DPIRD Wildlife Animal Ethics Committee animal ethics permit.
- DBCA Fauna Licence approval.
- DBCA 1080 risk assessment and no toxic trial (Grooming traps).

C.7 Measurable outcomes

The success of the feral and pest animal reduction program will be measured by changes (decline) in feral animal presence recorded over time. It is anticipated that the feral animal monitoring and control program will reduce predation pressure of foxes and feral cats within proximity to the Project and should see an increase in the abundance of native vertebrate fauna species.

C.8 Reporting

The specialist contractors undertaking the feral and pest animal reduction program will provide a written report at the conclusion of each control program. The report will include the following sections: methods, results, discussion and recommendations.

This report will quantify the outcomes of feral animal control undertaken. The results of the control activities will be summarised in the annual environmental reports.

Contractor reports will be available upon request.

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MINERAL RESOURCES

APPENDIX D
RISK ASSESSMENT

Appendix D Risk Assessment

A qualitative risk assessment was conducted in accordance with the Environmental Management Plan Guidelines (Commonwealth of Australia 2014) to assess the risks of the Project and is shown in **Table D 2**. Each environmental risk identified has been provided a likelihood and consequence rating using the criteria in **Table D 1** below to generate a risk rating of low, medium, high or severe.

Table D 1: RISK ASSESSMENT CRITERIA

	Consequence				
Likelihood	**Minor**	**Moderate**	**High**	**Major**	**Critical**
Highly likely	Medium	High	High	Severe	Severe
Likely	Low	Medium	High	High	Severe
Possible	Low	Medium	Medium	High	Severe
Unlikely	Low	Low	Medium	High	High
Rare	Low	Low	Low	Medium	High

Likelihood	
The following criteria has been used to determine the likelihood of the risk occurring	
Highly likely	The risk event is expected to occur in most circumstances
Likely	The risk event will probably occur during the life of the project
Possible	The risk event might occur during the life of the project
Unlikely	The risk event could occur but considered unlikely or doubtful
Rare	The risk event may only occur in exceptional circumstances
Consequence	
The following criteria has been used to determine the consequences of a risk occurring	
Minor	Minor incident of environmental damage that can be reversed
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts
High	Substantial instances of environmental damage that could be reversed with intensive efforts
Major	Major loss of environmental amenity and real danger of continuing
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage

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Table B 2: Fauna and Habitat ENVIRONMENTAL RISK ASSESSMENT

Value	Potential Impacts	Inherent Risk			Management Measures	Residual Risk		
		Likelihood	Consequence	Risk		Likelihood	Consequence	Ranking
Fauna and habitat	Unauthorised Clearing in critical habitat.	Possible	High	Medium	Management measures are outlined in **Table 7.** Any potential impacts from fauna habitat fragmentation is expected to be managed through suitable design and mitigation measures, this risk event is considered **MEDIUM**. Loss of habitat is proposed to be offset for: ○ Ghost bats ○ Northern Quoll ○ Pilbabra Olive Python	Unikely	High	Medium
Fauna and habitat	Fragmentation of fauna habitat.	Possible	Moderate	Medium	Management measures are outlined in **Table 7.** Any potential impacts from fauna habitat fragmentation is expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Possible	Minor	Low
Fauna	Fauna injury or mortality as a result of ground disturbance, machinery and blasting.	Possible	Moderate	Medium	Management measures are outlined in **Table 7.** Any potential impacts to fauna as a result of ground disturbance, vehicle interactions, machinery and blasting is expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Unlikely	Moderate	Low

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Value	Potential Impacts	Inherent Risk			Management Measures	Residual Risk		
		Likelihood	Consequence	Risk		Likelihood	Consequence	Ranking
Fauna	Fauna mortality as a result of a potential increase in the prevalence of introduced species and feral predators.	Likely	High	High	Management measures are outlined in **Table 7.** The potential impacts to terrestrial fauna can be managed such that there are no significant residual impacts, and the biological diversity and ecological integrity of terrestrial fauna will be maintained. Therefore, it is considered **unlikely** that the Project will result in significant impacts from an increase to feral fauna predator activity, this risk event is considered **MEDIUM.**	Possible	High	Medium
Dust	Dust generated as part of construction and operational activities has the potential to impact on local flora and fauna. Reduced health and viability of fauna habitat	Likely	Moderate	Medium	Management measures are outlined in **Table 7.** Any potential decline or change in the health/composition of fauna and fauna habitat arising from dust are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Possible	Minor	Low
Noise and vibration	Noise and vibration disrupting natural foraging and breeding behaviours	Possible	High	Medium	Management measures are outlined in **Table 7.** Any potential disruption to species behaviour from noise and vibration are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Unlikely	Moderate	Low

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Value	Potential Impacts	Inherent Risk			Management Measures	Residual Risk		
		Likelihood	Consequence	Risk		Likelihood	Consequence	Ranking
Light emissions	Artificial light can potentially disturb species behaviour, cause barriers to movement, cause abandoning of roosts and nests, and expose nocturnal animals to nocturnal predators.	Likely	Moderate	Medium	Management measures are outlined in **Table 7.** Any potential disruption to species behaviour from artificial light are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Likely	Minor	Low
Weeds	Introduction and/or spread of weed species leading to reduced flora species and system diversity.	Likely	Moderate	Medium	Management measures are outlined in **Table 7.** Any potential decline or change in the health/composition of fauna habitat arising from the introduction and/or spread of weeds are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Possible	Minor	Low
Hydrocarbons	Inadequate transport, handling and storage of hydrocarbons and chemicals leading to contamination of the environment	Likely	Minor	Low	Management measures are outlined in **Table 7** Any potential contamination of fauna habitat arising from the inadequate transport, handling and storage of hydrocarbons and chemicals is expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**	Possible	Minor	**Low**

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Value	Potential Impacts	Inherent Risk			Management Measures	Residual Risk		
		Likelihood	Consequence	Risk		Likelihood	Consequence	Ranking
Fire	Construction activities have the potential to cause accidental bushfires which may lead to damage or death to surrounding flora and fauna communities	Likely	High	High	Management measures are outlined in **Table 7.** Any potential decline or change in the health/composition of fauna habitat arising from fire are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **MEDIUM**.	Unlikely	High	Medium
Hydrological change	Potential decline or change in the health/composition of fauna habitat arising from hydrological regime changes.	Likely	Moderate	Medium	Management measures are outlined in **Table 7.** Any potential decline or change in the health/composition of fauna habitat arising from hydrological changes are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Possible	Minor	Low

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APPENDIX G
SIGNIFICANT FAUNA MANAGEMENT PLAN

MINERAL RESOURCES

MANAGEMENT PLAN

SIGNIFICANT FAUNA MANAGEMENT PLAN

LAMB CREEK IRON ORE PROJECT

25/09/2024 VERSION 0

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Revision History				
Version	**Issue Date**	**Prepared by**	**Approved By**	**Document Purpose**
0	25/09/2024	Carl Paton Adam Cross Neil Smith	Adam Parker – Manager Project Approvals	Regulatory Submission

Acknowledgement of Country

MinRes is committed to reconciliation and recognises and respects the significance of Aboriginal and Torres Strait Islander peoples' communities, cultures, and histories. MinRes acknowledges and respects Aboriginal and Torres Strait Islander peoples as the traditional custodians of the land.

EXECUTIVE SUMMARY

Table ES-1 summarises the purpose of the Significant Fauna Management Plan (SFMP) and Monitoring Program within the context of the Western Australia Environmental Protection Authority (EPA) objectives for the key environmental factor of Terrestrial Fauna (EPA 2016), but is also relevant for EPBC fauna considerations. The SFMP and Monitoring Program also aligns with the EPA (2021c) and Commonwealth of Australia (2014) Environmental Management Plan Instructions and Guidelines. The SFMP and Monitoring Program has been prepared for the Mineral Resources Lamb Creek Iron Ore Project. This Environmental Management Plan specifically addresses the Terrestrial Fauna environmental factor associated with the Project.

Summary Table ES-1 below presents the environmental outcomes and objectives for the environmental factor to be met through implementation of this SFMP, as well as the environmental criteria and management targets to measure achievement of the associated environmental outcomes and objectives.

Table ES-1: Significant fauna Management plan Summary

Project Title	Lamb Creek Iron Ore Mine	
Short Description	Open pit iron ore mine located approximately 130 km northwest of Newman to produce up to 10 million tonnes per annum (Mtpa) of crushed and screened iron ore over a period of three to five years. This will comprise a multi-stage crushing and screening process plant and associated mine infrastructure including, but not limited to, site offices, maintenance and equipment service area, water pipelines, fuel storage, power generation, telecommunications and an accommodation village for site personnel. The total disturbance footprint of the Project is 646.9 ha (Indicative Footprint), within a Development Envelope of 874 ha (**Figure 1**). Iron ore product will be loaded onto road trains and transported 16 km on a dedicated private haul road to its intersection with Great Northern Highway, where it will be transported 320 km to ship load-out facilities at the Utah Point berth in Port Hedland.	
Proponent Name	Process Minerals International (PMI) a wholly owned subsidiary of Mineral Resources Limited (MinRes) (ACN 118 549 910)	
Ministerial Statement No.	TBA	
Scope And Purpose Of SFMP	The purpose of the Significant Fauna Management Plan (SFMP) is to present a robust and implementable environmental management framework to protect the environmental values of the Project and to demonstrate that the EPA's objectives are met during the construction and operation of the Project (also relevant for EPBC fauna considerations).	
Key Environmental Factor and Objective	Terrestrial Fauna:	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.
Outcome-based Management Provisions	Ensure development and operation of the Project meets the objective of protecting significant fauna and fauna habitat to maintain biological diversity and ecological integrity.	
Objective-based Management Provisions	No clearing of critical fauna habitat shall occur outside of approved, demarcated, clearing area(s) during construction or operations. Feral predator management effectively implemented to avoid increasing impacts on native fauna populations as a result of the Project. Effective operation of the Project to avoid Project related fire. Minimise fauna mortality from construction and operation of Project infrastructure and operations caused by; open water sources, open trenches/excavations, vehicle strike.	

Condition Clauses	TBA
Key Components In the SFMP	Key provisions are detailed in Section 3
Proposed Construction and Operation Dates	The forecast key milestones for construction and commissioning are: construction Q3 to Q4 2025. commence commissioning Q1 2026. commence operation from Q1 2026 to Q2 2026.
SFMP Required Pre-construction	Yes - this SFMP will be required to be implemented during installation of access tracks and roads into the site, following granting of licensed tenements

Declaration of accuracy

In making this declaration, I am aware that section 491 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed	
Full name (please print):	Celine Mangan
Organisation (please print):	Mineral Resources Ltd
Date	25/09/2024

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Appendices

Appendix A Cave Closure and Cave Disruption Protocol

Appendix B Vibration Monitoring

Appendix C Feral Animal Monitoring and Control Plan

Appendix D Risk Assessment

ABBREVIATIONS

Abbreviation	Definition
AER	Annual Environment Report
BC Act	Biodiversity Conservation Act 2016
CAR	Compliance Audit Report
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEMIRS	Western Australian Department of Energy Mines, Industry, Regulation, and Safety
DWER	Western Australian Department of Water and Environmental Regulation
EMS	Environmental Management System
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EP Act	Environmental Protection Act 1986
EPA	Western Australian Environmental Protection Authority
FVMP	Flora and Vegetation Management Plan
GWOS	Groundwater Operating Strategy
Ha	Hectare
LiDAR	Light Detection and Ranging
MCP	Mine Closure Plan
PMI	Process Minerals International
PEOF	Pilbara Environmental Offsets Fund
RSD	Referral Supporting Document
SOP	Standard Operating Procedure
SFMP	Significant Fauna Management Plan
SWMP	Surface Water Management Plan
WRL	Waste Rock Landform

1. CONTEXT, SCOPE AND RATIONALE

1.1 PROJECT BACKGROUND

Process Minerals International (PMI; the Proponent), a wholly owned subsidiary of Mineral Resources Limited (MinRes) (ACN 118 549 910), proposes to develop the Lamb Creek Iron Ore Project (the Project), located approximately 130 kilometres (km) northwest of Newman, in the East Pilbara Local Government Authority (LGA) in Western Australia (WA).

Open pit iron ore mine located approximately 130 km northwest of Newman to produce up to 10 million tonnes per annum (Mtpa) of crushed and screened iron ore over a period of three to five years. This will comprise a multi-stage crushing and screening (two or three stages) process plant and associated mine infrastructure including, but not limited to, site offices, maintenance and equipment service area, water pipelines, fuel storage, power generation, telecommunications and an accommodation village for site personnel. Project Iron ore product will be loaded onto road trains and transported 16 km on a dedicated private haul road to its intersection with Great Northern Highway, where it will be transported 320 km to ship load-out facilities at the Utah Point berth in Port Hedland.

The Project is being referred under s. 38 of the Environmental Protection Act 1986 (EP Act) as it has the potential to significantly affect key environmental factors, defined by the WA Environmental Protection Authority (EPA) in its Statement of environmental principles, factors, objectives and aims of EIA (Environmental Protection Authority, 2021b). The Project is also being referred under the Environment Protection and Biodiversity and Conservation Act 1999 (EPBC Act) as it is likely to have a significant impact on Matters of National Significance (MNES). A Native Vegetation Clearing Permit (NVCP) under Part V of the EP Act will also be sought for the area of the Project that intersects the Great Northern Highway Road Reserve.

As a result of the various approvals being sought for the Project, there are subtle differences in the Development Envelopes (DE) and Indicative Footprints, however the overall clearing associated with the Project is the same. The maximum DE or Proposed Action Area for the EPBC referral is 897.5 ha, as the EPBC referral was based on an earlier, now revised, DE footprint. The EPBC referral DE is also slightly larger than that for the s. 38 Referral, due to the splitting of the DE between the approvals under Part IV and Part V of the EP Act. This Significant Fauna Management Plan (SFMP) has been prepared to support the submission of the Referral Supporting Document (RSD), Mining Proposal, NVCP and EPBC Referral to detail the management actions proposed to reduce adverse environmental impacts to the key environmental factor of Terrestrial Fauna and MNES.

Key nomenclature used throughout this document is summarised below:

The Project: This refers to the boundary within which the elements of the proposed activities are situated.

Project Area (897.5 ha): Refers to the maximum proposed Development Envelope (as for EPBC) within R47/19 (to be converted to M47/1592) and L47/1008, which overlie the Juna Downs pastoral lease (LPL N050471). A small portion of the access road and Great Northern Highway intersection area is within railway corridor L021124 (Hamersley Iron Pty Ltd- Yandicoogina Rail) that is excised from Juna Downs. This Project Area also includes the area of the intersection with the Great Northern Highway which is entirely within Main Roads WA road reserve.

Development Envelope (874 ha): delineates the area within which the Project components are located (**Figure 1**). and is a combination of the development envelopes included in the Part IV and Part V applications.

Indicative Footprint (646.9 ha): refers to the area that is proposed to be directly disturbed by the Project (e.g. clearing of native vegetation) (**Figure 1**) occurs entirely within the Development Envelope. The

layout of the Indicative Footprint may be subject to change; however, total disturbance will not exceed the maximum disturbance for the Development Envelope.

Terrestrial Fauna Survey Area (1645 ha): refers to the boundary within which all Terrestrial Fauna investigations and field surveys were undertaken.

This SFMP has been prepared in accordance with the *How to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans: Instructions* (Environmental Protection Authority 2021a).

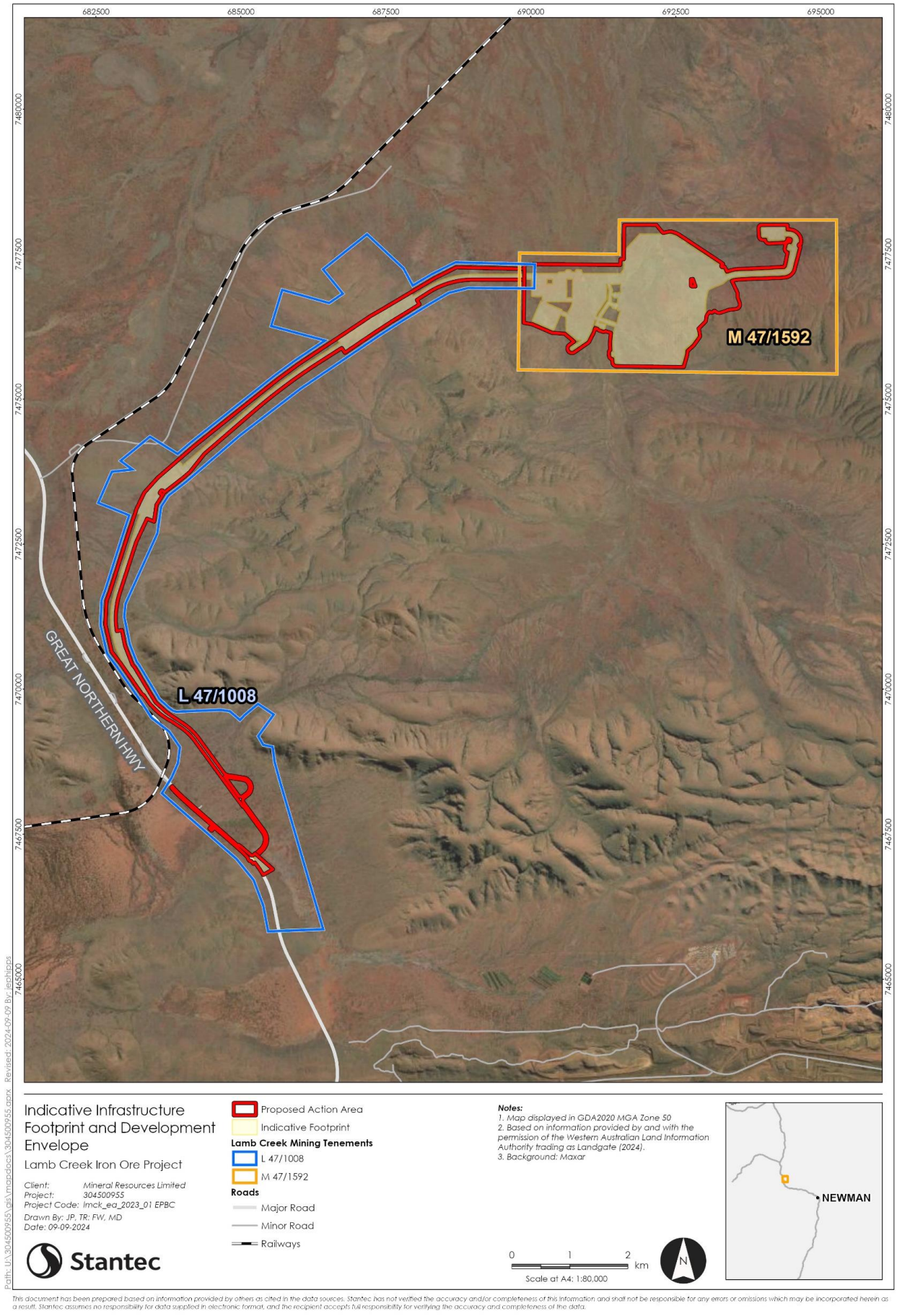

Figure 1: Development Envelope and Indicative Footprint

1.2 KEY ENVIRONMENTAL FACTOR – TERRESTRIAL FAUNA

The EPA's objective for the environmental factor of Terrestrial Fauna is "To protect terrestrial fauna so that biological diversity and ecological integrity are maintained" (Environmental Protection Authority 2016). In the context of this objective, ecological integrity is the composition, structure, function and processes of ecosystems, and the natural range of variation of these elements. Terrestrial Fauna is considered a key environmental factor for the Project due to the potential for direct and indirect impacts during construction and operation activities. Comprehensive surveying identified 21 significant species as occurring within the Study Area. Several of the fauna species are Matters of National Environmental Significance (MNES), listed at the Commonwealth and/or State level. Of the significant fauna with the potential to occur in the Study Area, the following five species were considered likely to occur in the Lamb Creek Project area and one species, the Fork-tailed Swift, was recorded:

- Northern Quoll (Dasyurus hallucatus) – Endangered.
- Ghost Bat (Macroderma gigas) – Vulnerable.
- Pilbara Leaf-nosed Bat (Rhinonicteris aurantia) – Vulnerable.
- Pilbara Olive Python (Liasis olivaceus barroni) – Vulnerable.
- Grey Falcon (Falco hypoleucos) – Vulnerable.
- Fork-tailed Swift (Apus pacificus) – Migratory, recorded.

The Proponent considers the Project can be managed to meet the EPA's objective for Terrestrial Fauna, aided by the conceptual design, planned construction and operational procedures that will be implemented to avoid, mitigate and maintain terrestrial fauna values. In addition, residual impacts from the clearing of supporting habitat for several significant fauna species is proposed to be offset through the Pilbara Environmental Offsets Fund (PEOF), managed via the Native Vegetation Clearing Permit process in accordance with Part V s 51I(2)(b) of the EP Act and in alignment with the native vegetation clearing principles in accordance with Schedule 5 cl 1 of the EP Act. These proposed offsets (to be finalised, agreed with DWER) include 42.0 ha of critical habitat (foraging and dispersal) for Northern Quoll, and 622.3 ha of supporting habitat (foraging) for Ghost Bat, and lesser portions of this 622.3 ha as supporting habitat for the Pilbara leaf-nosed Bat and Pilbara Olive Python .

1.3 PURPOSE AND OBJECTIVE

The purpose of this SFMP is to document the Proponent's approach to managing the potential impacts of construction and operation of the Project on significant fauna species to:

- Ensure that the Project is carried out in a manner that minimises the direct and indirect impacts to significant fauna species; and
- Ensure there is no direct or indirect adverse impacts to significant fauna species within the Project Area and immediate surrounds.

The Proponent is committed to avoiding and minimising potential impacts from the Project during construction and operation to ensure the biodiversity and ecological integrity of terrestrial fauna are maintained.

The objective of this SFMP is to meet the EPA's objective for the environmental factor of Terrestrial Fauna using the EPA's mitigation hierarchy of avoid, minimise, rehabilitate and offset (Government of Western Australia 2014). This will be addressed by ensuring potential impacts to significant fauna from the Project are avoided to the maximum extent practicable by:

- Identifying the risks and potential impacts from the Project on significant fauna species.

- Outlining management provisions for terrestrial fauna, to avoid and minimise potential impacts to significant fauna populations.
- Preparing and implementing monitoring programs for populations recorded within the Development Envelope; and
- Proposing corrective and response actions if triggers and thresholds are exceeded to avoid impact to significant fauna populations.

1.4 RATIONALE AND APPROACH

The SFMP focuses on outcome-based management provisions including monitoring and evaluating success of management actions with respect to significant fauna populations within the Project Area, driven by triggers and thresholds. Assessment of the pathways over which impacts may occur provides the rationale for choice of provisions and choice of appropriate indicators to measure against the environmental outcome and/or objective.

This SFMP is subject to approval by the EPA and Department of Climate Change, Energy, the Environment and Water (DCCEEW) and will subsequently be implemented.

1.5 LEGISLATION, POLICY AND GUIDANCE

This SFMP has been written in accordance with Western Australian (WA) and Commonwealth policies and guidance, including:

- Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans; (EPA 2021b).
- Environmental Impact Assessment (Divisions 1 and 2) Procedures Manual (EPA 2021a).
- Environmental Management Plan Guidelines (Commonwealth of Australia 2014).
- Outcomes-based conditions policy (DoE 2016b).
- Outcomes-based conditions guidance (DoE 2016a).
- National Light Pollution Guidelines for Wildlife (DCCEEW 2023a).
- Biodiversity Conservation Act 2016 (WA).
- Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth).

The following management plans and strategies are also relevant to the SFMP, specific to the Project and include:

- Flora and Vegetation Management Plan (FVMP).

State and Commonwealth plans and management prescriptions that are relevant to the terrestrial fauna include:

- Environmental Factor Guideline – Terrestrial Fauna (EPA 2016);
- Commonwealth Listing Advice on Northern Quoll (Dasyurus hallucatus) (Threatened Species Scientific Committee 2005).
- National Recovery Plan for the Northern Quoll Dasyurus hallucatus (Hill and Ward 2010).
- EPBC Act referral guideline for the endangered Northern Quoll Dasyurus hallucatus (DoE 2016c).
- Conservation Advice Macroderma gigas Ghost Bat (TSSC 2016).
- A review of Ghost Bat ecology, threats and survey requirements (Bat Call WA 2021a).
- Conservation Advice Rhinonicteris aurantia (Pilbara form) Pilbara Leaf-nosed Bat (TSSC 2016).
- A review of Pilbara Leaf-nosed Bat ecology, threats and survey requirements (Bat Call WA 2021c).

- Approved Conservation Advice for Liasis olivaceus barroni (Olive Python – Pilbara subspecies) (TSSC 2008).
- Conservation Advice Falco hypoleucos Grey Falcon (Threatened Species Scientific Committee 2020).
- Referral guideline for 14 birds listed as migratory species under the EPBC Act (Department of the Environment 2015).
- Matters of National Environmental Significance. Significant impact guidelines 1.1 - Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth of Australia 2013).
- Survey Guidelines for Australia's Threatened Birds (DEWHA 2010).
- Survey Guidelines for Australia's Threatened Reptiles (DSEWPaC 2011b).
- Survey Guidelines for Australia's Threatened Mammals (DSEWPaC 2011a).
- Threat Abatement Plan for Competition and Land Degradation by Feral Goats (DEWHA 2008a).
- Threat Abatement Plan for Competition and Land Degradation by Feral Rabbits (DEE 2016).
- Threat Abatement Plan for Predation by Feral Cats (DEWHA 2008b).
- Threat Abatement Plan for Predation by the European Red Fox (DEWHA 2008c).

2. TERRESTRIAL FAUNA

2.1 SURVEY AND STUDY FINDINGS

The rationale for the proposed management approach in this SFMP is supported by desktop, detailed and targeted fauna surveys that have been completed over the Lamb Creek Project area since 2012 (Rapallo 2012;2021;2022a;b; Western Wildlife 2020). The findings of these surveys are summarised in the following sections and have been used to inform the impact assessment within the RSD and EPBC Referral, and to develop mitigation measures detailed in this SFMP (**Table 2**). Surveys and studies undertaken include:

- Level 2 Fauna Survey and Targeted Northern Quoll Survey of the Lamb Creek for Process Minerals International Pty Ltd (Rapallo 2012).
- Lamb Creek and Wedge Project: Vertebrate Fauna Desktop Assessment March (Western Wildlife 2020).
- Baseline Short-range Endemic Invertebrate Survey of the Lamb Creek Iron Ore Project (Rapallo 2022a).
- Detailed Vertebrate Fauna Survey of the Lamb Creek Project (Rapallo 2022b);
- Targeted Ghost Bat Survey for the Lamb Creek Iron Ore Project (Phoenix Environmental Sciences 2023).
- Significance Assessment regarding Ghost bat Prescence at Lamb Creek (Bat Call WA 2023b).
- Ghost Bat Cave Closure at Lamb Creek (Bat Call WA 2023a).

2.2 FAUNA HABITATS

A total of 10 broad habitat types (excluding cleared areas) have been identified by Rapallo (2022b) in the Terrestrial Fauna Survey Area, and are described in detail in Section 4.6 of the EPBC Preliminary Documentation, and includes:

- gorge, gully, and rocky breakaway;
- tussock grassland plain;
- hill crests and hill slopes;
- hummock grassland;
- stony plains;
- rocky ridge and gorge;
- drainage line (minor and medium);
- rocky hills and plateaus;
- Mulga / *Corymbia* spp. plain; and
- Mulga plain.

Fauna habitats of value for significant species within the scope of this SFMP are described in **Table 3** below and shown in **Figure 2.**

Table 2: Summary of Terrestrial Vertebrate Fauna Surveys Conducted for the Project

Survey (Reference)	Study Type / Dates	Proximity to Project Area	Survey Effort	Key Findings	
				Fauna Assemblage	Significant Fauna
Level 2 Fauna Survey and Targeted Northern Quoll Survey of the Lamb Creek for Process Minerals International Pty Ltd (Rapallo 2012);	Scope Level 2 fauna survey of the Terrestrial Fauna Survey Area and adjacent areas of similar habitat. Targeted Northern Quoll survey of the Terrestrial Fauna Survey Area. Timing 19 – 20 March 2012 (reconnaissance survey). 26 March – 12 April 2012 (field surveys).	Location Study Area. Survey Area Not stated.	Desktop assessment Database searches (max 50 km buffer). Review of relevant reports. Field survey Reconnaissance survey (2 days; 10 motion cameras for two weeks). Vertebrate fauna trapping (12 Pitfall traps for 852 nights; 20 Elliot traps for 1420 nights; ten funnel traps for 710 nights). Bird surveys (two-hectare bird surveys each day). Bat surveys (two ultrasonic recorders, and Harp Traps deployed each night) Spotlighting (30-minute surveys in each habitat type). Active searching and habitat assessments (effort not stated). Remote sensing cameras (Ten motion detecting cameras at seven sites for two weeks and at an additional seven sites for six days). Opportunistic records SRE surveys (14 sites were foraged for SRE taxa and leaf litter samples collected). Targeted Northern Quoll survey (six sites of ten cage traps for five nights).	152 taxa including: 22 mammals taxa (including seven species of bats). 58 reptiles taxa. 76 birds taxa.	Fork-tailed Swift (MI, MI).
Lamb Creek and Wedge Project: Vertebrate Fauna Desktop Assessment March	Scope Desktop assessment including database searches and a review of previous fauna surveys in the region.	Location Study Area. Survey Area 3,110 ha.	Desktop assessment Database searches (within 35 km of Proposed Action Area). Review of relevant reports.	296 taxa including: 36 native mammal taxa. Nine introduced mammal taxa. 112 reptile taxa. Nine frog taxa. 130 bird taxa.	Pilbara Olive Python (VU, VU) Grey Falcon (BC Act, VU) Night Parrot (BC Act, CR; EPBC Act, EN), Northern Quoll (EN, EN)

(Western Wildlife 2020)					Bilby (VU, VU) Pilbara Leaf-nose Bat (VU, VU) Ghost Bat (VU, VU)
Baseline Short-range Endemic Invertebrate Survey of the Lamb Creek Iron Ore Project (Rapallo 2022a)	Scope Desktop assessment including invertebrate database searches and review of relevant reports undertaken. Invertebrate field survey. Timing 16 – 25 February 2021.	Location Study Area. Survey Area 1,645 ha.	Desktop assessment Database searches. Review of relevant reports. Field survey (51 sites) Habitat assessment. Spider/scorpion burrow searching. Foraging.	Desktop assessment 13 potential SRE invertebrate taxa within survey area. Field survey 25 potential SRE invertebrate taxa within survey area.	Ten undescribed or previously unsequenced potential SRE taxa.
Detailed Vertebrate Fauna Survey of the Lamb Creek Project (Rapallo 2022b)	Scope Desktop assessment including database searches and review of relevant reports undertaken. Refine 2012 fauna habitat mapping and extend fauna habitat mapping into areas not previously mapped within the Terrestrial Fauna Survey Area. Level 2 fauna survey of Terrestrial Fauna Survey Area. Timing 16 – 28 April 2020 (vertebrate fauna survey). 17 – 23 February 2021 (supplementary field work).	Location Study Area. Survey Area 1,645 ha.	Desktop assessment Five database searches (max 50 km buffer). Review of relevant reports. Field survey Systematic trapping (10 sites - 840 Pitfall trap nights; 1400 Elliot trap nights; 840 funnel trap nights). Bird surveys (500 minutes). Acoustic recording for bats (33 detector nights). Acoustic recording for night parrot (8 detector nights). Active searching (foraging and leaf litter) (2310 minutes). Opportunistic observations. Camera trapping (279 nights at transects, 73 nights at trap sites).	Desktop assessment 301 vertebrate taxa including: 157 bird taxa. 46 mammal taxa. 91 reptile taxa. 7 amphibian taxa. Field survey 128 vertebrate taxa including: 63 bird taxa. 20 mammal taxa. 44 reptile taxa. One amphibian taxa.	Pilbara Olive Python (VU, VU) Northern Quoll (EN, EN) Ghost Bat (VU, VU) Western Pebble-mound Mouse (BC Act, P4) Fork-tailed Swift (MI, MI)

Targeted Ghost Bat Survey for the Lamb Creek Iron Ore Project (Phoenix Environmental Sciences 2023)	Scope Targeted Ghost Bat survey, comprising searches for roost sites, ultrasonic recordings and scat collection and analysis. Timing 12 - 14 September 2022. 18 October 2022.	Location Study Area. Survey Area 4,397 ha.	Desktop assessment Protected Matters Search Tool DCCEEW (2023) (40 km buffer). DBCA Threatened and Priority Fauna Database (2021) (40 km buffer). Atlas of Living Australia (Atlas of Living Australia 2023) (40 km buffer). Review of relevant reports. Field Survey Habitat assessment. Habitat/cave searches (Five caves). Bat echolocation recordings. Scat collection and analysis. Cave status assessment.	Desktop assessment 113 Ghost Bat records including: Three within the survey area; and 110 in wider search extent Field survey Seven bat species including: Ghost Bat (Macroderma gigas). Greater Northern Free-tailed Bat (Chaerephon jobensis). Common Sheathtailed Bat (Taphozous georgianus). Hill's Sheath-tailed Bat (Taphozous hilli). Gould's Wattled Bat (Chalinolobus gouldii). Little Broad-nosed Bat (Scotorepens greyii). Finlayson's Cave Bat (Vespadelus finlaysoni).	Ghost Bat (VU, VU)

Table 3: Vertebrate Fauna Habitat Types in the Study Area and Indicative Footprint, by Value

Habitat Type (Rapallo 2022b)	Description	Value to Significant Fauna	Extent within the Survey Area - ha	Area within Indicative Footprint - ha (% within survey area)
Gorge, gully, and rocky breakaway	Wide rocky gullies and gorges that bisect the hillcrest / hillslopes of the higher elevation areas containing caves, deep cracks, and crevices. Breakaways occur at the rugged edges of hillslopes. Spinifex hummock grassland with mixed shrubland patches or occasional *Ficus* spp. occurring in shaded locations or occasional *Eucalyptus leucophloia*.	High Value: • Potential foraging and dispersal habitat for Pilbara Olive Python, Northern Quoll, Ghost Bat and Peregrine Falcon. • Potential breeding habitat for Pilbara Olive Python, Northern Quoll and Peregrine Falcon. • Potential shelter habitat for Pilbara Olive Python and Northern Quoll. • Potential habitat for Pilbara Barking Gecko (*Underwoodisaurus seorsus*) and Gane's Blind Snake (*Anilios ganei*).	54.64	0.00 (0%)
Hillcrests / hillslope	Slopes and hill crests of higher elevation areas. Spinifex hummock grassland dominated with scattered *Eucalyptus leucophloia* trees and mallee, and *Acacia* spp. and *Grevillea* spp. shrubs on rocky, red skeletal soils (loams to clay/loam).	Moderate Value: • Possible foraging and dispersal habitat for Ghost Bat, Western Pebble-mound Mouse and Northern Quoll. • Possible breeding habitat for Western Pebble-mound Mouse.	318.48	50.42 (15.83%)
Mulga / *Corymbia* spp. plain	Open Mulga shrubland patches over spinifex hummock or tussock grassland on loam to sandy clay loam occurring in areas of sheet flow drainage. The Mulga patches are surrounded by run-off zones of stonier plain with open spinifex / tussock grassland under very open Mulga / *Corymbia deserticola* shrubland.	Moderate Value: • Possible foraging and dispersal habitat for Ghost Bat and Grey Falcon. • Possible habitat for Gane's Blind Snake.	290.88	180.78 (62.15%)
Minor drainage	Smaller narrow drainage channels and shallow gullies that bisect the stony plain habitat and hill slopes, forming flow zones on the valley floor. Mixed open shrubland, to shrubland often over tussock grass and herbs with occasional fringing trees (scattered *Eucalyptus leucophloia*, *Corymbia* spp. or *Eucalyptus gamophylla*).	Moderate Value: • Possible foraging and dispersal habitat for Ghost Bat, Grey Falcon, Peregrine Falcon, Pilbara Olive Python and Northern Quoll.	210.36	75.23 (35.76%)

Habitat Type (Rapallo 2022b)	Description	Value to Significant Fauna	Extent within the Survey Area - ha	Area within Indicative Footprint - ha (% within survey area)
Tussock grassland plain	Tussock grass (*Aristida inaequiglumis*, *Aristida contorta*, *Themeda triandra*) dominated, largely undefined drainage plain. Contains occasional open Mulga woodland stands or scattered Mulga individuals on brown sandy clay loam to loams. Contains patches of spinifex.	Moderate Value: • Possible foraging and dispersal habitat for Ghost Bat, Grey Falcon and Peregrine Falcon. • Potential habitat for Gane's Blind Snake.	137.33	6.08 (4.43%)
Medium drainage	Wide loamy drainage channels to undefined drainage (gravelly) containing occasional emergent *Corymbia hamersleyana* over patches of low mixed shrubs over Buffel Grass and tussock grass dominated understory on low relief. Contains very occasional Mulga stands in loamier soils.	Moderate Value: • Possible foraging and dispersal habitat for Ghost Bat, Grey Falcon, Pilbara Olive Python, Northern Quoll and Peregrine Falcon. • Possible breeding and nesting habitat for Grey Falcon. • Potential habitat for Gane's Blind Snake.	112.97	43.41 (38.43%)
Stony plain	Plains and lower slopes of spinifex hummock grasslands (or in small patches, tussock grass) on red sandy clay loam to loam soil. Typically, with a mantle of gravel (less so on the valley floor adjacent to drainage, where soils are loamier). Little to no overstory aside from scattered trees or patches of mixed shrubs often regenerating from fire. Generally, *Eucalyptus leucophloia* occurs on the slopes and *Eucalyptus gamophylla* on lower slopes, with *Corymbia hamersleyana* typically associated with drainage.	Low Value: • Possible foraging and dispersal habitat for Ghost Bat, Grey Falcon, Western Pebble-mound Mouse and Pilbara Olive Python. • Possible breeding and shelter habitat for Western Pebble-mound Mouse.	517.07	266.35 (51.51%)
Bitumen Road	N/A	N/A	0.83	0.32 (38.55%)
Unmapped*	N/A	N/A	29.94	24.28 (81.10%)
Total			1642.56	646.87 (39.38%)

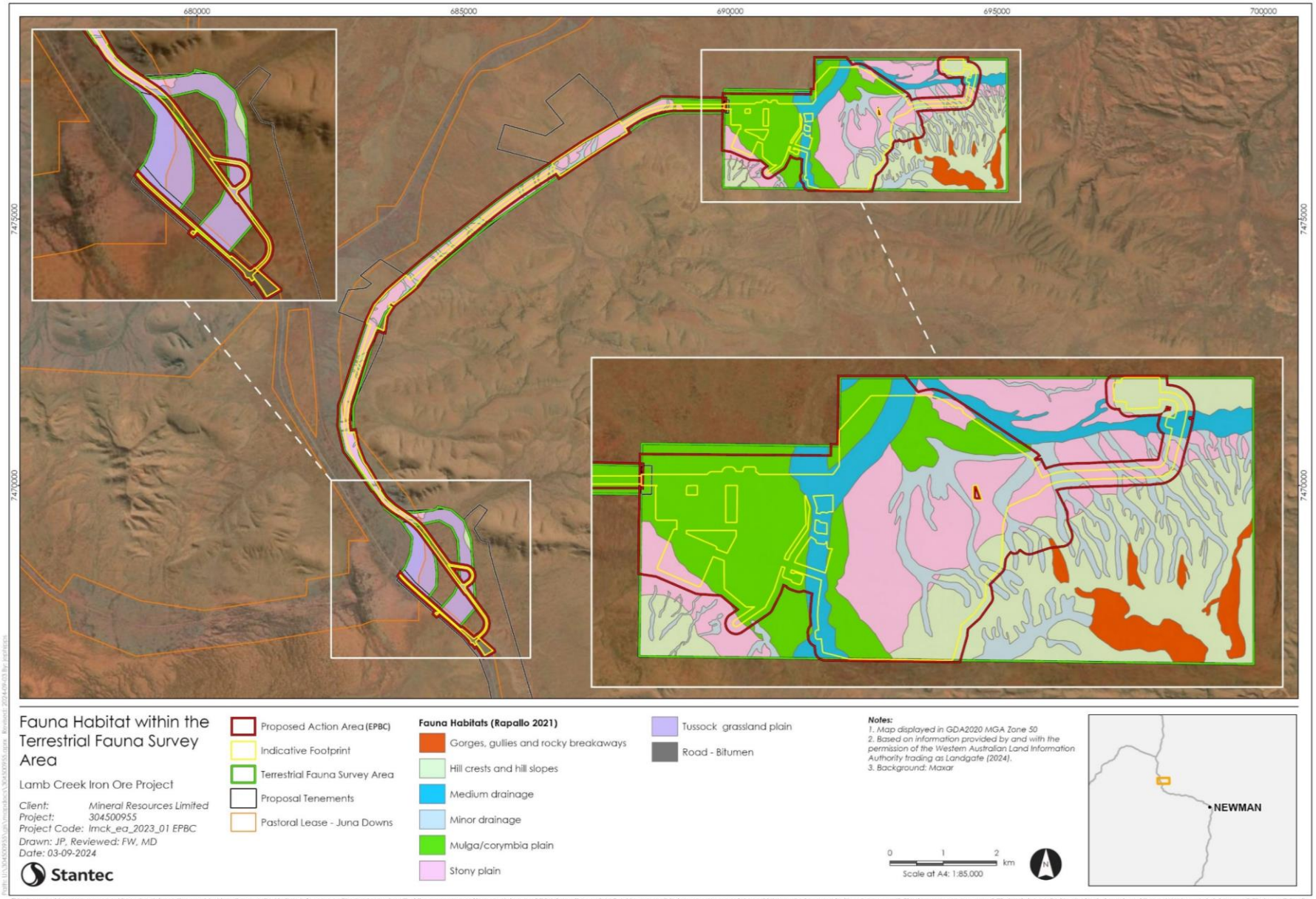

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Figure 2: Fauna Habitat Within the Terrestrial Fauna Survey Area

2.3 FAUNA ASSEMBLAGE

2.3.1 Desktop Study

Desktop assessments indicate a predicted fauna assemblage of up to 301 species of terrestrial vertebrate fauna recorded within 50 kilometres of the survey area (Rapallo 2022b). These included 157 species of birds, 46 mammals, 91 reptiles and 7 amphibians. The Rapallo 2022b desktop study identified 29 taxa of conservation significant fauna, of which 12 were assessed as possible, likely or confirmed to occur within 50 km of the Survey Area (**Table 4:** Desktop Results for Significant Fauna Species Either Confirmed or Considered Possible or Likely to Occur Within 50 Km of the Survey Area.). The other 17 taxa of conservation significant fauna were considered unlikely or highly unlikely to occur in the Study Area due to the absence of suitable habitat and are therefore not addressed further in this SFMP.

Table 4: Desktop Results for Significant Fauna Species Either Confirmed or Considered Possible or Likely to Occur Within 50 Km of the Survey Area.

Common Name	Scientific Name	Likelihood
Fork-tailed Swift	Apus pacificus	Confirmed
Peregrine Falcon	Falco peregrinus	Likely
Night Parrot	Pezoporus occidentalis	Possible
Grey Falcon	Falco hypoleucos	Possible
Letter-winged Kite	Elanus scriptus	Possible
Ghost Bat	Macroderma gigas	Confirmed
Short-tailed Mouse	Leggadina lakedownensis	Possible
Northern Quoll	Dasyurus hallucatus	Confirmed
Western Pebble-mound Mouse	Pseudomys chapmani	Confirmed
Pilbara Olive Python	Liasis olivaceus barroni	Confirmed
Pilbara Barking Gecko	Underwoodisaurus seorsus	Likely
Gane's Blind Snake	Anilios ganei	Likely

2.3.2 Introduced Fauna Species

Rapallo (2022b) identified 10 introduced (feral) fauna as potentially occurring within the Terrestrial Fauna Survey Area. Of these, four were recorded within the Terrestrial Fauna Survey Area during fauna surveys (Rapallo 2012;2022b;Table 4: Desktop Results for Significant Fauna Species Either Confirmed or Considered Possible or Likely to Occur Within 50 Km of the Survey Area.**Table 5:** Desktop Results for Introduced (Feral) Fauna Recorded Within 50 Km of the Survey Area). Introduced fauna species such as foxes and cats are declared pests which present key threats to the native mammals likely to occur within the Development Envelope, such as the Northern Quoll (Department of the Environment 2016).

Table 5: Desktop Results for Introduced (Feral) Fauna Recorded Within 50 Km of the Survey Area

Common Name	Scientific Name	Likelihood
Rock Dove	*Columba livia	Unlikely
European Cattle	*Bos taurus	Confirmed
Dromedary, Camel	*Camelus dromedarius	Confirmed
Dog	*Canis familiaris familiaris	Confirmed
Red Fox	*Vulpes vulpes	Likely
Donkey	*Equus asinus	Unlikely
Horse	*Equus caballus	Unlikely
Cat	*Felis catus	Confirmed
Rabbit	*Oryctolagus cuniculus	Likely
House Mouse	*Mus musculus	Confirmed

2.3.3 Significant Fauna Species

Of the 29 taxa of conservation significant fauna identified by the desktop study (Rapallo 2022b), 10 fauna species of significance were either confirmed from field surveys or considered likely to occur within the Development Envelope based on desktop and habitat assessments undertaken during field surveys (Rapallo 2012;2021; Western Wildlife 2020). These are discussed below. For the Night Parrot, given the lack of suitable habitat, recent fire activity and the absence of any detections within the Study Area, the species is considered unlikely to occur and is therefore not addressed within the SFMP. The Letter-winded Kite is also not addressed as no species were recorded and the Development Envelope is outside of the species known distribution.

2.3.3.1 Significant Fauna Recorded in the Development Envelope

Two fauna species of significance were confirmed within the Development Envelope based on the detailed in-field fauna surveys (Rapallo 2012;2022b). These species are:

- Western Pebble-mound Mouse (Pseudomys chapmani) (P4 under BC Act).
- Fork-tailed Swift (Apus pacificus) (MI, MI).

The Fork-tailed Swift occurs within the Project Area but is almost entirely aerial and will not be impacted by the Project. Therefore, it is not addressed within the SFMP.

2.3.3.2 Significant Fauna Likely to Occur in the Development Envelope

Eight fauna species of significance are considered likely to occur within the Development Envelope, based on desktop assessments and habitat assessments undertaken during field surveys (Rapallo 2012;2021; Western Wildlife 2020), these species are:

- Ghost Bat (Macroderma gigas) (En, En);
- Pilbara Leaf-nosed Bat (Rhinonicteris aurantia) (Vu, Vu);
- Northern Quoll (Dasyurus hallucatus) (En, En);
- Pilbara Olive Python (Liasis olivaceus barroni) (Vu, Vu);

- Gane's Blind Snake (Anilios ganei) (P1 under the BC Act);
- Pilbara Barking Gecko (Underwoodisaurus seorsus) (P2 under the BC Act);
- Grey Falcon (Falco hypoleucos) (Vu, Vu); and
- Peregrine Falcon (Falco peregrinus) (Other specially protected species under the BC Act).

The conservation significant species confirmed or considered likely to occur within the Development Envelope are described in detail in the RSD and are the focus of this SFMP. The six species classed as MNES are discussed in the EPBC Preliminary Documentation (Northern Quoll, Ghost Bat, Pilbara Leaf-nosed Bat, Pilbara Olive Python, Grey Falcon and Fork-tailed Swift). A summary of environmental values and outcomes relevant to these nine species are summarised in **Table 6**. Significant fauna records are shown in Figure 3: Significant Fauna Recorded from Lamb Creek**Figure 3.**

Table 6: Environment Values and Outcomes

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
Ghost Bat (*Macroderma gigas*) - VU / VU	**Description** The Ghost Bat is a large, cave-dwelling, microbat species. **Distribution** The species was once widely distributed across Australia, but is now largely restricted to northern Australia, including parts of the Pilbara and Kimberley regions of WA. **Ecology** Its preferred habitat is within arid spinifex hillsides, black soil grasslands, monsoon forest, open savannah woodland, tall open forest, deciduous vine forest, tropical rainforest, sandstone caves, boulder piles, limestone caves and abandoned mines. The Ghost Bat can forage over large areas up to 12 km from their diurnal roost with a preference for productive plain areas with thin mature woodland over patchy or clumped tussock or hummock grass (*Triodia* spp.) on sandy or stony	Threatening processes: • Habitat loss and degradation (McKenzie and Hall 2008; TSSC 2016). • altered hydrological regimes. • exposure to pollutants. • barbed wire fences. • human visitation / disturbance.	Potential Impacts to Ghost Bats as a result of this Project include: • loss of potential foraging and roost habitat ('rocky ridge' and 'gorge') due to clearing. • loss or abandonment of potential foraging and roost habitat due to blasting. • Direct mortality of individuals if present within the Development Envelope.	• No Ghost Bat caves have been located within the Development Envelope. • Ghost Bats have been recorded within the Terrestrial Fauna Survey Area as have Ghost Bat roosting caves. • No night, diurnal or maternity roosts have been found within the Development Envelope. • Two Ghost Bat roost caves (one Category 2 and one Category 3) are present outside (approximately 750 m to the south) of the Development Envelope. • A cluster of caves occurs in the southern extent of the Project Area close to the proposed haul road near its intersection with the Great Northern Highway intersection (Category 2, Category 3). • The Project will result in clearing of up to 622.3 ha of foraging habitat comprising the following broad fauna habitat types	• The loss of 622.3 ha of foraging habitat for the Ghost Bat as a result of the Project may be considered to be a **significant residual impact within** the Hamersley Bioregion (Environmental Protection Authority 2014). However, the Proponent considers that this impact can be managed via the Native Vegetation Clearing Permit process in accordance with Part V s 51I(2)(b) of the EP Act and in alignment with the native vegetation clearing principles in accordance with Schedule 5 cl 1 of the EP Act. • The proposed removal of 622.3 ha of supporting habitat is considered **likely to have a significant impact** on the Ghost Bat when assessed

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	ground (Bat Call WA 2021a). **Cultural Importance** Cultural importance of this species to Traditional Owners, as well as cultural appropriateness of control/mitigation methods was raised at the June 2024 on Country engagement with Banjima and no specific concerns were raised. Banjima considers all fauna to be important.			occurring within the Indicative Footprint. These comprise the following habitats, and the percentage of the mapped extent of this habitat type mapped within the broader Terrestrial Fauna Survey Area: • hill crests and hill slopes (50.42 ha, 18.83%). • medium drainage (43.41 ha, 38.43%). • minor drainage (75.23 ha, 35.76%). • Mulga/*Corymbia* spp. plain (180.77 ha, 18.83%). • stony plain (266.35 ha, 51.51%). • tussock grassland plain (6.08 ha, 4.43%). • The Project will not result in direct disturbance to or the loss of critical Ghost Bat caves. • Given the distance from known caves to proposed operation and blasting areas, it is unlikely that blasting will cause any	against the DCCEEW criteria and is proposed to be offset as it has the potential to: • adversely affect habitat critical to the survival of a species.

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
				physical damage to known Ghost Bat roost caves. It is also considered unlikely that the structural integrity of caves, or roosting site viability, will be adversely impacted by blasting or other operational elements such as vibration from the Project. • Cave 1 will be temporarily closed during construction and operation to prevent impacts to Ghost Bats while the mine is operational (Bat Call WA 2023a).	
Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*) – VU / VU	**Description** The Pilbara Leaf-nosed Bat is of moderate size, having short fur, relatively small, pointed ears and a fleshy diamond-shaped noseleaf surrounding the nostrils. **Distribution** The Pilbara Leaf-nosed Bat occurs throughout the Pilbara and upper Gascoyne regions of WA, with the Pilbara population considered to be a single interbreeding	Threatening processes: • Habitat loss and degradation. • altered hydrological regimes. • exposure to pollutants. • barbed wire fences.	Potential impacts to Pilbara Leaf-nosed bats as a result of this Project include: • loss of potential foraging and roost habitat ('rocky ridge' and 'gorge') due to clearing. • loss or abandonment of potential foraging and	• This species has not been recorded in the Development Envelope. • No Critical habitat (as defined by (DBCA et al. 2023)) identified within the Development Envelope • No caves or permanent / semi-permanent surface water pools were identified within the Development Envelope; therefore, this species is likely to	No significant residual impact expected to occur to the Pilbara Leaf- nosed Bat: • No Critical habitat (as defined by (DBCA et al. 2023) identified within the Development Envelope • The proposed removal of 622.3 ha of potential foraging habitat (within Development Envelope) for Pilbara Leaf- nosed Bat species

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	population comprising multiple colonies (Threatened Species Scientific Committee 2016). The Pilbara Leaf-nosed Bat population of the Pilbara and Gascoyne regions is considered an important population as it comprises multiple colonies that form one interbreeding population (Threatened Species Scientific Committee 2016). **Ecology** The species requires warm, humid daytime roost sites and forages in gorges along watercourses and over low spinifex-covered hills (Threatened Species Scientific Committee 2016). The breeding cycle for the Pilbara Leaf-nosed Bat occurs over a nine-month period with mating occurring in July, parturition occurring in late December or early January (following a prolonged gestation period), resulting in the young becoming independent between	• human visitation / disturbance.	roost habitat due to blasting. • direct mortality of individuals if present within the Development Envelope.	use the potential foraging habitat for the species within the Development Envelope as a foraging visitor intermittently, only.	is likely to be used as a foraging visitor intermittently, only.

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	February and March (Armstrong 2001b). Foraging in a variety of habitats including the characteristic Triodia hummock grasslands of the Pilbara, the Pilbara Leaf-nosed Bat favours the highly productive and structurally complex riparian zones where water is permanently available and insect biomass is sufficiently high (Armstrong 2001a; McKenzie and Bullen 2013). Critical habitat, as defined by (DBCA *et al.* 2023) , includes permanent diurnal (categories 1 and 2) roosts that are essential for the daily and long-term survival of the Pilbara Leaf-nosed Bat; semi-permanent diurnal (category 3) roosts that are essential for the long-term survival of the Pilbara Leaf-nosed Bat; and any permanent pools close to permanent diurnal roosts. **Cultural Importance** A June 2024 on-Country Social Surrounds				

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	engagement with the Banjima People included enquiries on the cultural importance of fauna species as well as cultural appropriateness of control/mitigation methods. No specific information or concerns were raised, other than stating that all fauna are considered important.				
Northern Quoll (*Dasyurus hallucatus*) – EN / EN	**Description** The Northern Quoll is a nocturnal marsupial and the smallest of the four Australian quoll species. **Distribution** It is currently moderately common within the Pilbara and is found scattered across the four subregions of the Pilbara. (Rapallo 2022b). **Ecology** The Northern Quoll favours rocky habitats (e.g., escarpments, mesas, gorges, breakaways, boulder fields and some waterways) for shelter and breeding, with foraging occurring in adjacent vegetation. Northern Quolls have	Threatening processes: • predation by invasive fauna (e.g., feral cats and foxes) (DCCEEW 2023b). • poisoning from cane toads. • loss of suitable habitat. • altered fire regimes.	Potential impacts to the Northern Quoll as a result of this Project include: • loss of potential foraging and dispersal habitat ('medium and minor drainage, and hillcrest/hillslope habitats) due to clearing. • direct mortality of individuals if present within the Development Envelope. Indirect impacts due to increased	• The Northern Quoll has not been recorded in the Development Envelope. • The Northern Quoll was recorded approximately 5 km south of the Development Envelope within the Terrestrial Fauna Survey Area during 2012 (Rapallo 2012) indicating that a low-density population may occur in the Development Envelope surrounds, or that the records to date can be attributed to individuals dispersing from nearby populations. No evidence of the species was found during the 2020 survey (Rapallo 2022c).	The removal of 42 ha of critical habitat and 125.6 ha of supporting habitat for Northern Quoll is considered **likely to have a significant impact,** when assessed against the DCCEEW criteria and is proposed to be offset as it has the potential to: • adversely affect habitat critical to the survival of a species.

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	short life spans, with males living for approximately one year and the oldest recorded female in the wild being three years of age. The species breed once each year exhibiting synchronous reproduction within each year at each site. **Cultural Importance** A June 2024 on-Country Social Surrounds engagement with the Banjima People included enquiries on the cultural importance of fauna species as well as cultural appropriateness of control/mitigation methods. No specific information or concerns were raised, other than stating that all fauna are considered important.		predation from feral animals.	• Based on the absence of records and minimal denning habitat (0.06 ha) present within the Development Envelope, it is unlikely that an important high-density population of Northern Quoll as defined by the DoE (2016c) occurs within the Development Envelope. However the Northern Quolls recorded within the Proposed Action Area are considered a low density important population based on the records occurring in habitat which is free from cane toads and is therefore considered important for the long-term survival of the Northern Quoll (Hill and Ward 2010). • No potential denning habitat for the Northern Quoll (gorges, gullies, rocky breakaways) is proposed for clearing. Clearing of up to 43.41 ha of suitable foraging and dispersal habitat (medium drainage lines)	

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
				representing 38% of the mapped extent of this habitat for the species within the broader Terrestrial Fauna Survey Area has the potential to impact this species.	
Pilbara Olive Python (*Liasis olivaceus barroni*) – VU / VU	**Description** The Pilbara Olive Python is a dull olive-brown or rich brown python with a white/cream belly that can grow up to 4 m in length. **Distribution** The subspecies is restricted to ranges in the Pilbara and is known from relatively few localities. **Ecology** The species' preferred habitat is often associated with open water, such as swamps and surface water pools. Typical habitat is found along larger waterways in environments with rocky hills, escarpments, and plains dominated by dense vegetation such grassy mounds of *Triodia*. **Cultural Importance** A June 2024 on-Country Social Surrounds	Threatening processes: • predation by invasive fauna (e.g., feral cats and foxes). • competition for food sources with invasive fauna. • habitat destruction as a result of resource project development (TSSC 2008).	Threats to the Pilbara Olive Python as a result of this Project include: • loss of potential dispersal habitat ('medium drainage system') due to clearing. • direct mortality of individuals if present within the development envelope.	• This species has not been recorded in the Development Envelope but is considered likely to occur in the Development Envelope at least as a foraging visitor. • No clearing of potential denning habitat for the Pilbara Olive Python (gorges, gullies, rocky breakaways) is proposed. • The Project will result in the clearing of up to 118.6 ha of suitable foraging and dispersal habitat (medium and minor drainage lines) representing 36.69% of the mapped extent of this habitat for the species within the broader Terrestrial Fauna Survey Area.	The proposed clearing of 118.6 ha of supporting habitat for Pilbara Olive Python is **likely to have a significant impact,** when assessed against the DCCEEW criteria and is proposed to be offset as it has the potential to adversely affect habitat critical to the survival of a species.

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	engagement with the Banjima People included enquiries on the cultural importance of fauna species as well as cultural appropriateness of control/mitigation methods. No specific information or concerns were raised, other than stating that all fauna are considered important.				
Western Pebble-mound Mouse (*Pseudomys chapmani*) – P4	**Description** The Western Pebble-mound Mouse is a small, burrowing and mound building rodent. **Distribution** The species is currently restricted to the non-coastal central, eastern and southern parts of the Pilbara bioregion. **Ecology** The Western Pebble-mound Mouse lives in pebbly soils in arid tussock grassland and Acacia woodland. The species is associated with eroding sands at natural features that expose pebbles. **Cultural Importance**	Threatening processes: • loss of suitable habitat; and • predation by invasive fauna (e.g., feral cats and foxes).	Potential impacts to the Western Pebble-mound Mouse as a result of this Project include: • habitat loss due to clearing; and • direct mortality of individuals.	• This species is commonly recorded within suitable habitat throughout the Hamersley and Chichester subregions of the Pilbara bioregion. • A total of 29 Western Pebble-mound Mouse mounds have been identified within the EPBC Development Envelope and 19 of these are also within the Indicative Footprint. This represents 47.5% of the total number of mounds of this species that have been found during surveys of the area (40 mounds) most of which were deemed to be active (Rapallo 2022c).	**No significant residual impacts** to Western Pebble-mound Mouse due to habitat clearing, fragmentation or direct mortality of individuals are expected.

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	The Western Pebble-mound Mouse has been reported to be of special cultural importance to the Banjima People. During the June 2024 on-Country Social Surrounds engagement presented information showing the mouse was relatively common in the area and the Project design footprint had avoided known mounds as much as practicable. Banjima did not have any additional information or further concerns to offer other than that all fauna ae considered important.			• There are numerous records of this species in the surrounding area (Rapallo 2022c). • Threats to the Western Pebble-mound Mouse as a result of this Project include habitat loss resulting from clearing, and direct mortality of individuals. • Stony plain habitat represents preferred habitat for the Western Pebble-mound Mouse; however, this habitat occurs extensively throughout the Hamersley subregion. • The Project will result in the loss of no more than 266.4 ha preferred habitat (stony plain) for this species comprising 51.5% of the mapped extent of this habitat type in the broader Terrestrial Fauna Survey Area.	
Gane's Blind Snake (*Anilios ganei*) – P1	**Description** The species grows to about 30 cm in length. The upper body is a deep	Threatening processes: • loss of suitable habitat.	Potential impacts to the Gane's Blind Snake as a result of this Project include:	• Gane's Blind Snake was not recorded in the Development Envelope during fauna surveys (Rapallo 2022c).	**No significant residual impacts** are expected to occur for this species and the Project is not expected to adversely affect the

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	grey-brown, the belly cream. **Distribution** The species is only known from a few locations and/or specimens. **Ecology** Potential habitat for this species may include the gorge, gully, breakaway, medium drainage, tussock grassland and Mulga / Corymbia spp. plain habitats. **Cultural Importance** A June 2024 on-Country Social Surrounds engagement with the Banjima People included enquiries on the cultural importance of fauna species as well as cultural appropriateness of control/mitigation methods. No specific information or concerns were raised, other than stating that all fauna are considered important.	• predation by invasive fauna (e.g., feral cats and foxes).	• habitat loss due to clearing. • direct mortality of individuals if present within the Development Envelope.	• Potentially suitable habitat for this species occurs within the Development Envelope, comprising gorge, gully, breakaway, medium drainage, tussock grassland and Mulga / Corymbia spp. plain habitats. • Suitable habitat for this species is widespread outside of the Development Envelope within the broader Terrestrial Fauna Survey Area.	conservation status of Gane's Blind Snake.
Pilbara Barking Gecko (*Underwoodisaurus seorsus*) – P2	**Description** The Pilbara Barking Gecko is a large carphodactylid gecko, with a large head, long slender limbs and digits.	Threatening processes: • loss of suitable habitat.	Potential impacts to the Pilbara Barking Gecko as a result of this Project include: • habitat loss due to clearing.	• The Pilbara Barking Gecko has not been recorded within the Development Envelope. • Potentially suitable habitat, such as gorge /	**No significant residual impacts** are expected to occur for this species and the Project is not expected to adversely affect the

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	Distribution The species is known from a few locations and/or specimens within the Hamersley Range area of the Pilbara bioregion. **Ecology** Its preferred habitat is in rocky areas and gullies. **Cultural Importance** A June 2024 on-Country Social Surrounds engagement with the Banjima People included enquiries on the cultural importance of fauna species as well as cultural appropriateness of control/mitigation methods. No specific information or concerns were raised, other than stating that all fauna are considered important.	• predation by invasive fauna (e.g., feral cats and foxes).	• direct mortality of individuals if present within the Development Envelope.	gully and breakaway habitats occur within the Development Envelope and surrounds. • Preferred habitat for this species occurs at higher elevation which would coincide with the location of the proposed pit; however, relatively limited clearing is required in this area of the Indicative Footprint, comprising 15.8% of the total hill crests and hill slopes habitats within the mapped extent in the Terrestrial Fauna Survey Area.	conservation status of the Pilbara Barking Gecko.
Grey Falcon (*Falco hypoleucos*) – VU / VU	**Description** The Grey Falcon is a compact, pale grey falcon with a heavy thick chest, long wings and dark wing tips. **Distribution** The species occurs in arid and semi-arid Australia, including the Murray-Darling Basin, Eyre Basin,	Threatening processes (TSSC 2020): • predation by invasive fauna (e.g., feral cats and foxes).	Potential impacts to the Grey Falcon as a result of this Project include: • habitat loss due to clearing. • direct mortality of individuals if present within the	• The Grey Falcon has not been recorded from the Development Envelope. • This species is considered is likely to occur in the Development Envelope occasionally while foraging (Rapallo 2022c). • Large areas of foraging habitat for this species	**No significant residual impacts** are expected to occur for this species and the Project is not expected to adversely affect the conservation status of the Grey Falcon.

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	central Australia and Western Australia. **Ecology** Its preferred habitat is usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast (Menkhorst *et al.* 2019). The Grey Falcon forages over timbered plains, including *Acacia* shrublands, also ranging out onto treeless plains. It nests in tall trees on watercourses (Threatened Species Scientific Committee 2020) and occasionally on man-made structures such as transmission line towers. **Cultural Importance** Further consultation is required to determine the cultural importance of this species to Traditional Owners, as well as cultural appropriateness of control/mitigation methods, if needed.	• loss of suitable habitat. • Increased temperatures in arid and semi-arid Australia (i.e., climate change).	Development Envelope.	occurs in the Development Envelope and surrounds including hills/ranges, stony plain, and lower slopes/hillslopes habitat. Preferred nesting habitat for this species occurs at higher elevation which would coincide with the location of the proposed pit; however, relatively limited clearing (50.4 ha) is required in this area of the Indicative Footprint, 15.8% of the total hill crests and hill slopes habitats within the mapped extent in the Terrestrial Fauna Survey Area.	
Peregrine Falcon (*Falco peregrinus*)	**Description**	Threatening processes:	Potential impacts to the Peregrine Falcon	• The Peregrine Falcon has not been recorded from	**No significant residual impacts** are expected to

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
Other specially protected species	A large falcon with a blue-grey back, barred white underparts, and a black head. Distribution The species is known to occur across Australia, but not common in any areas of its Australian range. **Ecology** The Peregrine Falcon is found in most habitats, from rainforest to arid habitats, including coastal and alpine regions. It prefers coastal and inland cliffs, or open woodlands near water. In arid areas, it is most often encountered along cliffs above rivers, ranges and wooded watercourses where it hunts birds (Johnstone and Storr 1998). This species typically nests on rocky ledges occurring on tall, vertical cliff faces between 25 m and 50 m high (Olsen and Olsen 1988). **Cultural Importance** Further consultation is required to determine the cultural importance of	• predation by invasive fauna (e.g., feral cats and foxes); • loss of suitable habitat; and • Increased temperatures in arid and semi-arid Australia (i.e., climate change).	as a result of this Project include: • habitat loss due to clearing; and • direct mortality of individuals if present within the Development Envelope.	the Development Envelope. • The Peregrine Falcon is considered uncommon in the Hamersley Range, nesting in cliff type habitat. • Peregrine Falcon forage over a wide area and would use most habitats within the Development Envelope while foraging. • Preferred nesting habitat for this species occurs at higher elevation which would coincide with the location of the proposed pit; however, relatively limited clearing (50.4 ha) is required in this area of the Indicative Footprint, 15.8% of the total hill crests and hill slopes habitats within the mapped extent in the Terrestrial Fauna Survey Area.	occur for this species and the Project is not expected to adversely affect the conservation status of the Peregrine Falcon.

Conservation Significant Species	Habitat Requirements, Cultural importance, Ecology and Distribution	Key Threats	Potential Project Related Impacts	Status within Development Envelope	Expected Outcome
	this species to Traditional Owners, as well as cultural appropriateness of control/mitigation methods, if needed.				

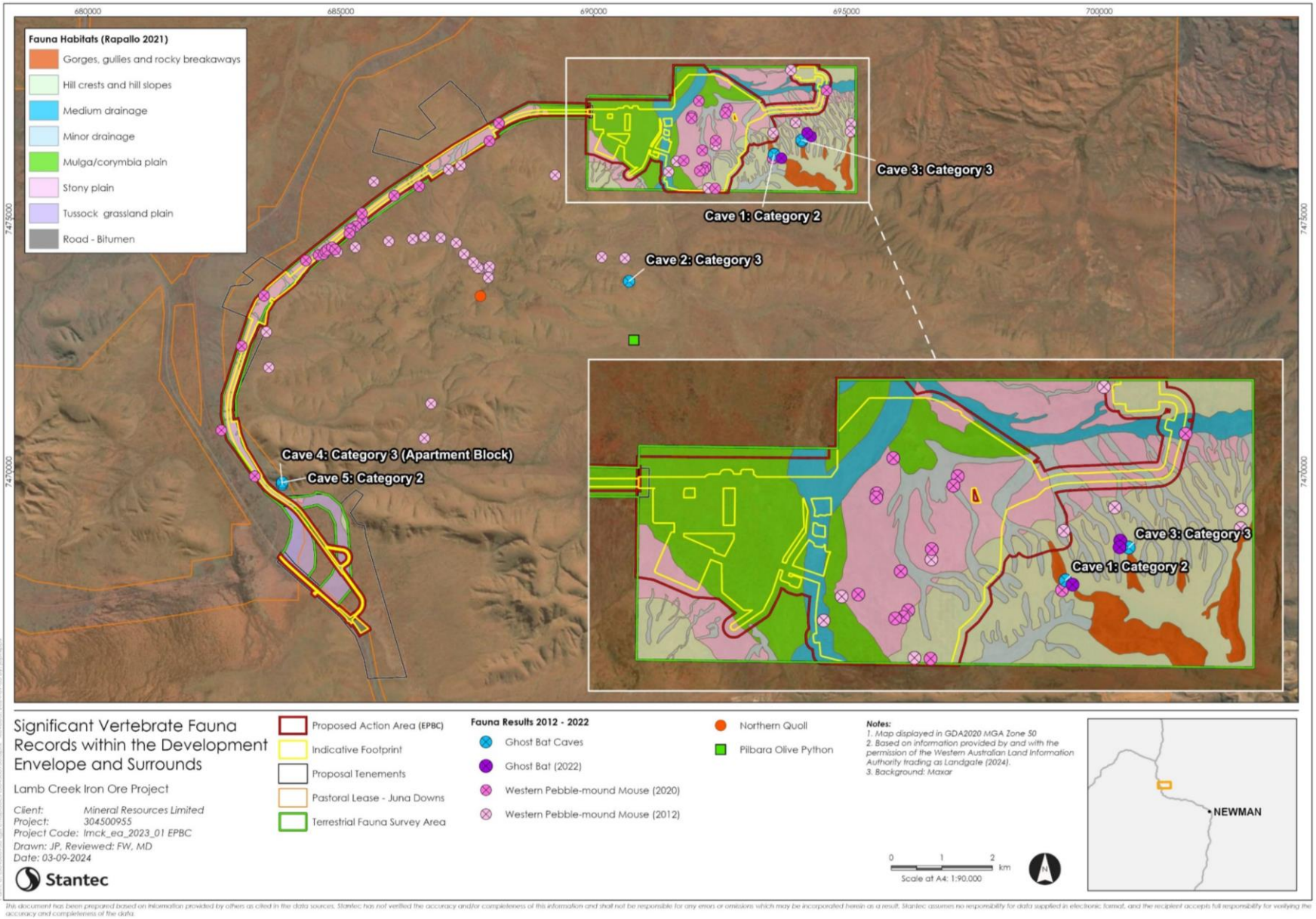

Figure 3: Significant Fauna Recorded from Lamb Creek

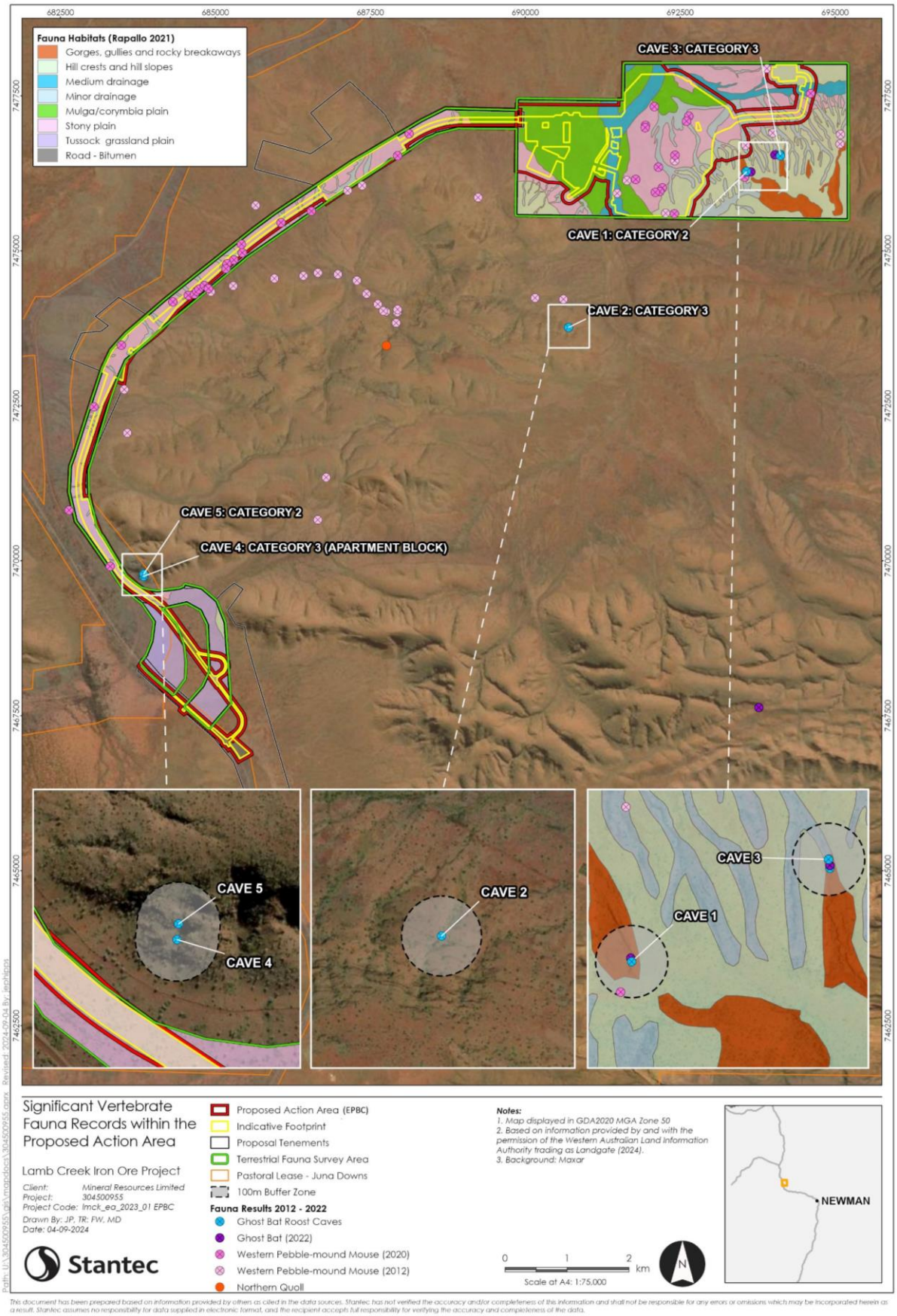

Figure 4: Ghost bat category 2 and category 3 roost caves and associated exclusion zones

2.4 KEY ASSUMPTIONS AND UNCERTAINTIES

The key assumptions and uncertainties that apply to terrestrial fauna are summarised as follows:

- It is assumed that the fauna surveys that were undertaken accurately report the distribution and status of fauna of significance, and their preferred habitats, in the Terrestrial Fauna Survey Area.
- It is assumed that the likelihood and severity of predicted impacts to terrestrial fauna are described accurately.
- The majority of significant fauna species identified are highly mobile with notably large home ranges, such that point location records for individuals represent the usage of available foraging/breeding habitat (rather than fixed permanent locations of individuals).
- It is assumed that, by applying the EPA's mitigation hierarchy (avoid, minimise, rehabilitate, offset) throughout the life of the Project, the impacts of the Project on significant species will be minimised.
- The Terrestrial Fauna Survey Areas experienced fires in recent years prior to the 2020 terrestrial fauna surveys being undertaken, and the vegetation over most of the survey area was regenerating and relatively sparse compared to unburnt conditions. This is likely to have influenced the overall diversity and abundance of species; however, where possible, trap sites were positioned in areas of unburnt habitat within the burn mosaic. Therefore, results may be conservative with regard to the presence and distribution of significant species and their habitat.
- The Project is located in the Pilbara bioregion where the presence, activity and detectability of fauna is driven by climatic conditions, particularly rainfall events. Climatic factors are outside of the Proponent's control and may impact on the health and extent of populations of significant fauna.
- Natural seasonal and spatial fluctuations of populations of significant species make it more difficult to determine whether population changes are due to natural causes or can be attributed to the Project.

2.5 POTENTIAL PROJECT IMPACTS

The Project may directly and indirectly impact on terrestrial fauna and short-range endemic (SRE) invertebrate fauna, with the potential direct impact identified as:

- clearing of native vegetation resulting in habitat loss.
- fragmentation of fauna habitat.
- fauna injury or mortality as a result of ground disturbance, machinery, blasting, vehicle strikes and entrapment.

The potential indirect impacts have been identified as:

- fauna mortality as a result of a potential increase in the prevalence of introduced species and feral predators.
- noise, vibration and/or artificial light disrupting natural foraging and breeding behaviours.
- potential decline or change in the health/composition of fauna habitat arising from dust, weeds, fire regime or hydrological regime changes.'

An assessment of the potential impacts and risks to the MNES resulting from the Project has been undertaken and is included as **Appendix D**. Results of the risk assessment have been used to develop management measures that form part of this SFMP.

2.6 APPLICATION OF THE MITIGATION HIERARCHY

Mitigation measures for potential impacts of the Project on terrestrial fauna are detailed within **Section 5.3** of the EPBC Referral Supporting Document and have been updated and consolidated within this

SFMP. Mitigation measures have focused on significant fauna, where relevant, aligning with the management provisions.

The Project will **avoid** impacts to significant fauna via the following:

- Proposed clearing has been minimised as far as practicable to reduce the extent of disturbance required; the Proponent has revised the Development Envelope from 1,399 ha to 874 ha (898 ha for EPBC).
- Placement of infrastructure in the high significance habitat of gorges, gullies and rocky breakaways has been fully avoided for example through the re-design and relocation/reduction of the northern WRL and northern topsoil stockpile. In addition disturbance of the high significance habitat of hills, ranges and plateaus has been minimised through the re-design of the access road and camp location.
- A Land Access and Land Clearing Procedure will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary. This includes requirements for weed hygiene to prevent introduction or spread of weeds.
- The area to be cleared shall be clearly demarcated and machinery operators made aware of the operational boundary, following confirmation with the relevant manager. Some heavy equipment used may have in-cab GPS mapping and alarm functions however in the absence of this functionality, pegging of clearing boundaries supplemented with other control measures such as the use of spotters and/or restricting clearing to the daylight hours will be used to prevent unauthorised clearing.
- Habitat and fauna surveys have been undertaken to identify key areas and species to avoid.
- Cave 1 to be temporarily closed during construction and operation which will eliminate risk of habitation and nursing by Ghost Bats which may be impacted from mining activity (e.g., vibration from blasting, excavation, haulage and overburden stacking). The cave structural integrity should be protected and when reopened after operations Ghost Bats are expected to return to the cave.
- No Barbed wire in new fencing will be used by the Proponent, subject to consultation with the pastoralist. If however, the pastoralist requires use of barbed wire for effective stock management, bat deflectors/reflectors between the top two strands will be used within the Project Area.
- Prohibit feeding of all fauna.
- Prohibit entry to caves, unless authorised.
- Ensure artificial lighting is not directed toward habitat of high significance.
- Demarcate areas that may not be entered by personnel and/or machinery.
- Intersection of the haul road with GNH, and an additional 100 m past the intersection, will be sealed to reduce the generation of dust.
- Road haulage iron ore loads will be covered.
- Ground clearing (including topsoil stripping) shall not be undertaken during periods of high winds (unless soil moisture levels are also elevated enough to inhibit dust formation).
- Off-road driving shall be prohibited unless authorised by management.
- Avoid hot work in fire sensitive areas and during high fire risk days.
- Haul road and Development Envelope design shall consider surface water flow to minimise obstruction to seasonal overland water flow to the loamy drainage flats proximal to the GNH.
- The Project will **minimise** impacts to terrestrial fauna via the following:
- Spatially restricted Indicative Footprint and short life of mine.
- Implement SFMP.
- Where placement of infrastructure such as the pit shell cannot avoid habitat of higher significance (e.g. drainage lines), minimise clearing as far as practicable.

- Minimise noise from vehicles / machinery and blasting etc. to avoid disturbance to roosting bats through appropriate selection of machinery reducing the number and duration of operating machines required to achieve the work.
- Replace the top strands of barbed wire in fences in the Project Area with single-strand wire, subject to consultation with pastoralist. If however the pastoralist requires use of barbed wire for effective stock management, bat deflectors/reflectors between the top two strands will be used within the Project Area
- Implement a 100 m radius exclusion zone around recorded Category 2 and Category 3 Ghost Bat roosts.
- Vehicles and equipment shall be restricted to designated roads, tracks, and cleared areas.
- Laydown areas will be situated in previously disturbed locations.
- Temporary Closure of Cave 1. Closure of Cave 1 is likely to be closed by using a lightweight steel frame fitted to the entrance and bird aviary steel netting or any heavier style with apertures not exceeding 100 mm. This would exclude Ghost bats but smaller species up to 10g such as Pilbara leaf-nosed bats (Rhinonicteris aurantia) or Finlayson's cave bat (Vespadelus finlaysoni) would be able to pass through unharmed. Other small fauna of a similar size including reptiles, frogs and snakes would also be able to access the cave. With regard to larger fauna such as Quolls, Dingoes and/or Macropod species that will be excluded by the closures, Lamb Creek Cave 1 is situated in an area with numerous alternative deep overhangs and shallow caves that are suitable for their foraging and/or resting activities. Each of these species is known to travel significant distances on a daily basis (Bat Call WA 2023a).
- Avoid providing accessible artificial water sources.
- Driving between dusk and dawn shall be minimised and light vehicle use will be limited with crews to be bused to and from camp to minimise traffic during start and end of shift.
- Machinery and vehicle movements that must be undertaken between dusk and dawn will be limited to low speeds on access tracks.
- Excavations and trenches will be kept open only as long as needed to undertake the work and egress points will be provided dependant on depth / morphology of the excavation.
- Any steep-sided holes (e.g., sumps) will be fitted with egress matting or another method of escape to avoid fauna entrapment.
- Regular inspection of all excavations and sumps shall be undertaken to minimise fauna mortality in accordance with **Table 8**.
- Native fauna shall not be fed or intentionally harmed.
- Environmental responsibility awareness training shall be delivered to all personnel as part of the induction process.
- Ensure food waste is disposed of appropriately so it cannot be accessed by fauna.
- Targeted control program to be implemented (e.g., shooting or trapping) where increased presence of feral animals are observed on site.
- Noise, vibration and artificial light awareness shall be delivered to all personnel as part of the induction process.
- Regular inspection and maintenance of vehicles and equipment shall be undertaken to ensure no excessive operating noise is experienced from faulty machinery and noise suppression equipment is operating adequately.
- Ensure blasting is undertaken during daylight hours and is strictly controlled to minimise air blast and ground vibration.
- Minimise the use of artificial lighting needed for safe operation, use directional and / or screened lighting, and when required for safety, avoid light spill onto important habitats (e.g., rocky outcrops).

- Implement the FVMP.
- Dust suppression shall be implemented to manage dust emission on cleared areas and iron ore handling areas.
- Stockyard ore product will be conditioned through addition of water to ensure dust extinguishing moisture limits are maintained (as per export license stipulations)
- Speed limits shall apply on sealed and unsealed roads.
- Blasting plans will consider meteorological conditions to minimise dust lift off.
- Dust awareness and dust management shall be delivered to all personnel as part of the induction process.
- A Weed Management Plan shall be prepared and implemented as part of the FVMP, prior to construction and operation, to control access and movement of vehicles and construction personnel to prevent the introduction and spread of weeds into the Development Envelope, weed free areas, and between work areas.
- Vehicles and equipment to be cleaned, inspected and issued with a Weed Hygiene Certificate prior to entry to site or moving between known weed infested areas on-site, (as per controls in Flora and Vegetation Management Plan).
- Weed awareness and weed hygiene shall be delivered to all personnel as part of the induction process.
- Fire management awareness shall be delivered to all personnel as part of the induction process.
- Firebreaks will be incorporated into mine layout planning in accordance with the local government firebreak notice under s. 33 of the Bush Fires Act 1954.
- Smoking will only be permitted in designated areas, which shall be appropriately signed and contain self-arresting cigarette butt disposal containers.
- An Emergency Response Plan shall be prepared and implemented.
- An Emergency Response Team shall be formed in accordance with requirements regulated by DEMIRS.
- The Emergency Response Team will ensure that sufficient fire suppression equipment is located as per the Emergency Response Plan.
- Hot Work shall be completed under a Hot Work Permit and in accordance with MRL-SAF-PRO-0081 Hot Work Procedure.
- Traffic Management Plan shall be prepared and implemented.
- All vehicles and machinery will be fitted with fire extinguishers and/or in-plant fixed water suppression.
- Implement surface and groundwater management strategies in accordance with the Surface Water Management Plan (SWMP) and Groundwater Operating Strategy (GWOS).
- The Project will **rehabilitate** impacts to terrestrial fauna via the following:
- Progressive rehabilitation of foraging habitat within close proximity of roost habitat (<2 km from Category 2 and Category 3 Ghost Bat caves).
- Drainage management structures identified as remaining post-closure shall meet recognised Australian drainage design specifications.
- The open pit will be backfilled to a minimum of 5 m above the baseline groundwater level.
- Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable.
- Implement an appropriate rehabilitation plan (surface treatments; seed selection, collection, storage and management) in accordance with the approved Mine Closure Plan (MCP).
- Seasonal weed control programs shall be implemented, as required.

- Weeds which are physically removed will be disposed of within the backfilled pit or waste rock landform and buried.
- Salvage and stockpile particular vegetation types, soil, or habitat features (e.g., vegetation, stumps, logs, and boulders) for use in rehabilitation programs.
- Rehabilitation shall include spatially heterogenous habitat with appropriate refuge areas to increase ability for animals to disperse between patches.
- Ensure all drill holes are capped as soon as reasonably practicable.
- The Project will **offset** impacts to terrestrial fauna via the following:
- Impacts to terrestrial fauna associated with the Proposed Action will be managed and mitigated to ensure that potential impacts to terrestrial fauna are managed to an acceptable level. Residual impacts to habitat areas from clearing and construction are proposed to be offset for 42.0 ha of critical habitat for the Northern Quoll, and 622.3 ha of supporting habitat for the Ghost Bat.

3. MANAGEMENT PROVISIONS

3.1 OVERVIEW

The SFMP outlines the requirements to avoid, minimise, manage, monitor, and rehabilitate direct and indirect impacts to significant fauna from the Project, aligning with the EPA's mitigation hierarchy. The subsequent sections identify the management provisions that will be implemented by the Proponent for the Project to ensure that the environmental objectives, criteria, targets, and outcomes are met for terrestrial fauna. Where unacceptable environmental outcomes remain post the implementation to controls measure such as permanent loss of significant species habitat, offset strategies will be proposed. The SFMP will be reviewed and updated as required, following an adaptive management approach (Section 7).

3.2 OUTCOME BASED PROVISIONS

This SFMP focuses on outcome-based provisions, which are performance-based and can be applied. The objectives developed are measurable, and the success of management actions can be monitored and reported. Outcome-based provisions specify triggers and thresholds (environmental criteria) for direct impacts that are quantifiable and specifically relate to terrestrial fauna (**Table 7**). Where required, suitable response and corrective actions are also recommended for the environmental criteria. The following outcomes-based provisions have been established:

- No unauthorised clearing within exclusion zones around recorded Category 2 and Category 3 Ghost Bat roosts.
- No statistically significant project-related increase in feral animal abundance as a result of project-related activities
- No adverse impacts to critical Ghost Bat cave (Cave 1) resulting from vibration levels from blasting activities; and
- Maintain the structural integrity of Cave 1.

3.3 OBJECTIVE-BASED PROVISIONS

Objective-based provisions relate to environmental management actions that are not specifically measurable. They specify management actions according to management targets, particularly for indirect impacts that are not quantifiable. The objective-based management provisions have been outlined in (**Table 8**) and are intended to prevent project-related adverse impacts to terrestrial fauna (including significant fauna species) within proximity to the Project with appropriate management actions and monitoring actions. The following objectives-based provisions have been established:

- No clearing of vegetation shall occur outside of the approved, demarcated clearing area(s) during construction or operation.
- Minimise Project-related direct interactions per year (e.g., vehicle strike, interaction with fencing) for significant fauna resulting in injury or mortality.
- Minimise adverse impacts to significant fauna as a result of increase in feral animal abundance.
- Minimise Project related disturbance of significant fauna from noise, vibration and artificial light.
- Minimise Project related decline to fauna habitat quality (e.g. vegetation health) due to dust, weeds, and hydrocarbon or chemical leaks and altered hydrological regimes.
- Effective operation of the Project to minimise the risk of Project related fire.

3.4 ENVIRONMENTAL CRITERIA, TARGETS AND JUSTIFICATION

The development of environmental objectives and criteria for outcome-based provisions within the SFMP are based on available data and information and align with the purpose of the SFMP. Outcome-based provisions utilise monitoring and reporting to assess against the measurable environmental criteria. In addition to these outcome-based provisions, objective-based provisions have been applied with management targets.

During monitoring, where threshold criteria (outcome-based) or management targets (objective-based) are exceeded, and are project-related, response and corrective actions are provided, and will be implemented, as appropriate. Monitoring will inform adaptive management, with the revision of environmental criteria, and response or corrective actions, as required (**Section 7**).

Justification for the management provisions outlined in the SFMP are based on the following:

- Clearing of critical habitat for significant fauna species has the potential to result in direct impacts to individuals and indirect impacts through habitat loss. The management approach focuses on minimising clearing undertaken where possible through design and the implementation of progressive rehabilitation. In addition to this, exclusion zones will be placed around recorded Category 2 and Category 3 Ghost Bat roosts within proximity to the Development Envelope.
- Feral animals are an existing key threat to significant species in the vicinity of the Project. An indicative Feral Animal Monitoring and Control Plan has been proposed within **Appendix C**. This feral animal monitoring and control program aims to reduce predation pressure on significant fauna for populations that are potentially impacted by the Project for the life of the Project. It is anticipated that monitoring will demonstrate a decrease in feral animal numbers below that of baseline levels over the duration of the control program.
- The Project has the potential to negatively impact upon the occurrence of significant species through indirect impacts, in particular vibration from blasting to bat habitat in proximity to the Development Envelope. The indicative cave closure procedure and vibration monitoring (**Appendix A**, **Appendix B**) aims to reduce potential impacts to roosting Ghost Bats in proximity to the Development Envelope and allow for Ghost Bats to return to roost at viable caves post-operations and removal of any temporary cave closure structures (where structural integrity has been retained) post mining.
- Habitat degradation through altered fire regimes, contamination or the introduction of weeds could negatively impact upon critical habitat for significant species and in some instances may increase the risk of fire. Weed introduction and spread will be managed and monitored as part of the FVMP. Mitigation to minimise the risk of project related fire within the SFMP focuses on avoidance through maintaining equipment, training, and the implementation of fire prevention practices.

Table 7: Significant Fauna Outcome-based Management provisions

EPA Factor and Objective		Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.						
SFMP Purpose		*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*						
Outcomes-Based Management Objectives		Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
		Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			

TF1	No unauthorised clearing within exclusion zones around recorded Category 2 and Category 3 Ghost Bat roosts.	Clearing occurs within 50 m of the 100 m radius exclusion zone around recorded Category 2 and Category 3 Ghost Bat roosts.	Clearing occurs within 100 m buffer implemented around exclusion zone around recorded Category 2 and Category 3 Ghost Bat roosts.	• If unplanned clearing within 50 m of the 100 m radius exclusion zone, report internally as an incident in accordance with internal procedures.
				• Investigate details of clearing within 50 m of 100 m exclusion zone to confirm activity approved and met conditions (e.g. Land Activity Permit (LAP)).
				• If clearing not approved or conditions not adhered to, review management strategies and implement changes to prevent future occurrences
					• Undertake investigation to determine source of disturbance. If source is project-related, undertake a review to determine if impact can be minimised, develop actions to prevent recurrence and communicate findings to relevant personnel.
					• Suitably qualified person to undertake an assessment of degree of potential impact(s) resulting from the unauthorised clearing incident to significant fauna population and habitat which may include:
					  ○ Area and extent of habitat cleared.
					  ○ Monitor significant fauna population, as appropriate.
					• Undertake rehabilitation of unauthorised clearing as required, in accordance with rehabilitation procedures, with the aim
						• Monitoring of clearing register for compliance to approvals.
						• Internal audit and inspection of areas of clearing.
						• Clearing activities will be audited regularly to ensure compliance with LAP conditions, including prior to LAP close out. This includes confirmation that all clearing has been completed within the LAP boundary).
							• Post clearing
							• Post clearing
							• Post clearing
							• Annual
							•
								Regular reporting:
								• Monitoring reports- clearing register and Internal clearing permits (LAP).
								• Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER.
								• Internal incident reporting and investigation process. Report any non-compliances with the LAP and Land Clearing Procedure.
								Exceedance Reporting:
								• Trigger threshold exceedance (report in accordance with Section 5.3
								• Threshold exceedance (report in accordance with Section 5.4

EPA Factor and Objective	Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.						
SFMP Purpose	*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*						
Outcomes-Based Management Objectives	Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
	Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
			which may include the following: Audit and review of training and staff inductions (increase staff training and awareness to include information on buffers, legislative requirements, and appropriate clearing procedures). Review of the potential impact(s) of unauthorised clearing and report any non-compliance to appropriate regulator within 10 days of identification. Installation of signage where appropriate.	to reinstate habitat for significant fauna. • Report as a non-compliance to appropriate regulator within 10 days of confirmed identification. • Investigation report to be submitted to appropriate regulator with remediation actions proposed within 28 days of original notification. <u>Contingency action:</u> • Temporarily cease clearing activities. • Should unauthorised clearing take place in critical habitat, consult with DBCA about any additional management actions required.	• Land disturbance will be reconciled annually, as a minimum, for compliance and reporting purposes. •		
	Actual and planned clearing within Development Envelope exceeds 90% of the approved	Actual clearing within the Development Envelope exceeds the approved clearing limit (646.9 ha).	• Report internally as an incident in accordance with internal procedures. • Notify Registered Manager • Confirm extent of existing approved	• Cease all clearing activities: • Undertake investigation to: • Identify likely cause of incident. • Report incident to DWER			

EPA Factor and Objective		Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.						
SFMP Purpose		*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*						
Outcomes-Based Management Objectives		Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
		Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
		clearing limit (646.9 ha).		ground disturbance via audit of clearing records. • Do not authorise any further LAPs if threshold criterion may be exceeded.	• Undertake consultation with relevant government authorities (DWER and DCCEEW) and stakeholders. • Undertake corrective rehabilitation, as required. • Review of relevant approvals, in consultation with DWER and DCCEEW • Undertake further education and awareness training			
TF2	No statistically significant increase in feral animal abundance, in comparison to baseline levels. as a result of project-related activities.	Monitoring data indicate a marked increase in the abundance or activity of feral animals.	Monitoring indicates a significant increase in the abundance or activity of feral animals over two consecutive monitoring events, in comparison to baseline levels.	• Report internally as an incident in accordance with internal procedures • Review management strategies and implement changes to prevent future occurrences. • Identify key causes for increased feral animal population and investigate	• Report any confirmed non-compliance to appropriate regulator within 10 days of identification. • Identify key causes for increased feral animal population and investigate possible causes, for example poor waste management, artificial ponding of water that may attract fauna. Examples of Project related activities which may contribute to an	• Monitor feral animals in accordance with the Feral Animal Monitoring and Control Plan (**Appendix C**). • Record observations of feral animals in accordance with Feral Animal Monitoring	• Undertake 2 years baseline feral animal monitoring prior to and during construction and early operations. In accordance with **Appendix C**. • As triggered.	Regular reporting: • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER . • Feral animal control contractor reports. Exceedance Reporting: • Trigger threshold exceedance (report in accordance with Section 5.3). • Threshold exceedance (report in accordance with Section 5.4).

EPA Factor and Objective	Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.					
SFMP Purpose	*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*					
Outcomes-Based Management Objectives	Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
	Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
			possible causes, for example poor waste management, artificial ponding of water that may attract fauna. • If increase in presence of feral animals is attributed to project-related activities, undertake a review of procedures to determine if impact can be minimised, develop corrective actions with consideration of the following: • Incident Reporting Procedure to record sightings of feral animals. • Educate staff and local traffic on the	increase in feral animal numbers include: • Animals accessing artificial water sources. • An increase in numbers following construction of linear infrastructure: Feral animals readily use roads, tracks and other cleared access ways over denser vegetation or complex topography. • Accessing food waste not properly disposed of; and • Incidences where feral animals are being fed. • If increase in presence of feral animals is attributed to project-related activities, undertake a review of procedures to determine if impact can be minimised, develop corrective actions with consideration of the following:	and Control Plan (**Appendix C**). • Internal incident reporting and investigation process.		

EPA Factor and Objective	Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.						
SFMP Purpose	*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*						
Outcomes-Based Management Objectives	Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
	Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
			importance of not feeding feral animals and correct waste disposal as well as reporting all sightings. • Conduct a review of waste management practices and improve practices accordingly. • Revise Feral Animal Monitoring and Control Plan (**Appendix C**) accordingly: Increase frequency and intensity of feral control actions, as appropriate. Audit and review of training and staff inductions (increase staff training and awareness around feral animal control).	• Audit and review of training and staff inductions (increase staff training and awareness around feral animal control, ensure awareness material is included in inductions). • Increase frequency and intensity of feral animal control actions if required as per Feral Animal Monitoring and Control Plan (**Appendix C**). Investigate and implement additional/alternative control measures to control feral animal populations according to industry best practice for example review the waste management plan. Contingency Action: • Should multiple threshold exceedances occur, undertake a review of the effectiveness of threshold value with respect to			

EPA Factor and Objective		Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.						
SFMP Purpose		*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*						
Outcomes-Based Management Objectives		Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
		Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
					baseline data and implement adaptive management process in consultation with DBCA/ DWER/ DCCEEW accordingly.			
TF3	No adverse impacts to Cave 1 resulting from vibration levels from blasting activities.	In situ vibration levels from blasting approaches modelled vibration predictions recorded (between 20 and 24.99 mm/sec PPV modelled to occur at Cave 1).	In situ vibration levels from blasting exceeds modelled vibration predictions of 25 mm/sec PPV at Cave 1 and damage to the structural integrity of Cave 1 occurs.	• Temporarily cease blasting activities until inspection of Cave 1 is undertaken, prior to the next planned blast. • Report internally as an incident in accordance with internal procedures • Cave inspection to be undertaken by an appropriately qualified person at the discretion of the Registered Mine Manager in consultation with the Environmental Manager, after blast to ensure that no structural damage to cave 1 has occurred	• Temporarily cease blasting activities. • Report any confirmed non-compliance to appropriate regulator within 10 days of identification. • Undertake Cave assessment after blast to determine extent of structural damage to cave 1 (following appropriate safety procedures ensuring that cave structural integrity can be assessed safely by personnel). • Review management strategies and implement changes to prevent future occurrences. • Blast engineer to review and re-calibrate blast conditions accordingly.	• Vibration monitoring (**Appendix B**). • Internal incident reporting and investigation process.	• During blasting (data logger). • As triggered.	Regular reporting: • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. • Vibration monitoring reporting. • Internal incident reporting (in accordance with Section 5.7). Exceedance Reporting: • Trigger threshold exceedance (report in accordance with Section 5.3). • Threshold exceedance (report in accordance with Section 5.4).

EPA Factor and Objective		Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.						
SFMP Purpose		*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*						
Outcomes-Based Management Objectives		Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
		Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
				(following appropriate safety procedures ensuring that cave structural integrity can be assessed safely by personnel). • Should no structural damage to Cave 1 be reported, the blast engineer to review and re- calibrate blast conditions accordingly to within modelled predictions, prior to undertaking subsequent blast.				
	Maintain the structural integrity of Cave 1	Minor (e.g. small rockfall not obscuring entrance to cave with minimal disturbance to roosting bats) Structural damage occurs at Cave 1	Moderate to Major (e.g. large rock fall obscuring cave entrance, cavity/ piercing of the lateral extent of the cave impacting the cave microclimate)	• Report internally as an incident in accordance with internal procedures • Ensure cave remains closed in accordance with procedure in Appendix A • Investigate the cause and the extent of the structural damage	• Investigate the cause and the extent of the structural damage to the cave (following appropriate safety procedures ensuring that cave structural integrity can be assessed safely by personnel). • Ensure cave remains closed in accordance with procedure in Appendix A.	• Vibration monitoring (**Appendix B**) • Internal incident reporting and investigation process.	• In accordance with **Appendix B** • As triggered.	Regular reporting: • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. • Vibration monitoring reporting. • Geotechnical/photographic cave assessment monitoring reports.

EPA Factor and Objective		Terrestrial Fauna: to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.						
SFMP Purpose		*To avoid adverse project-related impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.*						
Outcomes-Based Management Objectives		Trigger and Threshold Criteria		Trigger and Threshold Response Actions		Monitoring	Timing / Frequency of Monitoring	Reporting
		Trigger Criteria	Threshold Criteria	Trigger Level Actions	Threshold Level Actions and Contingency Actions.			
			related structural damage occurs to Cave 1	to the cave (following appropriate safety procedures ensuring that cave structural integrity can be assessed safely by personnel). • Review management strategies and implement changes to prevent future occurrences. • Audit and review of training and staff inductions (increase staff training and awareness). • Revise monitoring schedule, accordingly, for example increase frequency of inspections, photographic monitoring and/ or LiDAR capture/ geotechnical assessment of the cave	• Undertake additional LiDAR and/or photographic recording of the cave. • The appropriate regulator will be notified within 10 days of a confirmed breach of a Management Target(s) being known, with a report provided via email including any corrective actions identified once an investigation has been completed. • A follow up report detailing the adequacy of the response actions will also be submitted to the appropriate regulator within 12 months of the initial notification or within the ACAR. • Review management strategies and implement changes to prevent future occurrences. • Undertake appropriate corrective rehabilitation of the cave in consultation with DBCA/ DWER as soon as practicable			• Internal incident reporting (in accordance with Section 5.7). Exceedance Reporting: • Trigger threshold exceedance (report in accordance with Section 5.3). • Threshold exceedance (report in accordance with Section 5.4).

Table 8: Significant Fauna Objective-based Management provisions

EPA Factor and Objective	Terrestrial Fauna: To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.
Significant Fauna Values	Nine conservation significant fauna species and associated habitat recorded or considered likely to occur in the Development Envelope: • Ghost Bat (Macroderma gigas) (En, En); • Pilbara Leaf-nosed Bat (Rhinonicteris aurantia) (Vu, Vu); • Northern Quoll (Dasyurus hallucatus) (En, En); • Pilbara Olive Python (Liasis olivaceus barroni) (Vu, Vu); • Gane's Blind Snake (Anilios ganei) (P1 under the BC Act); • Pilbara Barking Gecko (Underwoodisaurus seorsus) (P2 under the BC Act); • Grey Falcon (Falco hypoleucos) (Vu, Vu); and • Peregrine Falcon (Falco peregrinus) (Other specially protected species under the BC Act).
SFMP Purpose	To avoid adverse project-related direct and indirect impacts to terrestrial vertebrate fauna including significant fauna and associated habitat.
Key Impacts and Risks	Potential risk to long term viability of local and regional populations of conservation significant fauna, due to direct impacts from clearing of native vegetation or direct and indirect impacts from mining activities (**Appendix D**)

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting

No clearing of vegetation shall occur outside of the approved, demarcated clearing area(s) during construction or operation.	High	• Implement the LAP process and Procedure.
		• Clearing awareness training is to be undertaken by all personnel involved in clearing activities, including specific information on significant fauna within the Development Envelope, the requirements for clearing, and the LAP and Land Clearing Procedure processes.
			• Visual inspections for evidence of:
			  • adherence to boundary demarcation compliance.
			  • unauthorised access or clearing (e.g., observations of vehicles or machinery, vehicle tracks, damage to fencing or vegetation).
				• During construction (pre-clearing clearing and post-clearing activities).
				• Imagery analysis annually, or as required, to monitor clearing extent.
				• As triggered.
					• Project Manager
					• Construction
					• Operations
					• Environment Manager
					• Environment Team.
						Regular reporting:
						• Monitoring reports-clearing register and Internal clearing permits.
						• Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER.
						• Internal incident reporting and investigation process. Report any non-compliances with the

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting

		• Proposed clearing has been minimised as far as practicable to reduce the extent of disturbance required; the Proponent has revised the Development Envelope from 1,399 ha to 874 ha (898 ha for EPBC).
		• A LAP and the Land Clearing Procedure will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary.
		• The area to be cleared shall be clearly demarcated and machinery operators made aware of the operational boundary, following confirmation with the relevant manager. Some heavy equipment will have in-cab GPS mapping and alarm functions, however in the absence of this functionality, other control measures such as the use of spotters and/or restricting clearing to the daylight hours could be used to prevent unauthorised clearing.
			• Monitoring of clearing register for compliance to approvals:
			  • Clearing activities will be audited regularly to ensure compliance with LAP conditions, including prior to LAP close out. This includes confirmation that all clearing has been completed within the LAP boundary.
			  • Land disturbance will be reconciled annually, as a minimum, for compliance and reporting purposes.
			• Internal incident reporting and investigation process.
						LAP and Land Clearing Procedure.
						Exceedance Reporting:
						• Management action has not been implemented (report in accordance with Section 5.5).
						• Management target has not been achieved (report in accordance with Section 5.6).

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		• Delineate clearing boundary areas by qualified surveyors in the field and confirmed cleared areas via survey after clearing. • Coordinates for clearing extents will be provided to the Construction Contractor. • Vehicles and equipment shall be restricted to designated roads, track and cleared areas unless authorised under a LAP.				
No statistically significant increase in feral animal abundance. as a result of project-related activities.	High	• Avoid providing accessible artificial water sources. • Prohibit feeding of all fauna. • Spatially restricted Indicative Footprint and short life of mine. • Environmental responsibility awareness training shall be delivered to all personnel as part of the induction process. • Ensure food waste is disposed of appropriately so it cannot be accessed by fauna. • Feral animal monitoring and subsequent	• Record and monitor the presence and abundance of feral fauna compared to baseline presence and abundance to determine the effectiveness of control programs. • Implement feral animal control at seasonally appropriate time. • Maintain a register of all introduced fauna sightings.	• Baseline monitoring of feral animal presence to be undertaken over 2 year period prior to and during construction and early operational activities. In accordance with (**Appendix C**) • Control programs - Opportunistically.	• Construction personnel. • Operations personnel. • Environment Manager • Environment Team.	Regular reporting: • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. • Feral animal control contractor reports. Exceedance reporting: • Management action has not been implemented (report in accordance with Section 5.5). • Management target has not been achieved (report in accordance with Section 5.6).

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		targeted control program to be implemented (**Appendix C**).				
No significant adverse impacts to significant fauna as a result of project related altered hydrological regimes.	High	Hydrological Regimes: • Haul road and Development Envelope design shall consider surface water flow to minimise obstruction to seasonal overland water flow to the loamy drainage flats proximal to the Great Northern Highway. • Implement surface and groundwater management strategies in accordance with the SWMP and GWOS. • Drainage management structures identified as remaining post closure shall meet recognised Australian drainage design specifications. • The open pit will be backfilled to a minimum of 5 m above the baseline groundwater level. • Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable.	• Implement surface and groundwater monitoring as required in accordance with the Surface Water Management Plan (SWMP) and Ground Water Operating Strategy (GWOS).	• In accordance with schedule in the SWMP and GWOS. •	• Project Manager • Construction personnel. • Operations personnel • Environment Manager • Environment Team.	Regular reporting: • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. • SWMP monitoring reports. Exceedance reporting: • Management action has not been implemented (report in accordance with Section 5.5) • Management target has not been achieved (report in accordance with Section 5.6).

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
Effective operation of the Project to minimise the risk of Project related fire.	High	• Off-road driving shall be prohibited unless authorised under a LAP. • Avoid hot work in fire sensitive areas and during fire risk days. • Fire awareness shall be delivered to all personnel as part of the induction process. • Firebreaks will be incorporated into mine layout planning in accordance with the local government firebreak notice under s. 33 of the *Bush Fires Act 1954*. • Smoking will only be permitted in designated areas, which shall be appropriately signed and contain self-arresting cigarette butt disposal containers. • An Emergency Response Plan shall be prepared and implemented. • An Emergency Response Team shall be formed, in accordance with requirements regulated by DEMIRS. • The Emergency Response Team will ensure that sufficient operational fire suppression equipment is	• Inspection and maintenance of fire breaks in accordance with the local government firebreak notice under s. 33 of the *Bush Fires Act 1954*. • Regular inspection of vehicles and fire response equipment shall be undertaken.	• As required in accordance with the local government firebreak notice under s. 33 of the *Bush Fires Act 1954*. • Quarterly	• Project Manager • Construction personnel. • Operations personnel • Environment Manager • Environment Team.	Regular reporting: • Internal incident reporting, emergency response and investigation process in the event of a fire, in accordance with internal incident reporting procedure. • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. Exceedance reporting: • Management action has not been implemented (report in accordance with Section 5.5). • Management target has not been achieved (report in accordance with Section 5.6).

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		located as per the Emergency Response Plan. • A Traffic Management Plan shall be prepared and implemented. • Implement a Hot Work Permit system for high ignition risk work activities. • Regular inspection and maintenance of vehicles and equipment shall be undertaken. • All vehicles and machinery will be fitted with fire extinguishers and/or in-plant fixed water suppression, and water carts will be fitted with firefighting equipment. • All fuel stored on site is to be contained within a secure bund or other facility. • Implement an appropriate rehabilitation plan (surface treatments; seed selection, collection, storage and management) in accordance with the approved MCP, following fire.				

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
No significant increase in project-related direct significant fauna interactions per year (e.g., vehicle strike, interaction with fencing) resulting in injury or mortality.	Low	• Develop and implement a Traffic MP. • Maintain a fauna mortality register. • Close Cave 1 prior to the critical female breeding period of October to December. • Temporary closure of Cave 1 during construction and operation to ensure no inadvertent loss of mothers and/or pups will occur in the event of mining activity (e.g., blasting, excavation, haulage, overburden stacking) in proximity to caves. • The area to be cleared shall be clearly demarcated and machinery operators made aware of the operational boundary, following confirmation with the relevant manager. • New fencing shall not use barbed wire, subject to consultation with pastoralist. The Proponent is committed to replacing barbed wire fences with three or four strand wire fencing in the Project area (in consultation with the	• Undertake periodic compliance checks with site speed limits. • In the event that fauna is injured during clearing, construction or operations, the animal shall be taken to an authorised veterinarian or trained wildlife carer, or if not possible, humanely euthanised in accordance with *Standard Operating Procedure: Humane Killing Of Animals Under Field Conditions* (Department of Biodiversity Conservation and Attractions 2018). • Check trenches for trapped fauna and ensuring egress points are functional.	• In accordance with section 4.2. • As triggered. • Twice daily trench inspections	• MinRes • Construction. • Operations • Environment Team.	Regular Reporting: • Record known injuries to, or deaths of, significant fauna species in the internal Conservation Significant Fauna Interaction Register as soon as possible, as the injury or death is identified. • Internal incident reporting, and investigation process in accordance with internal incident reporting procedure. • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. Exceedance Reporting: • Report significant fauna mortalities within 48 hours to DBCA in accordance with legislative requirements. • Management action has not been implemented (report in accordance with Section 5.5) • Management target has not been achieved (report in

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		Juna Downs pastoralist). If however the pastoralist requires use of barbed wire for effective stock management, bat deflectors/reflectors between the top two strands will be used within the Project Area. • Spatially restricted Indicative Footprint and short life of mine. • Implement a 100 m radius exclusion zone around recorded Category 2 and Category 3 Ghost Bat roosts. • Driving between dusk and dawn shall be minimised, for example buses to transport staff between camp and work site at shift changes. Machinery and vehicle movements that must be undertaken between dusk and dawn will be limited to low speeds (site-specific but typically 40km/h) on access tracks. • Excavations and trenches will be kept open only as long as needed to undertake the work and egress points will be provided dependant on depth /				accordance with Section 5.6) •

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		morphology of the excavation. • Any steep-sided holes (e.g., sumps) will be fitted with egress matting or another method of escape to avoid fauna entrapment. • Regular inspection of all excavations (including open trenches) shall be undertaken to minimise fauna mortality. • Environmental responsibility awareness training shall be delivered to all personnel as part of the induction process. • Vehicles and equipment shall be restricted to designated roads, tracks and cleared area, unless authorised under a LAP. • Signage will be installed along access roads to warn road users of areas where they will be entering critical fauna habitat area and will advise of applicable speed reduction. • Ensure all drill holes are capped as soon as reasonably practicable.				

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
Minimise project related disturbance of significant fauna from noise, vibration and artificial light.	Low	• Implement staff training to enable staff to implement procedures related to minimisation of noise, dust, vibration, and artificial light. • Avoid placement of infrastructure in any habitat of high significance. • Prohibit entry to caves, unless authorised by Management. • Undertale monitoring/inspection of Cave 1 prior to and after the first blast as per Appendix B. • Avoid placing artificial lighting in key significant fauna habitat. • As practicable while providing lighting required for safe operation, implement best practice light management (DCCEEW 2023a) within proximity to significant bat species' habitat through maintaining natural darkness in and near all significant bat species' habitats is the most effective impact mitigation method. Where lighting exists or is introduced, effective management and	• Cave closure (**Appendix A**) and vibration monitoring (**Appendix BAppendix B**). • Undertake Blast vibration monitoring for Cave 1 to ensure no disturbance to significant fauna, or degradation or loss of significant fauna habitat (Cave 1) occurs. • Photo monitoring Cave 1 **(Appendix B**) • Regular inspection and maintenance of vehicles and equipment shall be undertaken.	• In accordance with **Appendix A.** • In accordance with **Appendix B**. • Quarterly during first year, six-monthly thereafter if no change • Daily	• Construction. • Operations. • Environment Team.	Regular Reporting: • Internal incident reporting, and investigation process in accordance with internal incident reporting procedure. • Noise and vibration monitoring reporting. • Submit an annual compliance assessment report as part of the Annual Environment Report to the DWER. Exceedance Reporting: • Management action has not been implemented (report in accordance with Section 5.5). • Management target has not been achieved (report in accordance with Section 5.6).

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		mitigation approaches to reduce potential impacts to may include: • maintaining dark roost sites. • creating dark corridors from roosts to foraging/watering sites. • keeping light intensities low and redirecting light away from habitats. • longer wavelength (red) artificial light appears to have the least impact on several bat species. • Demarcate areas that may not be entered by personnel and/or machinery. • Noise, vibration and artificial light awareness training shall be delivered to all personnel as part of the induction process. • Regular inspection and maintenance of vehicles and equipment shall be undertaken. • Ensure blasting is undertaken during daylight hours and is strictly controlled to				

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		minimise air blast and ground vibration. • Minimise the use of artificial lighting needed for safe operation, use directional and / or screened lighting, and when required for safety, avoid light spill onto important habitats (e.g., rocky outcrops). • As practicable while providing lighting required for safe operation, adhere to DCCEEW (2023a) Light pollution guidelines best practice lighting design to minimise potential impacts from artificial light sources to significant fauna by incorporating the following design principles: • start with natural darkness and only add light for specific purposes. • use adaptive light controls to manage light timing, intensity and colour. • light only the object or area intended – keep lights close to the ground, directed, and shielded to avoid light spill.				

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		• use the lowest intensity lighting appropriate for the task. • use non-reflective, dark-coloured surfaces. • use lights with reduced or filtered blue, violet and ultraviolet wavelengths.				

Minimise project related decline to fauna habitat due to dust, weeds, and hydrocarbon or chemical leaks and altered hydrological regimes.	Low	Dust Management:
		• Intersection of the haul road with Great Northern Highway, and an additional 100 m past the intersection, will be sealed to reduce the generation of dust.
		• Road haulage iron ore loads will be covered.
		• Ground clearing (including topsoil stripping) shall not be undertaken during periods of high wind (unless soil moisture levels are also elevated enough to inhibit dust formation).
		• A LAP and the Land Clearing Procedure will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary.
			• Monitoring of daily wind conditions will be taken into consideration when planning clearing or blasting activities.
			• Visual assessment of dust suppression performance
			• Bi-annual monitoring of the presence and abundance of weeds compared to baseline presence and abundance to determine the effectiveness of control programs.
				• Daily
				• Daily
				• Bi-annual
					• Construction.
					• Construction
					• Operations.
						Regular Reporting:
						• Internal incident reporting, and investigation process in accordance with internal incident reporting procedure for example:
						  • Excessive dust
						  • New weed species and/or new occurrences of existing weed species are recorded.
						  • Vehicles reported outside authorised areas/ tracks.
						• Dust monitoring reporting.
						• Biannual weed monitoring reporting.
						• Submit an annual compliance assessment report as part of the Annual

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		• Spatially restricted Indicative Footprint and short life of mine. • Vehicles and equipment shall be restricted to designated roads, tracks and cleared areas unless authorised under a LAP. • Dust suppression shall be implemented to manage dust emission on cleared areas and iron ore handling areas. This will be visually assessed on an ongoing basis. • Reduced speed limits to be applied on unsealed roads (site-specific but typically 40 kph). • Blasting plans will consider meteorological conditions to minimise dust lift off. • Dust awareness training shall be delivered to all personnel as part of the induction process. • Implement an appropriate rehabilitation plan (surface treatments; seed selection, collection, storage and management) in accordance with the approved MCP.				Environment Report to the DWER. Exceedance Reporting: • Management action has not been implemented (refer to Section 5.5). • Management target has not been achieved (refer to Section 5.6)

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		• Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable. Weed Management: • A LAP and the Land Clearing Procedure will be implemented to ensure all clearing works are compliant with regulatory requirements and are within approved boundary. • A Weed Management Plan shall be prepared and implemented as part of the FVMP, prior to construction and operation, to control access and movement of vehicles and construction personnel to prevent the introduction and spread of weeds into the Development Envelope, weed free areas, and between work areas. • Vehicles with ground engaging equipment to be cleaned, inspected and issued with a Weed Hygiene Certificate prior to entry to site or moving between areas with known weed infestations on-site.				

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		• Vehicles and equipment shall be restricted to designated roads, tracks and cleared areas, unless authorised under a LAP. • Weed awareness and weed hygiene training shall be delivered to all personnel as part of the induction process. • Regular inspection and maintenance of vehicles and equipment shall be undertaken. • Seasonal weed control programs shall be implemented, including herbicide spraying or physical removal, in accordance with the FVMP. • Progressive rehabilitation of disturbed areas will be undertaken throughout the life of mine, as far as practicable. • Hydrocarbon or chemical spill management: Hydrocarbon and/or chemical leaks and spills (expected to be rare) will be managed using bunding techniques, leak detection mechanisms and spill kits to restrict impacts.				

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		• Spill response equipment available (including on all Haul Trucks). • Spill response training for all personnel and contractors. • Dedicated workshop for maintenance. • Maintain high standard of housekeeping around processing plant. • Prevent chemical / hydrocarbon spill from spreading to native vegetation. • Management of sites as per the Contaminated Site Act 2003. • Develop and implement a Hazardous Substances Management Plan (HSMP) and Procedure. • Develop and implement an Emergency Response Plan. • Develop and implement a Spill Response Plan. • Develop and implement a Controlled Waste Management Procedure. • Develop and implement a Contaminated Sites Register. • Develop and implement a Waste Management Procedure.				

Management Targets	Management Priority	Management Actions	Monitoring	Timing	Responsible	Reporting
		• Routinely check sumps for fauna. •				

4. MONITORING AND EVALUATION

A monitoring schedule has been developed with performance targets (**Table 9**) to assess the effectiveness of the management measures outlined in this SFMP (**Section 4**). The performance targets have been aligned with the outcomes-based objectives and associated environmental criteria, with associated measurement parameters, monitoring frequencies and responsibilities.

In addition to the monitoring schedule, Monitoring Programs have been developed to align with the SFMP and are presented in **Appendix B** and **Appendix C.** Monitoring has been developed to achieve the following objectives:

- Monitor the success of mitigation and management measures in the SFMP and detect potential impacts to significant fauna and habitat.
- Evaluate effectiveness and monitor for exceedance against trigger, threshold, and management target criteria (management provisions).
- Assess the effectiveness of the environmental criteria to inform adaptive management and revision where required.

Table 9: Monitoring Schedule

Management Targets	Monitoring Event	Monitoring Action	Timing	Responsibility
No clearing of vegetation shall occur outside of the approved, demarcated clearing area(s) during construction or operation.	Clearing inspections	Visual inspections for evidence of: • adherence to boundary demarcation compliance. • unauthorised access or clearing (e.g., observations of vehicles or machinery, vehicle tracks, damage to fencing or vegetation).	During clearing, construction, pre-clearing and post-clearing activities.	Manager Environment. Staff and contractors.
		Monitoring of clearing register for compliance to approvals: • clearing activities will be audited regularly to ensure compliance with LAP conditions, including prior to LAP close out. This includes confirmation that all clearing has been completed within the LAP boundary. • Land disturbance will be reconciled annually, as a minimum, for compliance and reporting. •	Imagery analysis annually, or as required, to monitor clearing extent.	
		Internal incident reporting and investigation process	As triggered.	
No significant increase in Project-related direct significant fauna interactions per year (e.g., vehicle strike, interaction with fencing) resulting in injury or mortality.	Signage	Undertake periodic compliance checks with site speed limits.	Quarterly signage inspections.	Manager Environment. All staff and contractors. Suitably qualified persons, as required.
	Fauna mortality or injury register	In the event that fauna is injured during clearing, construction or operations, the animal shall be taken to an authorised veterinarian or trained wildlife carer, or if not possible, humanely euthanised in accordance with Standard Operating Procedure: Humane Killing Of Animals Under	In accordance with Section 4.2	

		Field Conditions (Department of Biodiversity Conservation and Attractions 2018)		
	Trench inspections	Check trenches for trapped fauna and ensuring egress points are functional.	Twice daily trench inspection	
No statistically significant increase in feral animal abundance as a result of Project related activities.	Feral fauna monitoring	Record and monitor the presence and abundance of feral fauna compared to baseline presence and abundance to determine the effectiveness of control programs.	Baseline monitoring undertaken over 2 consecutive years prior to and during early construction activities.	Manager Environment. Environment Team. Suitably qualified person, as required.
	Feral fauna control	Implement feral fauna control at seasonally appropriate time	In accordance with **Appendix C**.	
	Introduced fauna register	Maintain a register of all introduced fauna sightings.	Opportunistically (i.e. when observed).	
Minimise Project related disturbance of significant fauna from noise, vibration and artificial light.	Vibration monitoring	Cave closure (**Appendix A**) and vibration monitoring (**Appendix B**).	In accordance **Appendix A.**	Manager Environment. Environment Team. Project Manager.
		Undertake Blast vibration monitoring for Cave 1 to ensure no disturbance to significant fauna, or degradation or loss of significant fauna habitat (Cave 1) occurs.	In accordance with **Appendix B**.	
	Photo monitoring	Photo monitoring Cave 1	As per **Appendix B.**	
Minimise Project related decline to fauna habitat due to dust, weeds, and hydrocarbon or chemical leaks and altered hydrological regimes.	Dust monitoring	Monitoring of daily wind conditions will be taken into consideration when planning clearing or blasting activities.	Daily.	Manager Environment. Environment Team.
	Weed monitoring	Bi-annual monitoring of the presence and abundance of weeds compared to baseline presence and abundance to determine the effectiveness of control programs.	Biannual. As per Flora and Vegetation Management Plan	

	Surface and groundwater monitoring	Implement surface and groundwater monitoring as required in accordance with the Surface Water Management Plan (SWMP) and Ground Water Operating Strategy (GWOS).	In accordance with schedule in the SWMP and GWOS.	
Effective operation of the Project to minimise the risk of Project related fire.	Routine fire inspection	Inspection and maintenance of fire breaks in accordance with the local government firebreak notice under s. 33 of the *Bush Fires Act 1954*.	As required in accordance with the local government firebreak notice under s. 33 of the *Bush Fires Act 1954*.	Manager Environment. Environment Team.
		Regular inspection of vehicles and fire response equipment shall be undertaken.	Quarterly.	
Maintain Structural integrity of Cave 1	Cave monitoring	Photographic, geotechnical assessment monitoring of Cave 1	As per Appendix B.	Manager Environment Environment Team

4.1 ENVIRONMENTAL AUDITS

In accordance with the Proponent's Environmental Management System (EMS), an audit of implementation of this SFMP will be completed annually. The key requirements of this SFMP audit include:

- Assessment of compliance of all SFMP components.
- Evaluation of performance against SFMP provisions.
- Assessment of adequacy of management actions, response actions and monitoring.
- Review of management actions, response actions and monitoring as required in order to meet the purpose and objectives of this SFMP.
- Additional audit(s) in response to significant incidents of non-conformance.

SFMP audits shall be conducted by personnel trained and competent in the use of the audit tool and have expertise in the area being audited. Results of all audits will be communicated and discussed at project management review meetings.

4.2 CAPTURE AND RELEASE

Should capture and release be required, it is important that any capture and release is undertaken by qualified licensed personal in accordance with relevant DBCA standard operating procedures (SOPs) such as:

- Transport and temporary holding of wildlife SOP No: SC22-11 (DBCA 2023b)
- Cage traps for live capture of terrestrial vertebrates SOP No: SC22-07(DBCA 2023a)
- Animal handling and restraint using soft containment SOP No: SC22-12
- Hand capture of wildlife SOP No: SC22-12 (DBCA 2022c)(DBCA 2022)
- Hand restraint of wildlife (DBCA 2017b)
- Care of evicted pouch young SOP No.SC22-16 (DBCA 2023c)

An appropriate DBCA fauna license will be required to undertake capture and release.

4.3 INJURED FAUNA MANAGEMENT FOR SIGNIFICANT FAUNA

In unlikely event that an injured significant fauna individual is found, an assessment needs to be undertaken to determine if the fauna is safe to approach. If capture is necessary, the following management actions will be undertaken by a qualified fauna handler:

- If handling is the preferred method, safely confine (wrap the animal in towel and place in cardboard box) ensuring the animal can breathe.
- Keep box closed but not sealed to allow for ventilation and place box in a dry, warm, dark and quiet place.
- The DBCA (2023b) – Standard Operating Procedure (SOP) Transport and Temporary Holding of Wildlife procedure will be adhered to if the injured animal is to be transported:
  - Where transportation of the injured animal is to occur on foot or vehicle.
  - Individuals shall be kept within a box with ventilation for secure transport.
  - Temperature of vehicle will not exceed 25 degrees Celsius during transportation.
- First response wound management will be undertaken in accordance with DBCA (2017a) - SOP First aid for animals:

- Due to the remote location of the Project any medical attention required to the animal is to be assessed on a case-by-case basis in consultation with the fauna handler, a veterinarian and the Environment Manager.
- In the event the animal is injured (or is dependent young) and is not able to be re-released (based on veterinarian advice), the DBCA shall be consulted for rehabilitation options.
- No relocation of nests or rehabilitated fauna individuals is to occur (unless in extenuating circumstances where prior consultation has occurred with EPA, DCCEEW and DBCA and approval and a permit to handle and move significant fauna has been granted).
- Euthanasia of an animal will only be undertaken under the instruction of a veterinarian, however, DBCA (2018) - SOP Human Killing of Animals under Field Conditions will be considered, where appropriate.

5. REPORTING PROVISIONS

5.1 ANNUAL REPORTING

Annual compliance reporting will be undertaken for the Project in line with regulatory requirements and relevant guidance documentation, including the preparation of an AER and CAR. The annual reports will document compliance with Project approval conditions, as well as requirements stipulated in this SFMP.

5.2 EXCEEDANCE REPORTING

The following exceedance reporting will be undertaken if a trigger (**Section 5.3**) or Threshold (**Section 5.4**) exceedance occurs or a management action has not been implemented (**Section 5.5**) or management target has not been achieved (**Section 5.6**) in accordance with the SFMP.

5.3 TRIGGER EXCEEDANCE

- Trigger exceedance will be reported promptly in accordance with internal procedures (prior to the end of shift the following day) and reported to appropriate management staff.
- Investigate to determine the cause of the trigger exceedance.
- Internal reporting and communication of corrective actions to be implemented that eliminate or reduce the likelihood of recurrence.

5.4 THRESHOLD EXCEEDANCE

- Notify the CEO of the DWER in writing within 10 days of identifying and confirming the threshold exceedance, with a report provided via email including any corrective actions identified once an investigation has been completed.
- Investigate to determine the cause of the threshold exceedance.
- Investigate to determine the potential environmental harm or alteration of the environment that occurred as a result of the threshold exceedance.
- A follow up report detailing the adequacy of the response actions will also be submitted to the DWER within 12 months of the initial notification or within the ACAR.

5.5 MANAGEMENT ACTION HAS NOT BEEN IMPLEMENTED

- Notify the CEO of the DWER in writing within 10 days of identifying and confirming the failure to implement a management action, with a report provided via email including any corrective actions identified once an investigation has been completed.
- Investigate to determine the cause of the management action not being implemented.
- Investigate to determine the potential environmental harm or alteration of the environment that occurred due to the failure to implement the management action(s).
- Provide a report to the CEO including any corrective actions identified, within 21 days of the initial notification of failure to implement a management action being identified.

5.6 MANAGEMENT TARGET HAS NOT BEEN ACHIEVED

- Notify the CEO of DWER in writing within 21 days of identifying and confirming the non-achievement of the target.
- Investigate to determine the cause of the management target not being achieved.

- Provide a report to the CEO within 90 days of the non-achievement of the target being reported.
- The report shall include:
  - the cause(s) of the management targets not being achieved.
  - details of revised and/or additional management actions to be implemented to prevent reoccurrence of management target(s) not being met.
  - appropriate changes to Project activities/ corrective actions required.

5.7 INCIDENT REPORTING

Environmental incidents will be promptly reported in accordance with internal procedures and reported to appropriate management staff. Corrective actions, when appropriate, will also be developed and implemented that eliminate or reduce the likelihood of recurrence.

The minimum standards required in respect to non-conformance and corrective actions are to:

- Define and document what classifications of incidents and non-conformances are reportable to:
  - internal management.
  - contractors, suppliers and vendors.
  - regulatory authorities.
  - other external stakeholders.
- Report environmental incidents and non-conformances in line with established procedures and applicable legal and other obligations.
- Investigate incidents and non-conformance such that the root cause can be determined.
- Implement corrective actions that address the root cause(s) of the incidents and non-conformances that aim to eliminate or improve response capabilities to prevent reoccurrence.
- Retain documentation as evidence.

6. ROLES AND RESPONSIBILITIES

MinRes will ensure that all personnel and contractors are responsible for ensuring they comply with the company's environmental management requirements and that any action or inaction on their part does not result in harm to the environment. Delegation of responsibilities may occur to ensure that environmental management activities are coordinated at an appropriate level; however, accountability remains with the person designated those responsibilities. MinRes also expects this general principle of line management accountability to apply to all its contractors. Roles and responsibilities have been designated to ensure that environmental management requirements within this SFMP are met. The key personnel involved in implementation of the SFMP, and their roles and responsibilities are listed in Table 10.

Table 10: Roles and Responsibilities

Role	Responsibility

MinRes	• Overall responsibility for implementing this SFMP.
	• Ensure the development and implementation of procedures and plans in the SFMP:
	  • Hazardous Substances Management Plan (HSMP) and Procedure.
	  • Emergency Response Plan.
	  • Spill Response Plan.
	  • Controlled Waste Management Procedure.
	  • Contaminated Sites Register.
	  • Waste Management Procedure.
	  • Traffic Management Plan
	  • Emergency Response Plan
	  • Weed Management Plan
	  • FVMP.
	  • Audit and compliance checks.
	  • Engagement with Traditional Owners.

Project Manager (may delegate all or part responsibility to an appropriately qualified person)	• Ensure construction and operational activities are implemented by employees (inclusive of contractors) in accordance with the SFMP
Manager Environment (may delegate all or part responsibility to an appropriately qualified person)	• Obtain relevant approvals from regulatory agencies for disturbance as required. • Undertake Monitoring in accordance with the SFMP. • Incident Reporting and Monitoring in accordance with the SFMP. • Maintain clearing register to ensure compliance with approvals. • Undertake internal audits and inspections of clearing areas and compliance with SFMP. • Implement and maintain the SFMP, review its effectiveness and review the implementation as required. • Undertake training and inductions of personnel in accordance with the SFMP. • Liaise with stakeholders and technical experts for advice and resolution of management aspects/objectives as required. • Engagement with Traditional Owners. • Report as required to regulating authorities.
Employees (inclusive of contractors)	• Complete induction prior to commencement of work on site. • Toolbox. • Training. • Comply with requirements in SFMP. • Stop works if impact to the environment is suspected or known. • Report any environmental concerns, opportunities for improvement, near misses or incidents to their supervisor ASAP.

7. ADAPTIVE MANAGEMENT AND REVIEW

Adaptive management practices will be implemented where change to management practices and monitoring may lead to more effective environmental outcomes. The adaptive management approach may include the following components:

- Evaluation of the management actions and targets:
  - if monitoring results or audits indicate that management objectives are not being achieved.
  - if new information is discovered during construction, operations or closure.
  - where any significant changes to Project design or operation have occurred.
- Evaluation of assumptions and uncertainties following further significant fauna monitoring and management.
- Review of data and information gathered over the review period that has increased understanding of the environment in the context of the regional ecosystem.
- Review of Management Actions as the Project progresses, and new management measures and technologies become available that may be more effective for significant fauna management.
- Assessment of changes which are outside the control of the Proponent (i.e., a new project within the area or region, regional change affecting significant fauna management) and the revised management measures identified.
- Amendment to the monitoring program.

7.1 REVIEW OF THIS SFMP

This SFMP will be reviewed periodically during the phases (construction, operations and into closure), nominally once every 2 years. Other occasions when this SFMP will be reviewed include:

- Upon significant changes to the Project activities or upon significant changes to key environmental values identified in this SFMP.
- Following non-compliances or environmental incidents related to significant fauna management.
- If one or more management targets or performance indicators are not being met and adaptive management is required.
- Upon regulatory approval of the Project by the DWER and the Department of Mines, Industry Regulation and Safety (DMIRS).

The review process will ensure that this SFMP remains current and adheres to regulatory requirements and the provisions of this SFMP. Any significant changes to this SFMP will be referred to the DWER for approval prior to implementation of such changes.

8. STAKEHOLDER CONSULTATION

The Proponent is committed to ongoing stakeholder engagement and communication through all stages of the Project.

8.1 ENGAGEMENT

Stakeholder engagement for the Project commenced in 2012 and specific stakeholder engagement activities undertaken have included:

- Briefings and presentations with key regulatory authorities and potentially affected parties to provide information on the Project, planned studies and request feedback.
- Face to face meetings, telephone calls and written correspondence with potentially affected stakeholders to provide updates on the Project and obtain additional feedback.
- Specifically, consultation between MinRes and the Banjima People, through the body corporate Banjima Native Title Aboriginal Corporation (BNTAC) and their consultants, regarding the preparation of various environmental regulatory approvals (State and Commonwealth) has been conducted, including reviews of this SFMP. Feedback from these engagements has been incorporated into the approval submission documents and this SFMP.

Through the variety of engagement forums, the Proponent has been able to identify the required studies and investigations and, importantly, key environmental and socials impacts, and associated mitigation strategies required to support the Project, to ensure the Project aligns with expectations. A detailed summary of stakeholder communications is provided in Chapter 3 of the EPBC Preliminary Document.

8.2 KEY STAKEHOLDERS

The Proponent has identified key Project stakeholders, and these are listed in **Table 11.**

Table 11: Key Stakeholders for the Project

Stakeholder Sector	Organisation
Australian Government Agencies	Department of Climate Change, Energy, the Environment and Water
State Government Agencies & Members of Parliament	Department of Biodiversity, Conservation and Attractions
	Department of Jobs, Tourism, Science and Innovation
	Department of Energy, Mines, Industry Regulation and Safety
	Department of Planning, Lands and Heritage
	Department of the Premier and Cabinet (Ministers for Water and Environment)
	Department of Primary Industries and Regional Development
	Department of Transport
	Department of Water and Environmental Regulation - Environmental Protection Authority services
	Department of Water and Environmental Regulation
	Development WA
	Environmental Protection Authority

Stakeholder Sector	Organisation
	Main Roads WA
	Pilbara Port Authority
	Alinta Energy
Local Government	Shire of East Pilbara
Traditional Owners	Banjima Native Title Aboriginal Corporation
	Martidja Banyjima (MIB) – Karijini Development Pty Ltd
Corporate and Community	Rio Tinto/Juna Downs Pastoral Lease
	Bird Life Western Australia
	BHP
	Wildflower Society of Western Australia
	Conservation Council of Western Australia
	Wilderness Society

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MINERAL RESOURCES

APPENDIX A
CAVE CLOSURE AND CAVE DISRUPTION PROTOCOL

Appendix A Cave Closure and Cave Disruption Protocol

A.1 Background

A conservative protocol (Cave Closure and Cave Disruption Protocol) is recommended by Bat Call WA (2023a) to protect reproducing Ghost Bat females and their young during the most important part of their reproductive cycle. This covers the periods when:

- Gravid females are subject to premature birth due to either capture and handling or repeated flushing of the bats from their diurnal roost caves.
- Females carrying newborns are subject to dropping them due to capture or disturbance.
- Non-volant young in nurseries are subject to abandonment due to repeated disturbance of the mothers.
- Newly volant young during the early adolescent period are subject to premature abandonment due to repeated disturbance of the mothers and/or young.

For Ghost Bat category 1, category 2, and category 3 roost caves (**Figure 4**) that are part of an important cave grouping, the following cave disturbance protocols will be followed as recommended by Bat Call WA (2023a) :

1. Surveys with higher disturbance to Ghost Bats (i.e., when Ghost Bats are captured, or are present and are disturbed) will be limited to once per cave during August, September, and January.
2. Multiple lower disturbance survey entries per cave are allowed in August, September, and January. The surveys should be done by one ecologist working quietly to minimise stressing the bats present and hopefully not flushing them from the cave. If a Ghost Bat(s) is disturbed and flushed from the cave, the caves and their entrance areas should be vacated to allow the bat(s) to return and settle. Restrictions per item 1 above then apply.
3. No cave entries should be carried out in October, November and December, including entry to inspect caves within the potential impact zone of a drilling/blasting program. Any damage assessments required during blasting operations in this time period should be carried out from the cave entrance.
4. Where category 2 and 3 caves are within the impact zone of a drilling/blasting program (Cave 1 as shown in **Figure 4**), and after it is proven that there are no Ghost Bats inside, the caves may be temporarily sealed prior to 1 October and remain inaccessible to Ghost Bat throughout the female's reproductive period.

A.2 Procedure for Temporary Closure of Cave 1

The methodology for closure of Cave 1 will be developed in consultation with DBCA. However, it is anticipated that the closure of Cave 1 is likely to be temporarily closed by using a lightweight steel frame fitted to the entrance and bird aviary steel netting or any heavier style with apertures not exceeding 100 mm. This would exclude Ghost bats from entering the cave but smaller species up to 10g such as Pilbara leaf-nosed bats (*Rhinonicteris aurantia*) or Finlayson's cave bat (*Vespadelus finlaysoni*) would be able to pass through unharmed. Other small fauna of a similar size including reptiles, frogs and snakes would also be able to access the cave. With regard to larger fauna such as Quolls, Dingoes and/or Macropod species that will be excluded by the closures, Cave 1 is situated in an area with numerous alternative deep overhangs and shallow caves that are suitable for their foraging and/or resting activities. Each of these species is known to travel significant distances on a daily basis (Bat Call WA 2023a).

Cave closure is viable as there is Ghost Bat habitat in close proximity (within 25 km to the east, south and west of the Development Envelope) that will allow the bats to relocate during mining operations and return to the retained caves once mining is complete (Bat Call WA 2023a). Experience at other Iron Ore mines has shown that Ghost Bats return to roost at viable caves that have been (structurally) retained after several years (Bat Call WA 2021b; Bullen and Creese 2014). The cave will remain closed for the life of mine (approximately 3 years) then reopened after completion of mining.

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APPENDIX B
VIBRATION MONITORING

Appendix B Vibration Monitoring

Ground vibrations as a result of the release of explosive energy from the blasting process can spread through adjacent rock and soil to surrounding structures, slopes, and benches. Vibration monitoring is to be undertaken at Cave 1 to ensure the structural integrity of the cave is maintained during the blasting process.

Methods for vibration monitoring will be determined in consultation with DBCA to ensure that there is no impact to the cave's structural integrity.

Additional noise monitoring will not be required as the cave will be closed in accordance with the procedure outlined in **Appendix A** of this SFMP and no Ghost Bats will be present within the cave during blasting operations.

The following indicative methodology is proposed:

- A permanent location for vibration monitoring will be established at Cave 1 as close as possible to the nearest part of the cave to the pit, as confirmed through survey pickup.
- Vibration will be measured at the monitoring location at Cave 1 prior to and during each blast (monitoring equipment with data logger). Vibration data loggers will be connected via telemetry with appropriate safety procedures and protocols developed and implemented prior to vibration monitoring being undertaken.
- All monitoring equipment used will be in accordance with the Australian Standard for Blast Monitoring (AS2187.2-2006) which provides guidelines for the type of equipment required to monitor ground vibration (peak particle velocity, or PPV).
- The Proponent has conducted a geotechnical assessment, including peak particle velocity (PPV) analysis of Cave 1 indicating that the conservative limit of 25 mm/sec PPV (Bat Call WA 2023a) will ensure that the structural integrity of the cave will not be affected by the modelled vibration from blasting. Modelled predictions will require calibration for actual on-site conditions throughout the blasting process. This will be achieved by the blasting engineer comparing the results of initial blasts with the predictions of the model.
- Cave inspections to be undertaken before and after the first blast in the pit to assess for any signs of instability. This would include a geotechnical photographing structural assessment. Subsequent to these initial visitations drone surveys would be undertaken quarterly to monitor the structural integrity of the cave during the first year and six-monthly thereafter if conditions are unchanged. Additional cave inspections to be conducted if Trigger or Threshold PPV limits exceeded, as per **Table 6** in the SFMP.
- Develop appropriate safety procedures ensuring that cave structural integrity can be assessed safely by personnel.

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APPENDIX C
FERAL ANIMAL MONITORING AND CONTROL PLAN

Appendix C Feral Animal Monitoring and Control Plan

C.1 Background

Feral and pest fauna, specifically feral cats and foxes have been implicated in the significant decline of multiple species of vertebrate fauna (DEWHA 2008b;c). Feral animal monitoring will be undertaken to monitor for a potential increase in the numbers of feral animals.

A detailed feral animal monitoring plan design will be completed in consultation with DBCA.

C.2 Feral Animal Monitoring

It is anticipated that annual population monitoring of introduced fauna will consist of the following:

- Deployment of cameras to establish baseline numbers. The Proponent proposes to establish baseline feral animal numbers over a two-year period prior to and during construction and early operations.
- Quantitative and systematic recording of introduced animals undertaken through the deployment of cameras at permanent locations within the Project Area will be identified with star pickets as follows:
    - Monitoring for feral animal presence will be undertaken on a quarterly basis.
    - Feral animal monitoring will be undertaken at control sites (those with the potential to be impacted by the Project) and reference locations (not impacted by the Project). Areas with the potential to attract feral animals such as the camp, waste storage facilities and key infrastructure areas will be a focus for monitoring.
    - Opportunistic visual observations whereby site personnel and contractors will be required to record sightings of feral animals at the site, including date, time, location and species. Those observations will be considered in relation to the annual monitoring results, to inform management of site activities.

C.3 Reporting

The results of feral animal monitoring and control activities will be summarised in the Proponent's Annual Environmental Report**.**

The feral animal monitoring report will include a summary of results of systematic monitoring and recording of opportunistic sightings of introduced fauna (e.g. feral cats and foxes), through annual monitoring, feral animal control reports and incident reports.

C.4 Review

Results of the monitoring program will be reviewed annually. Where required, modifications to the program will be implemented to achieve the stated targets. Details of material changes to the feral animal management approach will be described in the Annual Environment Report.

C.5 Feral Animal Control Program

The feral animal control program will be undertaken annually within areas potentially impacted by the Project with a focus on:

- Areas where significant fauna have been recorded in proximity to the Project Area.
- Areas likely to attract feral animals, for example the camp, waste facilities, areas with accessible water and key infrastructure areas.

Feral animal control will include appropriate measures to control feral animals, as required, and may include:

- Baiting.
- Shooting.
- Grooming traps.
- Trapping.

C.6 Licences:

Depending on the method of feral animal control, different licences and permits are likely to be required. This may include, but not be limited to:

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- Department of Health 1080 landholder application and permit.
- DPIRD License to Use Animals for Scientific Purposes.
- DPIRD Wildlife Animal Ethics Committee animal ethics permit.
- DBCA Fauna Licence approval.
- DBCA 1080 risk assessment and no toxic trial (Grooming traps).

C.7 Measurable outcomes

The success of the feral and pest animal reduction program will be measured by changes (decline) in feral animal presence recorded over time. It is anticipated that the feral animal monitoring and control program will reduce predation pressure of foxes and feral cats within proximity to the Project and should see an increase in the abundance of native vertebrate fauna species.

C.8 Reporting

The specialist contractors undertaking the feral and pest animal reduction program will provide a written report at the conclusion of each control program. The report will include the following sections: methods, results, discussion and recommendations.

This report will quantify the outcomes of feral animal control undertaken. The results of the control activities will be summarised in the annual environmental reports.

Contractor reports will be available upon request.

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APPENDIX D
RISK ASSESSMENT

Appendix D Risk Assessment

A qualitative risk assessment was conducted in accordance with the Environmental Management Plan Guidelines (Commonwealth of Australia 2014) to assess the risks of the Project and is shown in **Table D 2**. Each environmental risk identified has been provided a likelihood and consequence rating using the criteria in **Table D 1** below to generate a risk rating of low, medium, high or severe.

Table D 1: RISK ASSESSMENT CRITERIA

	Consequence				
Likelihood	**Minor**	**Moderate**	**High**	**Major**	**Critical**
Highly likely	Medium	High	High	Severe	Severe
Likely	Low	Medium	High	High	Severe
Possible	Low	Medium	Medium	High	Severe
Unlikely	Low	Low	Medium	High	High
Rare	Low	Low	Low	Medium	High

Likelihood	
The following criteria has been used to determine the likelihood of the risk occurring	
Highly likely	The risk event is expected to occur in most circumstances
Likely	The risk event will probably occur during the life of the project
Possible	The risk event might occur during the life of the project
Unlikely	The risk event could occur but considered unlikely or doubtful
Rare	The risk event may only occur in exceptional circumstances
Consequence	
The following criteria has been used to determine the consequences of a risk occurring	
Minor	Minor incident of environmental damage that can be reversed
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts
High	Substantial instances of environmental damage that could be reversed with intensive efforts
Major	Major loss of environmental amenity and real danger of continuing
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage

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Table B 2: Fauna and Habitat ENVIRONMENTAL RISK ASSESSMENT

Value	Potential Impacts	Inherent Risk			Management Measures	Residual Risk		
		Likelihood	Consequence	Risk		Likelihood	Consequence	Ranking
Fauna and habitat	Unauthorised Clearing in critical habitat.	Possible	High	Medium	Management measures are outlined in **Table 7.** Any potential impacts from fauna habitat fragmentation is expected to be managed through suitable design and mitigation measures, this risk event is considered **MEDIUM**. Loss of habitat is proposed to be offset for: ○ Ghost bats ○ Northern Quoll ○ Pilbabra Olive Python	Unikely	High	Medium
Fauna and habitat	Fragmentation of fauna habitat.	Possible	Moderate	Medium	Management measures are outlined in **Table 7.** Any potential impacts from fauna habitat fragmentation is expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Possible	Minor	Low
Fauna	Fauna injury or mortality as a result of ground disturbance, machinery and blasting.	Possible	Moderate	Medium	Management measures are outlined in **Table 7.** Any potential impacts to fauna as a result of ground disturbance, vehicle interactions, machinery and blasting is expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Unlikely	Moderate	Low

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Value	Potential Impacts	Inherent Risk			Management Measures	Residual Risk		
		Likelihood	Consequence	Risk		Likelihood	Consequence	Ranking
Fauna	Fauna mortality as a result of a potential increase in the prevalence of introduced species and feral predators.	Likely	High	High	Management measures are outlined in **Table 7.** The potential impacts to terrestrial fauna can be managed such that there are no significant residual impacts, and the biological diversity and ecological integrity of terrestrial fauna will be maintained. Therefore, it is considered **unlikely** that the Project will result in significant impacts from an increase to feral fauna predator activity, this risk event is considered **MEDIUM.**	Possible	High	Medium
Dust	Dust generated as part of construction and operational activities has the potential to impact on local flora and fauna. Reduced health and viability of fauna habitat	Likely	Moderate	Medium	Management measures are outlined in **Table 7.** Any potential decline or change in the health/composition of fauna and fauna habitat arising from dust are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Possible	Minor	Low
Noise and vibration	Noise and vibration disrupting natural foraging and breeding behaviours	Possible	High	Medium	Management measures are outlined in **Table 7.** Any potential disruption to species behaviour from noise and vibration are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Unlikely	Moderate	Low

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Value	Potential Impacts	Inherent Risk			Management Measures	Residual Risk		
		Likelihood	Consequence	Risk		Likelihood	Consequence	Ranking
Light emissions	Artificial light can potentially disturb species behaviour, cause barriers to movement, cause abandoning of roosts and nests, and expose nocturnal animals to nocturnal predators.	Likely	Moderate	Medium	Management measures are outlined in **Table 7.** Any potential disruption to species behaviour from artificial light are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Likely	Minor	Low
Weeds	Introduction and/or spread of weed species leading to reduced flora species and system diversity.	Likely	Moderate	Medium	Management measures are outlined in **Table 7.** Any potential decline or change in the health/composition of fauna habitat arising from the introduction and/or spread of weeds are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Possible	Minor	Low
Hydrocarbons	Inadequate transport, handling and storage of hydrocarbons and chemicals leading to contamination of the environment	Likely	Minor	Low	Management measures are outlined in **Table 7** Any potential contamination of fauna habitat arising from the inadequate transport, handling and storage of hydrocarbons and chemicals is expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**	Possible	Minor	**Low**

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Value	Potential Impacts	Inherent Risk			Management Measures	Residual Risk		
		Likelihood	Consequence	Risk		Likelihood	Consequence	Ranking
Fire	Construction activities have the potential to cause accidental bushfires which may lead to damage or death to surrounding flora and fauna communities	Likely	High	High	Management measures are outlined in **Table 7.** Any potential decline or change in the health/composition of fauna habitat arising from fire are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **MEDIUM**.	Unlikely	High	Medium
Hydrological change	Potential decline or change in the health/composition of fauna habitat arising from hydrological regime changes.	Likely	Moderate	Medium	Management measures are outlined in **Table 7.** Any potential decline or change in the health/composition of fauna habitat arising from hydrological changes are expected to be managed through suitable design and mitigation measures, with negligible impacts. Due to the limited nature of impacts and short life of mine, this risk event is considered **LOW**.	Possible	Minor	Low

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