NORTHERN STAR
RESOURCES LTD

JUNDEE SITEWIDE CLEARING PERMIT

Purpose Permit Application Supporting Document

Revision	1.0
Date	6 February 2026
Site Name	Jundee
Tenements	G 53/20, M 53/191, M 53/412, M 53/413, M 53/414, M 53/461, M 53/552
Tenement Holder	Northern Star Resources Ltd
Mining Centre	Jundee Operations
Key Contact	[redacted]

Document ID	Author		Reviewer		Approver	
NSR-JUN-NVCP-Jundee-SD	SLR	22/12/25	DM	16/01/26	HL	06/02/26

CONTENTS

1 Summary 1

2 Project Description 2

2.1 Existing Jundee Mining Areas 4

2.2 Proposed Clearing 4

2.2.1 Cook Mining Area 4

2.2.2 Menzies Mining Area 4

3 Environmental Setting 7

3.1 Landscape 7

3.1.1 Climate 7

3.1.2 Bioregion 7

3.1.3 Land Uses 7

3.2 Soils and Landscape System 9

3.2.1 Soils Characterisation 9

3.3 Hydrology 11

3.4 Biodiversity 13

3.4.1 Biological Surveys 13

3.4.2 Vegetation 15

3.4.3 Fauna and Habitat 21

3.5 Heritage 26

4 Assessment of Clearing Principles 28

5 Environmental Management 31

5.1 Clearing Mitigation 31

5.1.1 Avoid 31

5.1.2 Minimise 31

5.1.3 Rehabilitate 31

5.1.4 Offset 31

5.2 Environmental Management System 31

5.2.1 Air quality 32

5.2.2 Land and Soils 32

5.2.3 Fauna 32

5.2.4 Weeds 32

6 References 33

7 Appendices 34

LIST OF FIGURES

Figure 2-1: Regional Location 3
Figure 2-2: Existing Activities 5
Figure 2-3: Proposed Clearing Footprint 6
Figure 3-1: Surrounding Land Uses 8
Figure 3-2: Soil Landscape Systems 10
Figure 3-3: Surface Water Features 12
Figure 3-4: Biological Surveys 14
Figure 3-5 Pre-European Vegetation 16
Figure 3-6 Vegetation Communities 18
Figure 3-7: Vegetation Condition 20
Figure 3-8: Fauna Habitat Types 23
Figure 3-9: Aboriginal Heritage Sites 27

LIST OF TABLES

Table 1-1: Project Summary 1
Table 2-1: Purpose Permit Tenements 2
Table 2-2 Jundee Existing Clearing Permits 4
Table 3-1: Regional Land Systems 9
Table 3-2: Biological Surveys 13
Table 3-3: Pre-European Vegetation Associations 15
Table 3-4: Vegetation Communities Extent 17
Table 3-5: Vegetation Condition 19
Table 3-6: Significant Flora Likelihood 21
Table 3-7: Fauna Habitats 22
Table 3-8: Significant Fauna Likelihood 24
Table 4-1: Clearing Principles Assessment 28

TERMS USED

Acronym / Abbreviation	Definition
ACHIS	Aboriginal Cultural Heritage Inquiry System
BC Act	*Biodiversity Conservation Act 2016*
Botanica	Botanica Consulting
Cook	Cook mining area
DBCA	Department of Biodiversity, Conservation and Attractions
DMPE	Department of Mines, Petroleum and Exploration
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ESA	Environmentally Sensitive Area
ha	hectare
IBRA	Interim Biogeographic Regionalisation for Australia
MVG	Major Vegetation Group
Menzies	Menzies mining area
NVCP	Native Vegetation Clearing Permit
Northern Star	Northern Star Resources Ltd
Jundee	Jundee Mine Site
PEC	Priority ecological community
PMST	Protected Matters Search Tool
TEC	Threatened ecological community
TSF	Tailings storage facility
WRL	Waste rock landform

1 Summary

This document has been prepared by Northern Star Resources Ltd (Northern Star) to support a purpose permit application for Jundee Mine Site (Jundee). Jundee was first developed in 1995 and has been subject to continuous mining activities for 30 years. This purpose permit application has been prepared to amalgamate two existing permits, include areas subject to previous mining disturbance and subsequent rehabilitation, and areas associated with proposed pit cutbacks (Cook and Menzies mining projects). The intent is to have one single permit covering Jundee operational areas, to allow for future mine expansion and streamlined compliance reporting over the remaining life of mine.

This purpose permit proposes to clear up to 500 ha of native vegetation within a broader 3,003-ha purpose permit footprint, which defines the boundary of the application. Of this purpose permit area, approximately 1,376 is covered by pre-approved existing permits, and an in total approximately 1,978 ha is previously cleared / disturbed by mining and pastoral activities. It is noted that some areas covered by permits overlap with previously cleared /disturbed areas.

This supporting document includes an outline of the project description, tenure and environmental setting, an assessment of clearing against the native vegetation clearing principles and proposed environmental management measures to avoid and mitigate clearing impacts on the environment. Northern Star has determined that the proposed native vegetation clearing is not likely to be at variance with any of the clearing principles. A complete assessment has been conducted in Section 4 of this document.

A summary of the clearing application is detailed in Table 1-1 below.

Table 1-1: Project Summary

Category	Description
Permit Type	Purpose Permit
Proponent	Northern Star Resources Ltd
Project Name	Jundee Sitewide Clearing Permit
Clearing Purpose	Mineral extraction and associated activities
Clearing Method	Mechanical clearing
Project Location	Mining Tenements: G 53/20, M 53/191, M 53/412, M 53/413, M 53/414, M 53/461, M 53/552
Local Government Area	Shire of Wiluna
Purpose Permit Area (ha)	3,003
Proposed Clearing Footprint (ha)	500

2 Project Description

Jundee is located in the northern Goldfields region of Western Australia, approximately 50 km northeast of Wiluna townsite as shown in Figure 2-1. The proposed clearing footprint is located on tenements wholly owned by Northern Star as detailed in Table 2-1 below.

Table 2-1: Purpose Permit Tenements

Holder	Tenement	Area (ha)	Granted	Expiry
Northern Star Resources Ltd	G 53/20	432.80	22/04/2013	21/04/2034
	M 53/191	974.65	02/08/1991	01/08/2033
	M 53/412	992.00	16/05/1995	15/05/2037
	M 53/413	991.60	16/05/1995	15/05/2037
	M 53/414	988.00	16/05/1995	15/05/2037
	M 53/461	738.30	12/07/1996	11/07/2038
	M 53/552	468.25	01/04/1998	31/03/2040

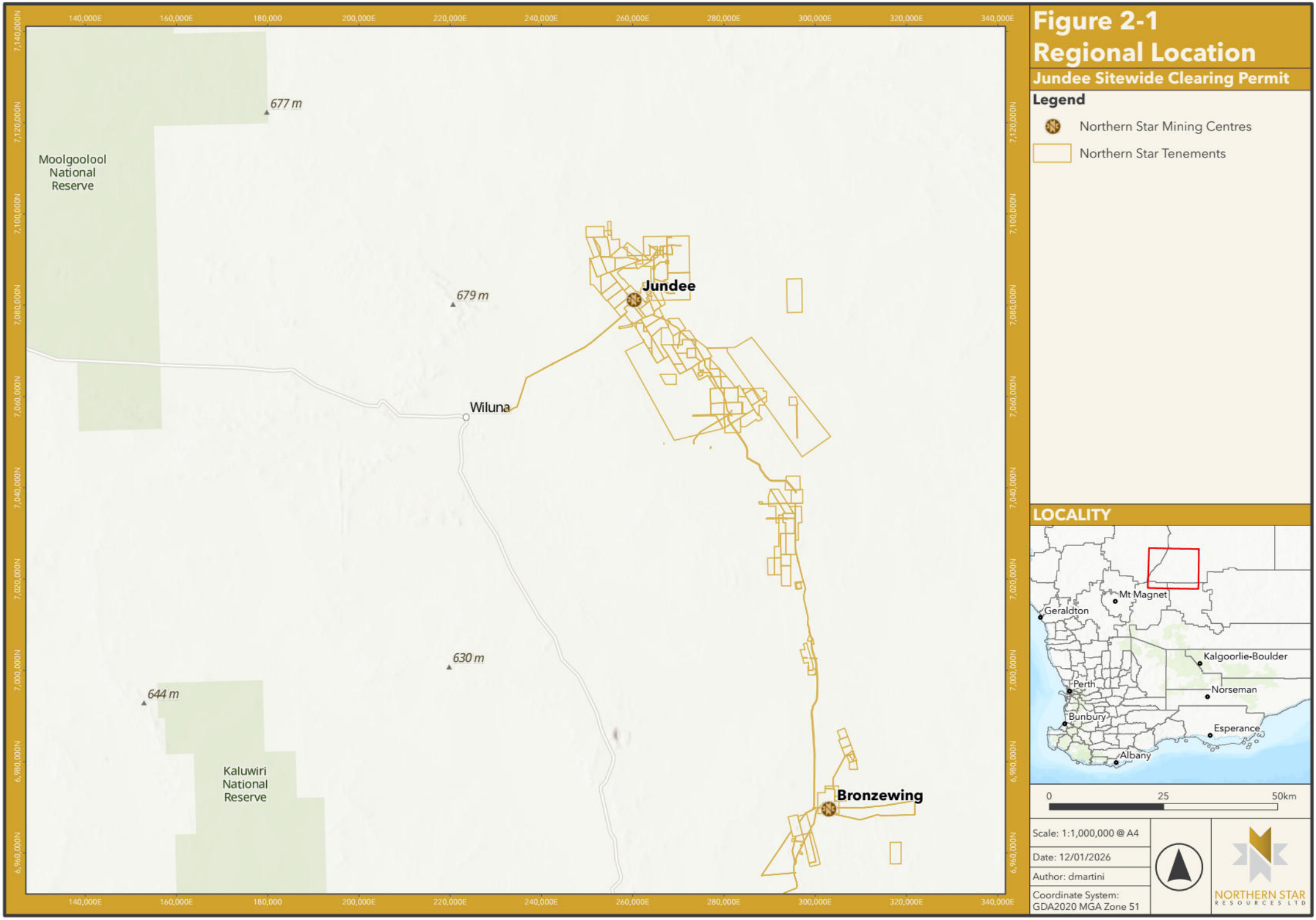


Figure 2-1 Regional Location

Jundee Sitewide Clearing Permit

Legend

- Northern Star Mining Centres
- Northern Star Tenements

LOCALITY

0 25 50km

Scale: 1:1,000,000 @ A4

Date: 12/01/2026

Author: dmartini

Coordinate System: GDA2020 MGA Zone 51

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2.1 Existing Jundee Mining Areas

Jundee has extensive mining related disturbance associated with 30 years of operations, including open pits, waste rock landforms (WRL), tailings storage facilities (TSF), processing infrastructure, roads, workshops, laydowns, and other support infrastructure. Numerous biodiversity studies have been completed to support incremental expansions to Jundee over this 30-year period. Several WRLs and TSFs at Jundee are under rehabilitation and are no longer utilised operationally and are covered by regrowth.

Clearing activities at Jundee have been undertaken under clearing permits and valid exemption pursuant to the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, Regulation 5, Item 20. Current existing clearing permits which provide partial coverage of Jundee are detailed in Table 2-2.

Table 2-2 Jundee Existing Clearing Permits

Clearing Permit	Approved Purpose Permit Area (ha)	Approved Clearing Area (ha)	Commencement Date	Expiry Date
CPS 9128/3	400	1,016	5 March 2021	31 December 2030
CPS 10001/1	260	361	29 June 2023	28 June 2028
Total	**660**	**1,377**	-	-

Rather than having a third permit with partial coverage of Jundee, Northern Star are proposing to combine the existing permits with the proposed Cook / Menzies clearing areas. This will both simplify compliance and reduce administrative burden of reporting and future expansions. Following discussion with Department of Mines, Petroleum and Exploration (DMPE) environmental services branch it was confirmed that the preferred approach was to apply for a new permit and then surrender the other two permits once the new permit is live. In accordance with this advice, Northern Star will surrender CPS 9128/3 and CPS 10001/1 following grant of this proposed Jundee sitewide clearing permit.

Existing disturbance and clearing permits are shown in Figure 2-2.

2.2 Proposed Clearing

Northern Star proposes to clear up to 500 ha to primarily support the development of Cook and Menzies mining areas, as well as planned future clearing under existing permits (including Jundee TSF 3 Cell 3). The proposed clearing footprint is shown in Figure 2-3.

2.2.1 Cook Mining Area

Cook mining area (Cook) is an existing open pit located at the north-western extent of Jundee. Northern Star is proposing to reactive Cook which will include a cutback to the existing pit, potential development of a second smaller pit, and construction of supporting infrastructure including WRL, run-of-mine pad, roads etc. The design of surface infrastructure is still being optimised and will be informed by heritage survey recommendations.

2.2.2 Menzies Mining Area

Menzies mining area (Menzies) is an existing open pit located at the northern extent of Jundee. Similarly to Cook, Northern Star is proposing to reactivate Menzies via a cutback to the existing pit and expansion of existing WRLs. The majority of area directly surrounding Menzies is existing disturbance and therefore limited clearing of native vegetation is required to support the project development. Some clearing of rehabilitated mining disturbance will be required on the adjacent WRL.

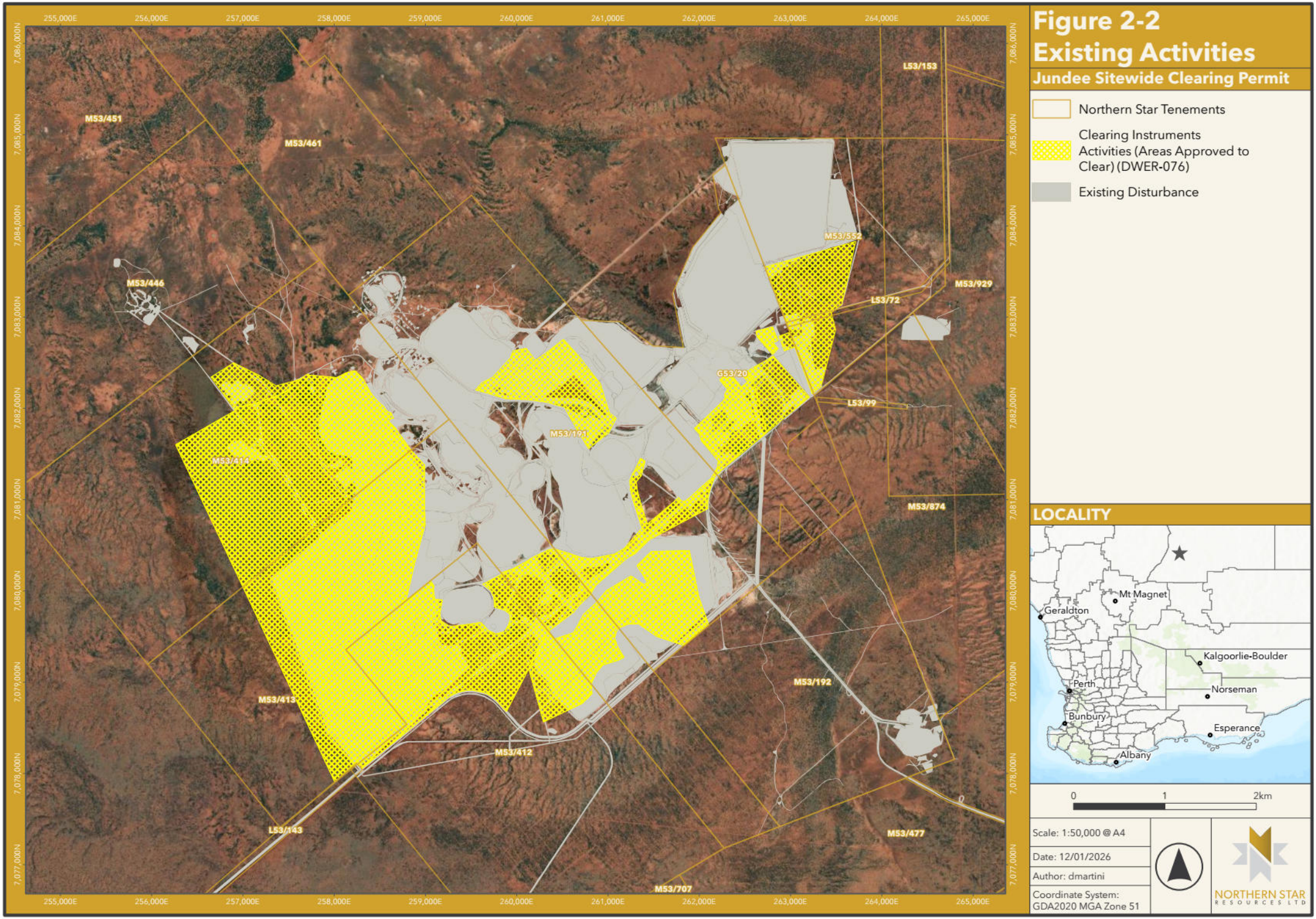


Figure 2-2
Existing Activities

Jundee Sitewide Clearing Permit

- Northern Star Tenements
- Clearing Instruments Activities (Areas Approved to Clear) (DWER-076)
- Existing Disturbance

LOCALITY

0 1 2km

Scale: 1:50,000 @ A4

Date: 12/01/2026

Author: dmartini

Coordinate System: GDA2020 MGA Zone 51

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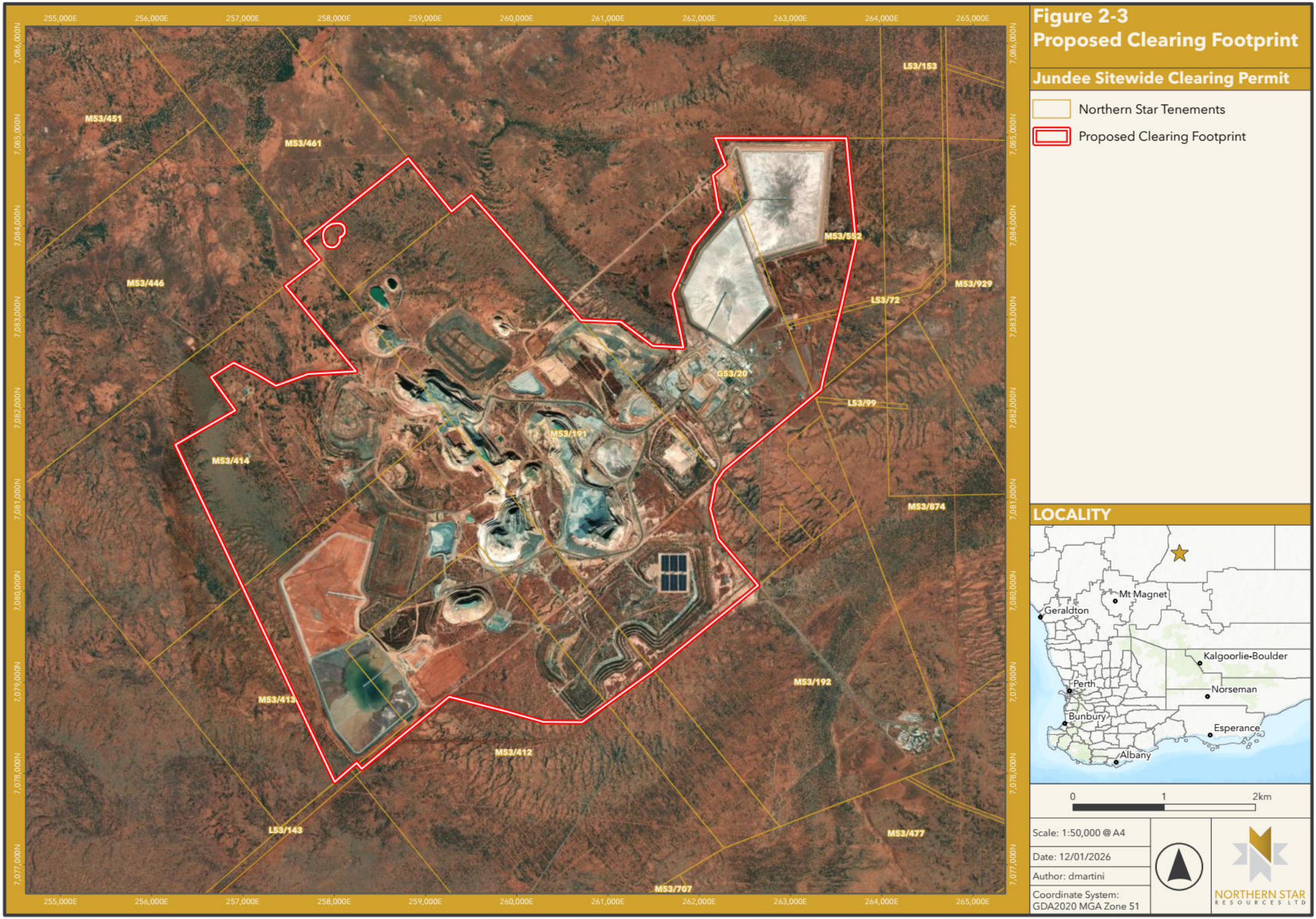


Figure 2-3
Proposed Clearing Footprint

Jundee Sitewide Clearing Permit

Northern Star Tenements

Proposed Clearing Footprint

LOCALITY

0 1 2km

Scale: 1:50,000 @ A4

Date: 12/01/2026

Author: dmartini

Coordinate System: GDA2020 MGA Zone 51

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3 Environmental Setting

3.1 Landscape

3.1.1 Climate

The Shire of Wiluna is situated within a semi-arid to arid climatic zone of intermittent rainfall characterised by hot summers and cool winters. Data sourced from Wiluna weather station (BOM Site #13012) located approximately 40 km west of Jundee shows a mean annual rainfall of 261 mm, however this is highly variable ranging from 49 mm to 712 mm from between 1898 to 2019 (BoM, 2025a). Mean annual evaporation is 2,409 mm which is approximately 10 times higher than mean annual rainfall, with evaporation exceeding rainfall every month of the year. Most rainfall occurs between the months of January – April and is associated with thunderstorms and ex-tropical cyclones.

3.1.2 Bioregion

The Interim Biogeographic Regionalisation of Australia (IBRA) divides Australia into 89 bioregions based on major biological, geographical and geological attributes. These bioregions are subdivided into 419 subregions as part of a refinement of the IBRA framework (Tackway, R. & Cressdell, I. D., 1995).

Jundee occurs within the Eastern Murchison subregion of the Murchison bioregion which is characterised as Mulga low woodlands, often rich in ephemerals, on outcrop and fine-textured Quaternary alluvial and eluvial surfaces mantling granitic and greenstone strata of the northern part of the Yilgarn (Tackway, R. & Cressdell, I. D., 1995). The dominant land uses in this region include pastoral leases, unallocated crown reserves, mining leases, conservation reserves and remote Aboriginal communities.

The Eastern Murchison subregion and proposed clearing footprint is located within the 'extensive land use zone' which is an expansive tract of native vegetation with low fragmentation.

3.1.3 Land Uses

There are no environmentally sensitive areas (ESAs) located within the proposed clearing footprint. The nearest ESA is located approximately 80 km north of Jundee. The nearest conservation reserve is Matuwa Kurrara Kurrara National Park, located approximately 40 km east of Jundee. There is significant remnant vegetation surrounding these ESAs and nature conservation reserves. Jundee and the proposed clearing area is located entirely on the Jundee Pastoral Station (PL N050102) owned by Northern Star and managed under partial sublease agreement (excludes operational mining areas). Surrounding land uses are shown in Figure 3-1.

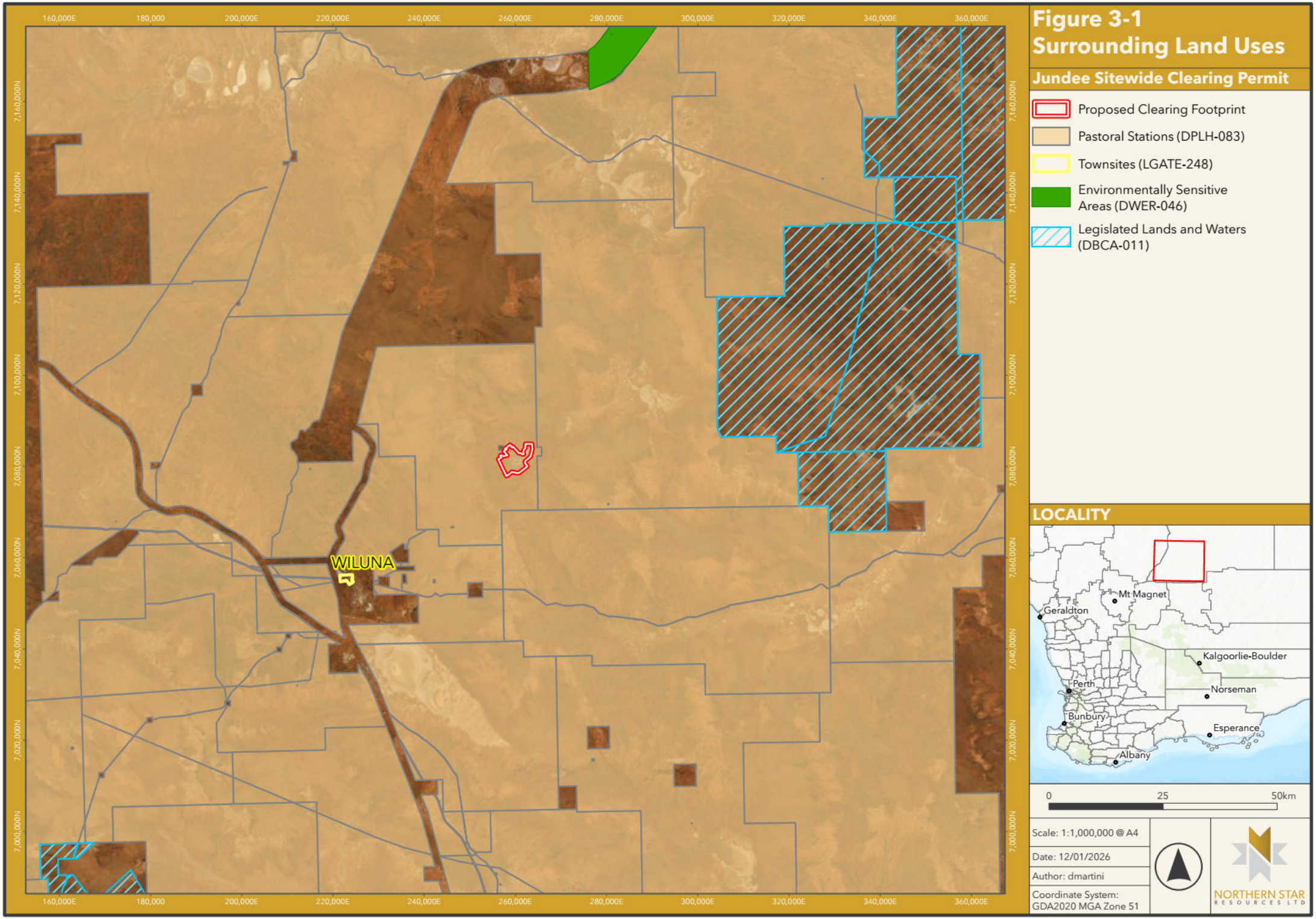


Figure 3-1
Surrounding Land Uses

Jundee Sitewide Clearing Permit

- Proposed Clearing Footprint
- Pastoral Stations (DPLH-083)
- Townsites (LGATE-248)
- Environmentally Sensitive Areas (DWER-046)
- Legislated Lands and Waters (DBCA-011)

LOCALITY

0 25 50km

Scale: 1:1,000,000 @ A4

Date: 12/01/2026

Author: dmartini

Coordinate System: GDA2020 MGA Zone 51

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3.2 Soils and Landscape System

Jundee is located within the Murchison Province of the Yilgarn Craton characterised by hardpan wash plains and sandplains with minor stony plains, mesas and salt lakes developed on granitic and greenstone geology. Soils predominantly comprise red loamy earths, red sandy earths, red shallow loams, red deep sands and red-brown hardpan shallow loams, with minor red shallow sands and sandy duplexes.

Vegetation is dominated by mulga shrublands with spinifex grasslands, with localised areas of bowgada shrublands, eucalypt woodlands and halophytic shrublands (Tille, 2006). Jundee lies within the Salinaland Plains Zone (279) of the Murchison Province (DPIRD, 2025a). Regional landscape mapping indicates that Jundee predominantly occurs within the Violet (57%), Jundee (27%) and Wiluna land systems (11%), as shown in Figure 3-2 and described in Table 3-1.

Table 3-1: Regional Land Systems

Land System	Description
Violet	Gently undulating gravelly plains on greenstone, laterite and hardpan, with low stony rises and minor saline plains; supporting groved mulga and bowgada shrublands and occasionally chenopod shrublands.
Jundee	Hardpan plains with variable gravelly mantles and minor sandy banks supporting weakly groved mulga shrublands.
Wiluna	Low greenstone hills with occasional lateritic breakaways and broad stony slopes, lower saline stony plains, and broad drainage tracts; supporting sparse mulga and other acacia shrublands with patches of halophytic shrubs.

3.2.1 Soils Characterisation

Testing of Jundee soil materials conducted by Outback Ecology in 2013 (OES 2013) included different soil materials including: 'pale' oxide, orange oxides, laterite, topsoil, and fresh rock. Soil texture of the materials tested ranged from loamy sand (approximately 5% clay) to light clay (approximately 35 to 40% clay). Most soil materials were classed as sandy loams, loamy sands, or clay loams. The 'pale' and orange oxides typically had the highest clay contents and were classed as clay loam, sandy and light clays.

Soil analysis results demonstrated soils are unstable to stable (Emerson class 1, 2 & 6), moderately acidic (pH 5.2), had moderate levels of carbon (0.2%), were low in nutrients (N, P, K, S) and were non sodic (5.8% exchangeable solium percentage). These parameters are typical of the highly weathered soils in the Goldfields region. Soils harvested at Jundee are suitable for rehabilitation on the basis that soils are generally non-sodic and have good hydraulic conductivity (OES 2013).

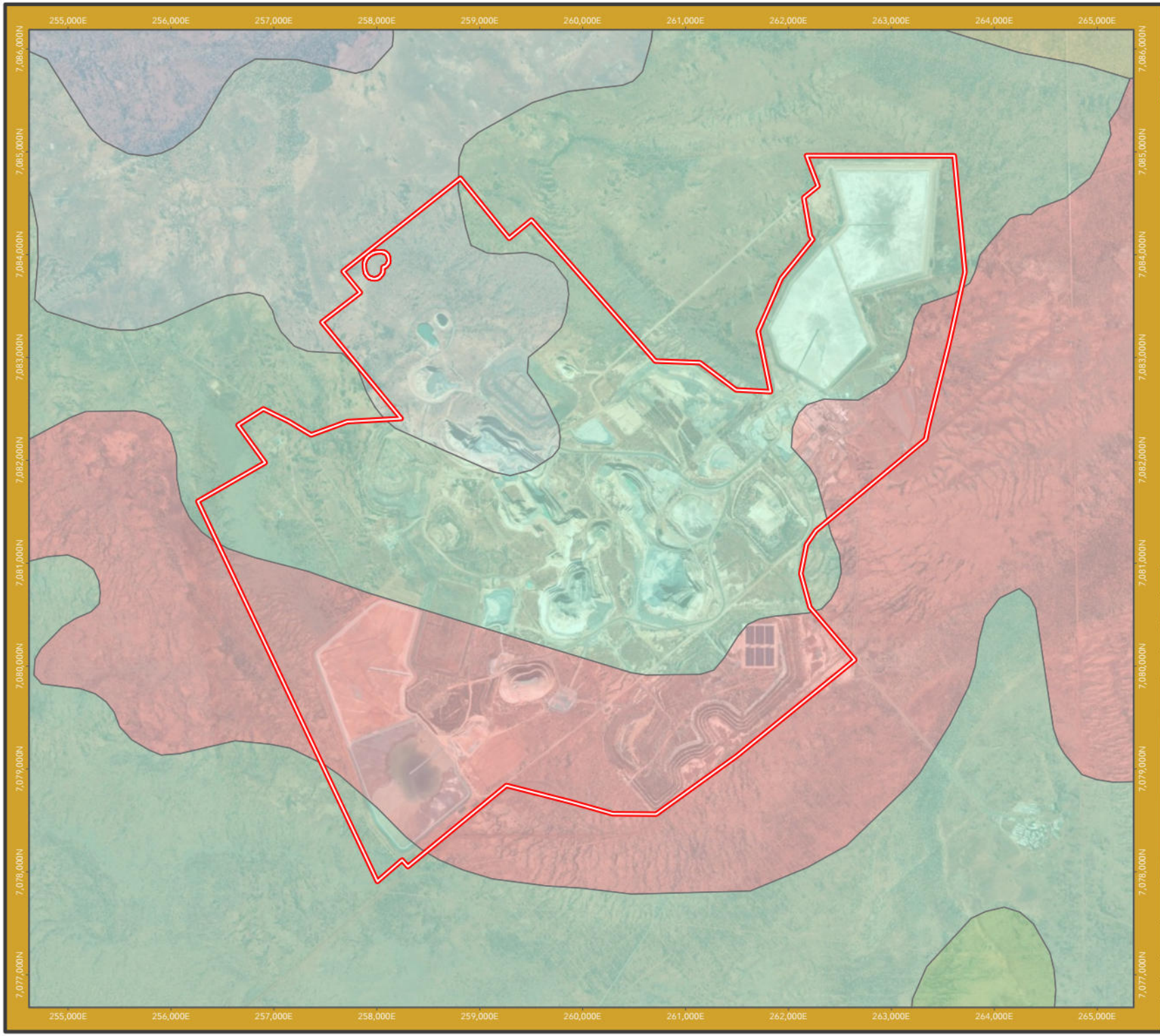


Figure 3-2
Soil Landscape Systems

Jundee Sitewide Clearing Permit

Proposed Clearing Footprint

Soil Landscape Systems (DPIRD_064)

- Bullimore System
- Jundee System
- Millrose System
- Violet System
- Wiluna System
- Yanganoo System

LOCALITY



0 1 2km

Scale: 1:50,000 @ A4

Date: 12/01/2026

Author: dmartini

Coordinate System: GDA2020 MGA Zone 51

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3.3 Hydrology

Jundee is located within the Lake Ward Sub-catchment, which forms part of the regional Carnegie Catchment. The area generally drains towards Lake Ward to the north-east, with shallow ephemeral tributaries also draining to the southeast. Surface drainage primarily occurs as sheet flow across extensive drainage plains and alluvial fans, where groves of mulga and associated understorey commonly align at right angles to the direction of flow. Mining infrastructure at Jundee has been designed to maintain natural regional surface drainage patterns where possible.

There are no inland waters or perennial or ephemeral drainage lines intersecting the proposed clearing footprint assessed under this application (Geoscience Australia, 2025). According to the BoM Atlas of Groundwater Dependent Ecosystems database (BoM, 2025b), there are no known or potential aquatic / terrestrial groundwater dependent ecosystems located within the proposed clearing footprint.

As no inland waters or defined perennial or ephemeral drainage lines intersect the proposed clearing footprint (Botanica, 2020) and (Botanica, 2023), clearing of vegetation associated with natural watercourses is not expected to occur. Pre-modified flow regimes exist around the Cook and Menzies mining areas due to existing mining disturbances (i.e. pits and WRLs. Northern Star will seek to maintain surface drainage patterns to the extent practicable, and standard erosion and surface water controls will be implemented to manage sheet flow and prevent localised scour during rainfall events. Surface water features adjacent to the proposed clearing footprint are presented in Figure 3-3.

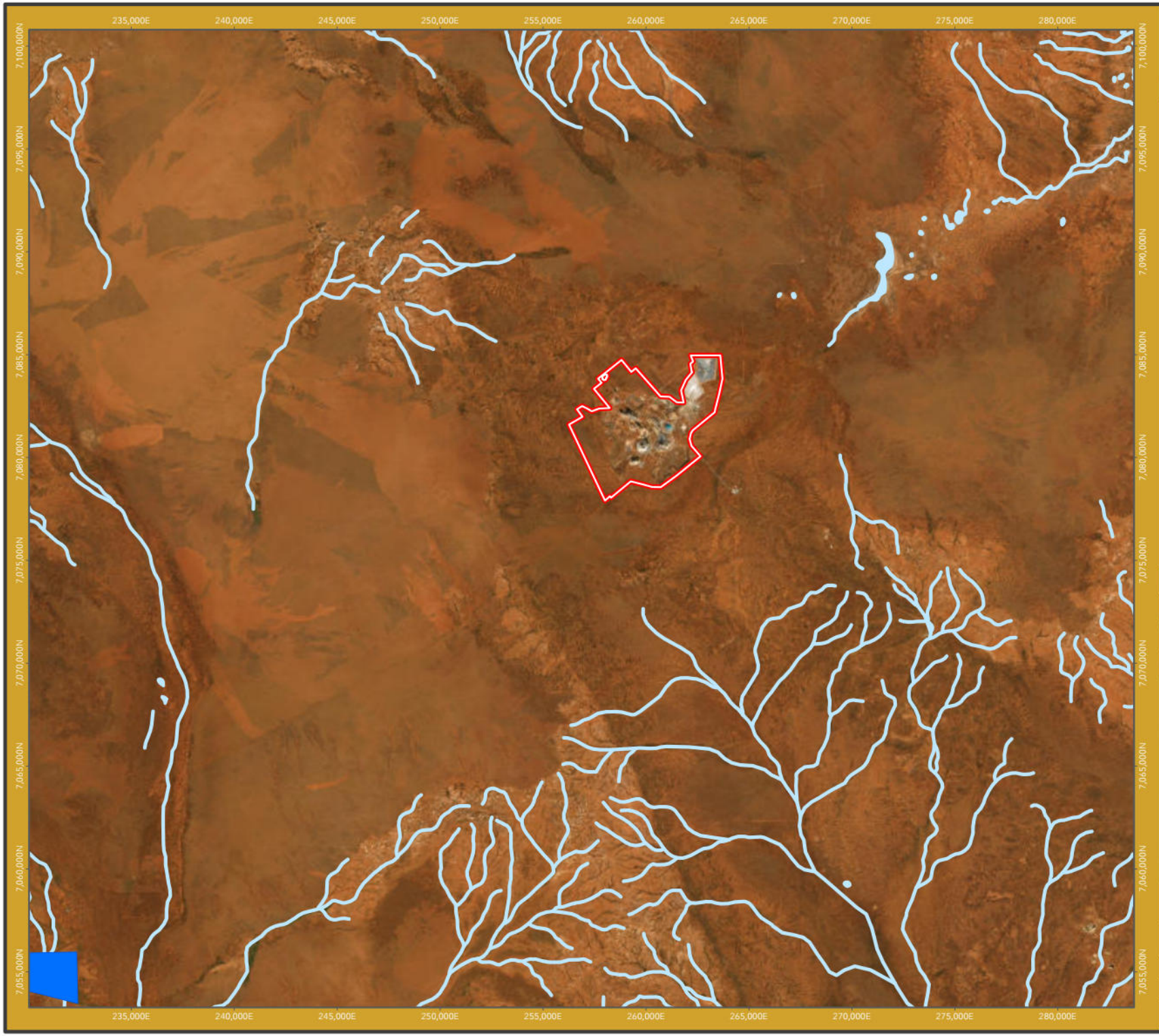


Figure 3-3
Surface Water Features

Jundee Sitewide Clearing Permit

- Proposed Clearing Footprint
- Public Drinking Water Source Areas (DWER_033)
- Lakes (Geoscience Australia 250K)
- Water Courses (Geoscience Australia 250K)

LOCALITY



0 5 10km

Scale: 1:250,000 @ A4

Date: 12/01/2026

Author: dmartini

Coordinate System: GDA2020 MGA Zone 51

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3.4 Biodiversity

3.4.1 Biological Surveys

Numerous biological surveys have been undertaken over Jundee to support development over the past 30 years. Botanica Consulting (Botanica) conducted recent surveys to support the expansion of Cook and Menzies mining areas which are summarised in Table 3-2 below. Surveys include both desktop and field assessments to determine biological values as well as the likelihood of significant vegetation, flora and fauna presence. Survey areas are shown in Figure 3-4, and recent biological surveys are provided as Appendices. There is approximately 87.1 ha overlap between Menzies and Cook mining areas, in which the newer survey area (Cook) has been used. Surveys to support existing active clearing permits have not been included as these have already been assessed by DMPE.

Table 3-2: Biological Surveys

Project Area	Survey Type	Survey Area	Fieldwork Date	Limitations Identified	Author / Appendix
Menzies Mining Area	Reconnaissance flora and fauna survey	173 ha	April 2020	Nil identified	Botanica 2020 (Appendix A)
Cook Pit Mining Area	Detailed flora and vegetation survey and basic fauna survey	330 ha	October 2022	Nil identified	Botanica 2023 (Appendix B)

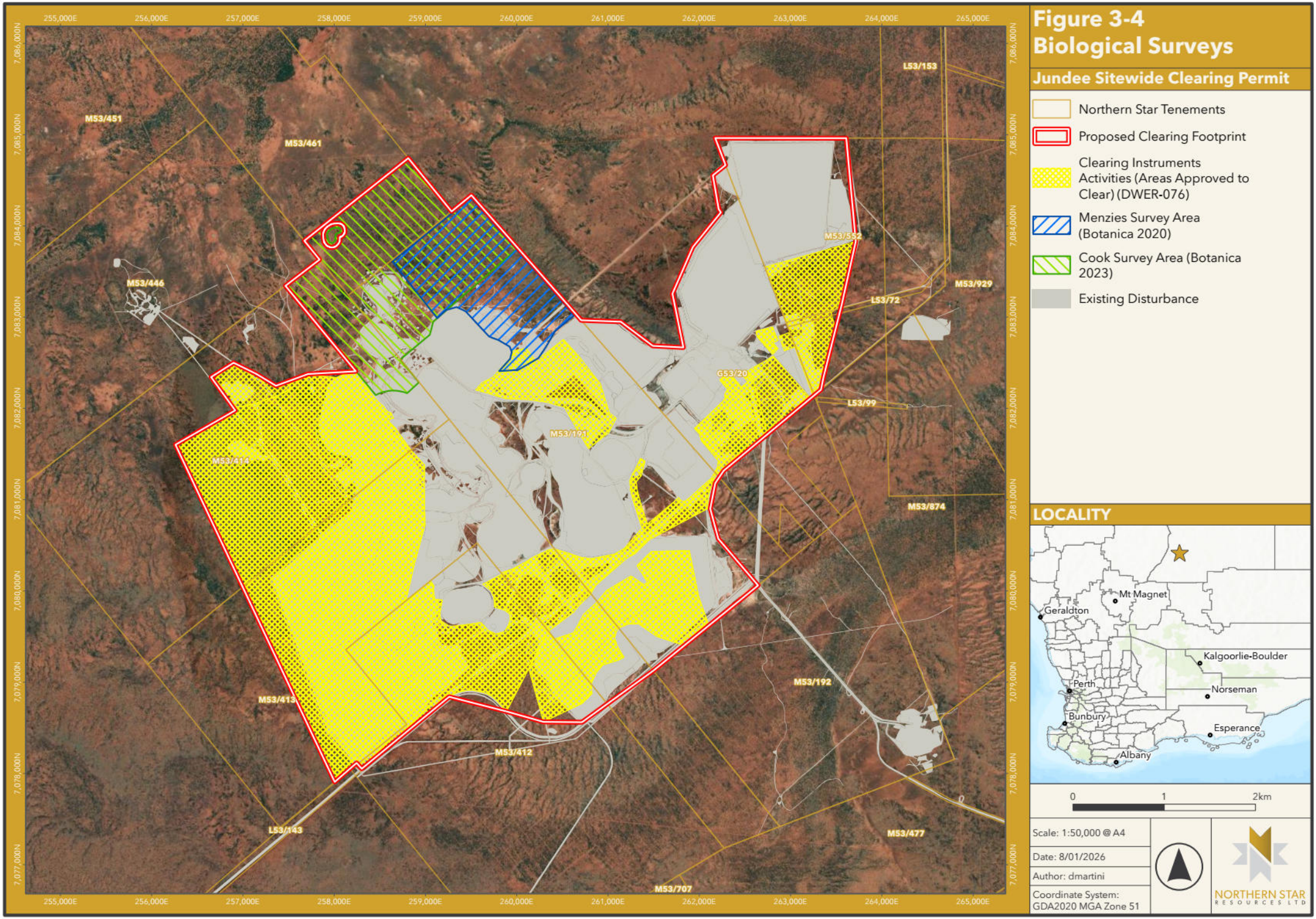


Figure 3-4
Biological Surveys

Jundee Sitewide Clearing Permit

- Northern Star Tenements
- Proposed Clearing Footprint
- Clearing Instruments Activities (Areas Approved to Clear) (DWER-076)
- Menzies Survey Area (Botanica 2020)
- Cook Survey Area (Botanica 2023)
- Existing Disturbance

LOCALITY

0 1 2km

Scale: 1:50,000 @ A4

Date: 8/01/2026

Author: dmartini

Coordinate System: GDA2020 MGA Zone 51

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3.4.2 Vegetation

Botanica undertook a detailed flora assessment in 2023, and a reconnaissance flora and vegetation survey in 2020 (Botanica, 2023; 2020). The assessments consisted of both desktop and field assessments. The desktop assessment for both surveys included a review of previous literature and searches of the following databases with a 40 km buffer applied to the proposed clearing footprint:

- Department of Biodiversity, Conservation and Attractions (DBCA) Priority / Threatened Flora Database Search (DBCA, 2019a);
- DBCA Priority / Threatened Ecological Communities Database Search (DBCA, 2019b);
- DBCA NatureMap Database (DBCA, 2021) (now retired); and
- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters search tool (PMST) (DCCEEW, 2022).

Jundee is located within the Wiluna Subregion of the Austin Botanical District of the Eremaean Botanical Province. This district is dominated by Mulga low woodlands on plains, often with a rich ephemeral understorey, transitioning to scrub on hills and characterised by hummock grasslands, saltbush shrublands and samphire shrublands (Beard, 1990).

Beard mapping identifies one pre-European vegetation association across the broader Jundee area being vegetation association Wiluna 18 (DPIRD, 2025b), described as low woodland; mulga (*Acacia aneura*). The extent of this vegetation association within the proposed clearing footprint is summarised in Table 3-3 (DBCA & DWER, 2019) and shown in Figure 3-5.

Areas that retain less than 30% of their pre-European vegetation typically experience a rapid increase in species loss, while areas with less than 10% remaining are considered endangered (EPA 2000). The proposed development will result in a very minor decrease in Wiluna 18 vegetation association with extent remaining over 99% as outlined in Table 3-3.

Table 3-3: Pre-European Vegetation Associations

Vegetation Association	Pre-European Extent (ha)	Maximum Clearing (ha)	Pre-European Extent Post Clearing
Wiluna 18	4,273,509 (99.59%)	500 (0.01%)	4,273,009 (99.58%)

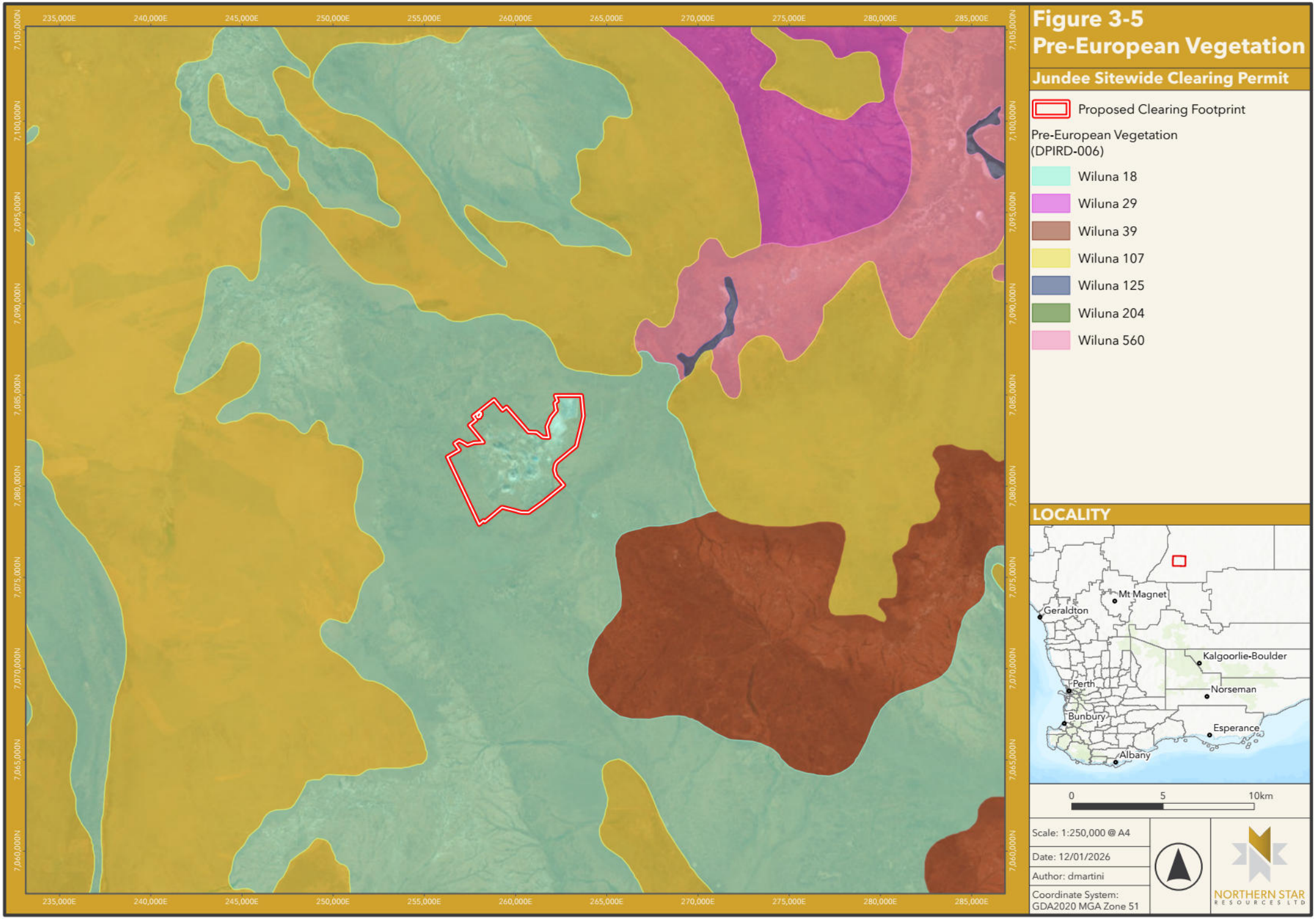


Figure 3-5
Pre-European Vegetation

Jundee Sitewide Clearing Permit

Proposed Clearing Footprint

Pre-European Vegetation
(DPIRD-006)

- Wiluna 18
- Wiluna 29
- Wiluna 39
- Wiluna 107
- Wiluna 125
- Wiluna 204
- Wiluna 560

LOCALITY

0 5 10km

Scale: 1:250,000 @ A4

Date: 12/01/2026

Author: dmartini

Coordinate System: GDA2020 MGA Zone 51

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3.4.2.1 *Vegetation Communities*

Vegetation communities were identified and described during the 2020 and 2023 Botanica surveys. These communities occur across two landform types and comprise a single national vegetation information system major vegetation group (MVG). A summary of mapped vegetation communities within survey area and Purpose Permit Area are provided in Figure 3-6.

Table 3-4 and shown in Figure 3-6.

Table 3-4: Vegetation Communities Extent

Landform	MVG	Code	Description	Extent	Example Image
Clay-loam Plain	Acacia Forests and Woodland (MVG 6)	CLP-AFW1	Low woodland of *Acacia incurvaneura/ Acacia pruinocarpa* over mid shrubland of *Eremophila forrestii/ E. galeata* and low open shrubland of *Ptilotus obovatus* on clay-loam plain	154.2 ha (37.1%)	
Sand-Loam Plain	Acacia Forests and Woodland (MVG 6)	SLP-AFW1	Low woodland of *Acacia incurvaneura* over mid shrubland of *Eremophila forrestii/ Eremophila latrobei* and low hummock grassland of *Triodia basedowii* on sand-loam plain	168.4ha (40.5%)	
N/A	N/A	CV	Cleared vegetation	93.3 ha (22.4%)	-
Total				**415.9 ha**	

* Menzies survey area was revised to remove overlaps with the Cook mining area.

3.4.2.2 *Significant Vegetation*

No Threatened Ecological Communities (TECs) listed under Commonwealth or State legislation or Priority Ecological Communities (PEC) listed by DBCA were identified within either survey area. No other vegetation analogous to vegetation of conservation significance was identified within the either area (Botanica 2020; Botanica 2023). Outside of the survey areas, the proposed clearing footprint interacts with one PEC (DBCA-038) which is a calcrete (subterranean) assemblage. The proposed clearing will not interact with this PEC which is located outside of the Jundee mining area

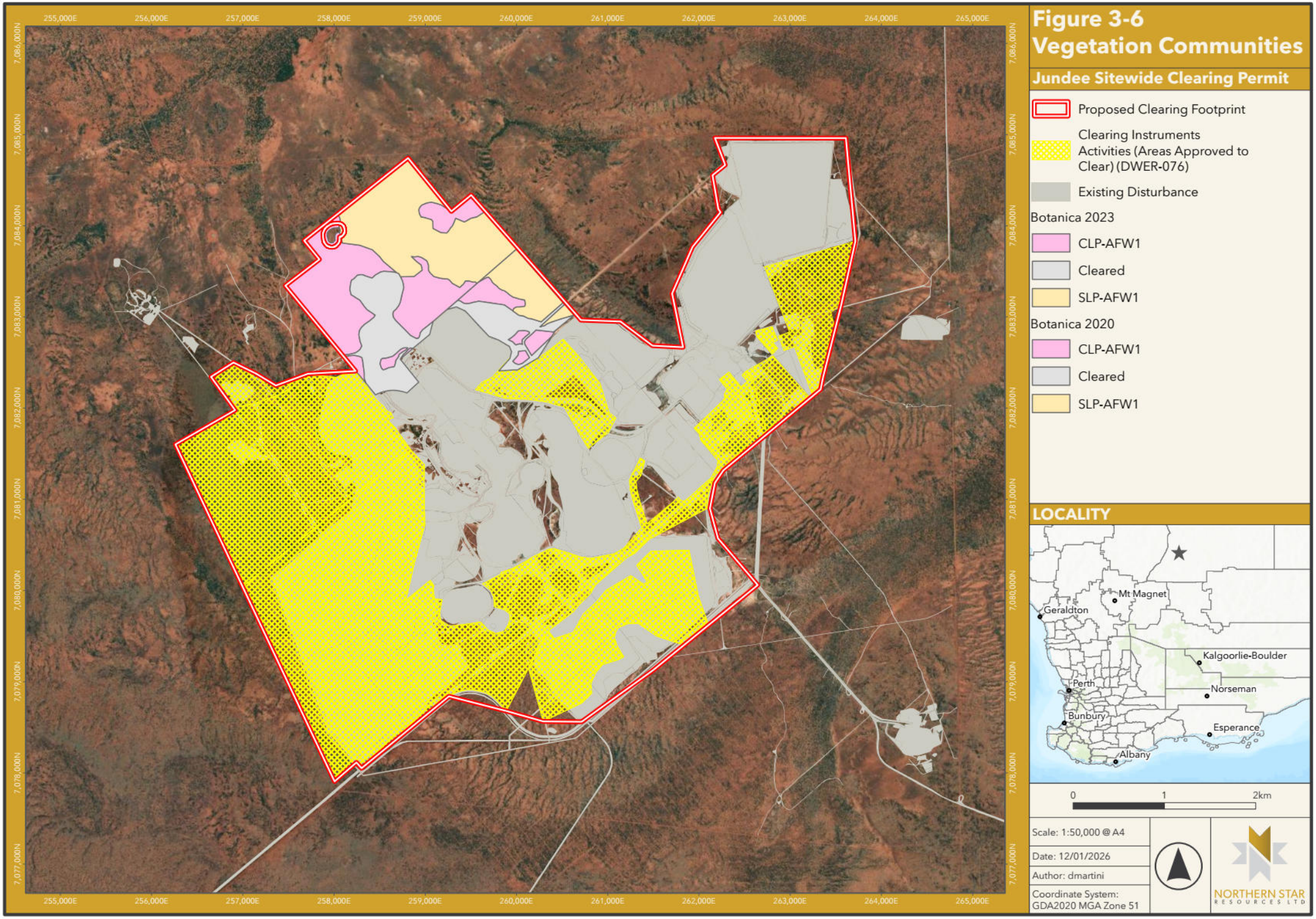


Figure 3-6
Vegetation Communities

Jundee Sitewide Clearing Permit

Proposed Clearing Footprint

Clearing Instruments Activities (Areas Approved to Clear) (DWER-076)

Existing Disturbance

Botanica 2023

- CLP-AFW1
- Cleared
- SLP-AFW1

Botanica 2020

- CLP-AFW1
- Cleared
- SLP-AFW1

LOCALITY

0 1 2km

Scale: 1:50,000 @ A4

Date: 12/01/2026

Author: dmartini

Coordinate System: GDA2020 MGA Zone 51

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3.4.2.3 Vegetation Condition

Botanica assessed vegetation condition for both Cook and Menzies mining areas using the EPA (2016) rating scale, with the majority of vegetation within the survey area ranging between good and very good condition as detailed in Table 3-5 below and shown in Figure 3-7.

Table 3-5: Vegetation Condition

Project Area	Vegetation Condition	Survey Area
Cook mining area	Very Good	228.7
	Good	40.1
	Cleared	61.4
	Total	**330.2**
Menzies mining area *	Good	53.8
	Cleared	31.9
	Total	**85.7**
Combined survey area	Very Good	228.7
	Good	93.9
	Cleared	93.3
	Total	**415.9**

* Menzies survey area was revised to remove overlaps with the Cook mining area.

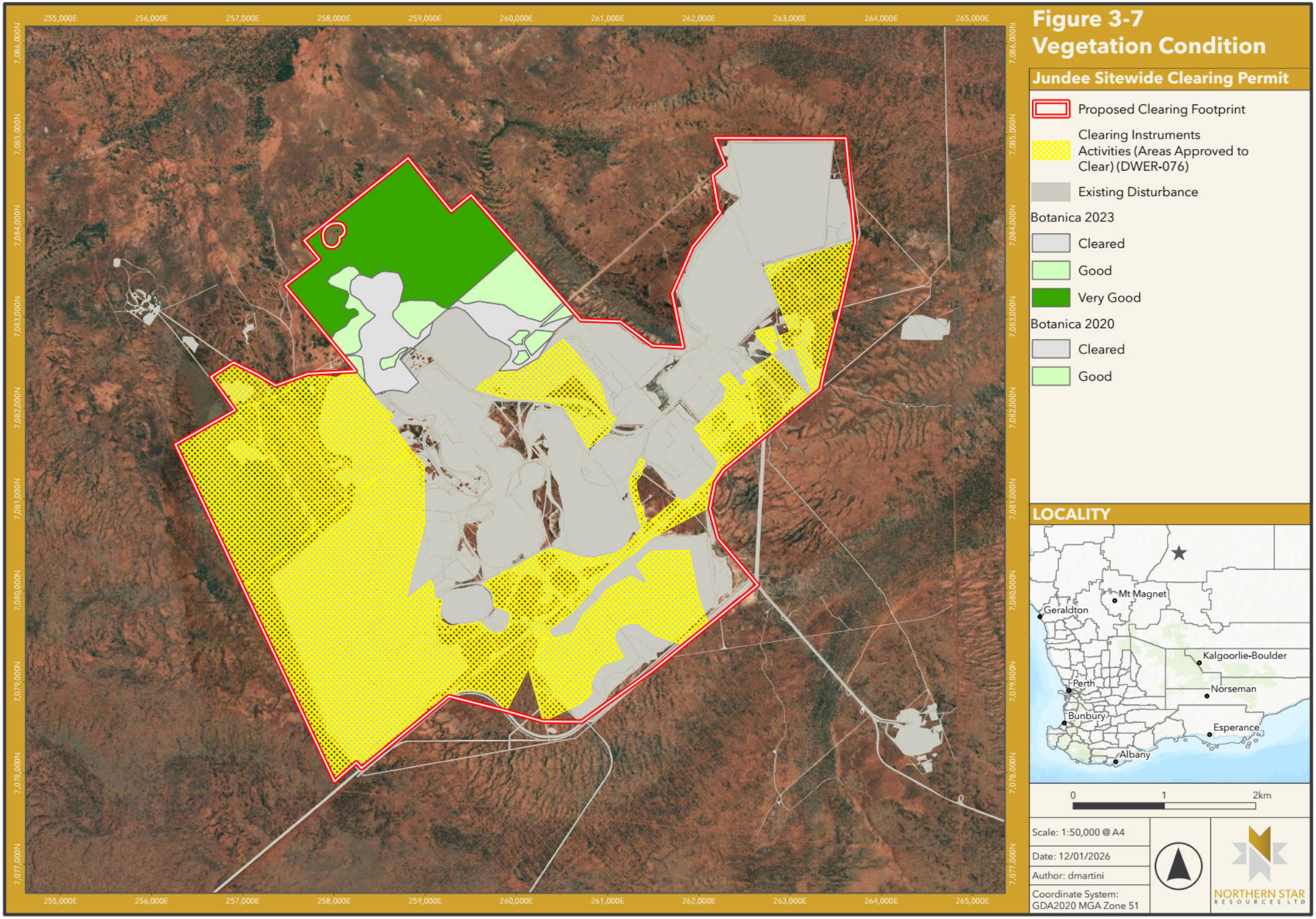


Figure 3-7
Vegetation Condition

Jundee Sitewide Clearing Permit

- Proposed Clearing Footprint
- Clearing Instruments Activities (Areas Approved to Clear) (DWER-076)
- Existing Disturbance

Botanica 2023

- Cleared
- Good
- Very Good

Botanica 2020

- Cleared
- Good

LOCALITY

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Scale: 1:50,000 @ A4

Date: 12/01/2026

Author: dmartini

Coordinate System: GDA2020 MGA Zone 51

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3.4.2.4 Significant Flora

Recent searches of the EPBC Act PMST and DBCA Dandjoo databases (Appendix C – Additional search - EPBC Act PMST and DBCA Dandjoo database) were undertaken on 12 December 2025 and identified 407 flora taxa recorded within 40 km of Jundee. No Threatened flora was identified; however, 17 Priority flora taxa were identified and are described in Table 3-6. Field assessments did not identify any Threatened or Priority flora species occurring within the combined survey area (Botanica 2020; Botanica 2023). On this basis, the proposed clearing is not expected to result in impacts on Threatened or Priority Flora.

Table 3-6: Significant Flora Likelihood

Taxon	Conservation Code			Description ((DBCA, 2022), (WAHERB, 2023) and (ALA (n.d.)))	Likelihood of Occurrence
	EPBC Act	BC Act	Priority Listing		
Aristida jerichoensis var. subspinulifera	-	-	P3	Hardpan plains.	Possible
Eremophila arachnoides subsp. arachnoides	-	-	P3	Broom-like shrub, to 3 m high, Shallow loam over limestone.	*
Eremophila arguta	-	-	P1	Loamy soils, floodplains.	Unlikely
Eremophila congesta	-	-	P1	Lateritic outcrops in greenstone hills, stony quartzite slopes.	Unlikely
Eremophila jamesiorum	-	-	P2	Clay soils at the base of hills.	*
Eremophila pungens	-	-	P4	Sandy loam, clayey sand over laterite. Plains, ridges, breakaways.	Possible
Eremophila regia	-	-	P1	Rocky hilltops in low, open shrubland in the Gascoyne bioregion.	*
Euryomyrtus inflata	-	-	P3		*
Hemigenia exilis	-	-	P4	Rocky lower slopes of hill sides, drainage lines.	Unlikely
Jacksonia lanicarpa	-	-	P1	Open shrubland on red sand and is only known from near Cue and Cundeelee in the Coolgardie and Murchison bioregions.	*
Maireana prosthecochaeta	-	-	P3	Laterite on hills and in salty places, in the Gascoyne and Murchison bioregions.	*
Neurachne lanigera	-	-	P1	Red sand, laterite. Rocky outcrops, plains.	*
Ptilotus luteolus	-	-	P3	Rocky slopes, screes, and ridges.	Unlikely
Rhodanthe chlorocephala subsp.chlorocephala	-	-	P1	-	*
Sida picklesiana	-	-	P3	Breakaways and outcrops, banded ironstone.	Unlikely
Stackhousia clementii	-	-	P3	Skeletal soils. Sandstone hills.	Unlikely
Tribulus adelacanthus	-	-	P3	Lower slopes. Gravelly loam soils.	Unlikely
Vittadinia pustulata	-	-	P3	Sandy soils.	Unlikely
Xanthoparmelia nashii	-	-	P3	Granite rocks.	Unlikely

**Not included in Botanica (2020;2023) assessments*

3.4.3 Fauna and Habitat

Fauna surveys were included in both Botanica surveys which consisted of desktop and field assessment. The fauna desktop assessments included a literature review and search of the DBCA Naturemap (now retired) and EPBC PMST databases in which a 40 km buffer was applied to the survey areas. Additional searches of the DBCA Dandjoo and EPBC PMST were undertaken on 12 December 2025 (Appendix C – Additional search - EPBC Act PMST and DBCA Dandjoo database) which identified a total of 219 vertebrate fauna taxa recorded within a 40 km radius of the combined survey area, comprising 126 bird species, seven amphibians, 22 mammals and 64 reptiles.

3.4.3.1 Fauna Habitat

Two broad-scale terrestrial fauna habitats were identified within the combined survey area, based on the vegetation and associated landforms recorded during the surveys as outlined in Table 3-7 and presented in **Error! Reference source not found.**.

Table 3-7: Fauna Habitats

Habitat Type	Habitat Description	Habitat Values	Extent
Clay-Loam Plain: *Acacia* Woodland	Clay-loam plain comprising of Mulga woodland over mixed low shrubs	• Substrate moderately suited to a variety of burrowing small mammals and reptiles. • Diverse vegetation strata supporting diverse avifauna assemblage. • Limited leaf litter and tree logs/ hollows for fauna refuge. Moderate habitat value	154.2 ha (37.1%)
Sand-Loam Plain: Acacia Woodland	Sand-loam plain comprising of Mulga woodland over mixed low shrubs and spinifex grassland	• Substrate very well suited to a variety of burrowing small mammals and reptiles. • Less diverse vegetation strata supporting a less diverse avifauna assemblage. • Limited leaf litter and tree logs/ hollows for fauna refuge. Moderate habitat value	168.4 ha (40.5%)
Cleared	Cleared vegetation	Little to no habitat value.	93.3 ha (22.4%)

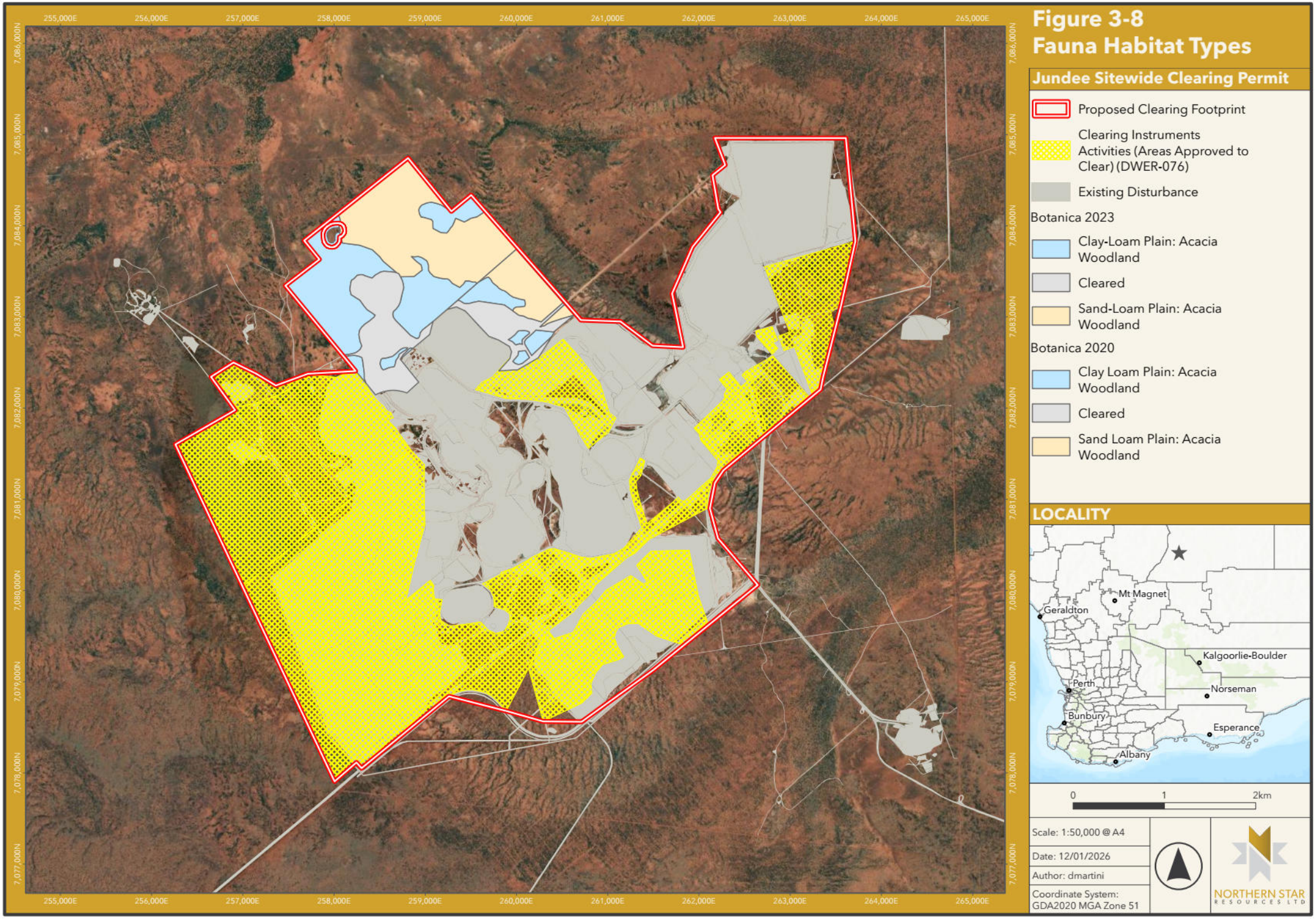


Figure 3-8
Fauna Habitat Types

Jundee Sitewide Clearing Permit

- Proposed Clearing Footprint
- Clearing Instruments Activities (Areas Approved to Clear) (DWER-076)
- Existing Disturbance

Botanica 2023

- Clay-Loam Plain: Acacia Woodland
- Cleared
- Sand-Loam Plain: Acacia Woodland

Botanica 2020

- Clay Loam Plain: Acacia Woodland
- Cleared
- Sand Loam Plain: Acacia Woodland

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3.4.3.2 *Significant Fauna*

A total of 19 species of conservation significance were identified in the database searches within the desktop search range, as described in Table 3-8. No significant fauna taxa were confirmed occurring within the survey areas and only two raptor species, the Grey Falcon (*Falco hypoleucos*) and Peregrine Falcon (*Falco peregrinus*), are considered to potentially utilise the area on an infrequent and transient basis, with no suitable breeding habitat present and therefore no impacts anticipated (Botanica 2020; Botanica 2023).

Table 3-8: Significant Fauna Likelihood

Species	Common Name	Conservation Status			Database	Likelihood of Occurrence
		EPBC Act	BC Act	DBCA		
Chalcites osculans	Black-eared Cuckoo	Ma	-	-	PMST	*
Dasycercus blythi	Brush-tailed Mulgara	-	-	P4	Dandjoo	Unlikely to Occur. No recent records nearby and habitat unsuitable / very marginal.
Actitis hypoleucos	Common Sandpiper	Vu, Mi, Ma	Mi	-	PMST, Dandjoo	Would not occur. No suitable habitat.
Malurus leucopterus leucopterus	Dirk Hartog Island Black-and-white Fairy-wren	Vu	Vu	-	Dandjoo	*
Macrotis lagotis	Greater Bilby	Vu	Vu	-	PMST, Dandjoo	Unlikely to Occur. No recent records nearby and habitat unsuitable / very marginal.
Liopholis kintorei	Great Desert Skink	Vu	Vu	-	PMST	Would not occur. No suitable habitat.
Falco hypoleucos	Grey Falcon	Vu	Vu		PMST, Dandjoo	Possibly Occurs aerially over survey area on very rare occasions. No suitable breeding habitat.
Motacilla cinerea	Grey Wagtail	Mi, Ma	Mi		PMST	Would Not Occur. No documented records in the region.
Antechinomys longicaudatus	Long-tailed Dunnart	-	-	P4	Dandjoo	*
Leipoa ocellata	Malleefowl	Vu	Vu	-	PMST	Unlikely to Occur. No recent records nearby and habitat unsuitable / very marginal.
Pezoporus occidentalis	Night Parrot	Cr	Cr	-	PMST	Unlikely to Occur. No recent records nearby and no suitable habitat.
Charadrius veredus	Oriental Plover	Mi, Ma	Mi		PMST	Would not occur. No suitable habitat.
Calidris melanotos	Pectoral Sandpiper	Mi, Ma	Mi	-	PMST	Would not occur. No suitable habitat.

Species	Common Name	Conservation Status			Database	Likelihood of Occurrence
		EPBC Act	BC Act	DBCA		
Falco peregrinus	Peregrine Falcon	-	OS	-	Dandjoo	Possibly occurs aerially over survey area on very rare occasions. No suitable breeding habitat.
Polytelis alexandrae	Princess Parrot	Vu	-	P4	PMST	Unlikely to Occur. Rarely recorded this far south and no recent records nearby.
Merops ornatus	Rainbow Bee-eater	Ma	-	-	PMST	*
Calidris acuminata	Sharp-tailed Sandpiper	Vu, Mi, Ma	Mi	-	PMST	Would not occur. No suitable habitat.
Aphelocephala leucopsis	Southern Whiteface	Vu	Vu	-	PMST, Dandjoo	*
Motacilla flava	Yellow Wagtail	Mi, Ma	Mi	-	PMST	Would Not Occur. No documented records in the region.

**Not included in Botanica (2020) or Botanica (2023) assessments.*

3.5 Heritage

Jundee is located within the Wiluna Native Title Determination (WCD2013/004), with heritage matters managed through agreement with the relevant Traditional Owner group, previously involving the Ngaanyatjarra Lands Council and Central Desert Native Title Services, and now administered through Tarlka Matuwa Piarku Aboriginal Corporation. The current Land Use Agreement, dated 25 June 2024, supersedes the Wiluna Land Access Agreement 2004 and the Wiluna Claim Heritage Agreement 2004. This agreement establishes formal notification, consultation and clearance processes for all proposed ground-disturbing activities including native vegetation clearing.

Jundee has been subject to multiple archaeological, anthropological and ethnographic heritage surveys over the life of mine. A review of the Aboriginal Cultural Heritage Inquiry System (ACHIS) in January 2026 identified six registered Aboriginal sites and one lodged place intersecting Jundee tenements. Site 982 is located within existing disturbed mining areas, while all other registered and lodged sites are located outside active and proposed mining disturbance areas and will not be impacted by proposed clearing activities.

Several unlisted archaeological and ethnographic sites occur across Jundee, predominantly consisting of artefact scatters ranging from approximately 100 to 30,000 artefacts per site. Some sites also hold mythological, ceremonial and historical significance for the local Martu people. The most significant sacred site in the wider area is Tjunti (Jundee Soak), which is located outside the mining operations area and is fenced to prevent access or impact.

Northern Star undertakes heritage surveys with the relevant Traditional Owner groups over all areas proposed for clearing / disturbance to identify any previously unrecorded heritage sites. Areas identified as "Not Cleared" during heritage surveys are recorded in internal databases and treated as exclusion zones. A disturbance permitting system is implemented to ensure that no clearing occurs unless the area has been formally heritage cleared and all regulatory approvals are in place. Accordingly, proposed clearing will not result in impacts to registered or unregistered Aboriginal heritage sites or Aboriginal cultural heritage.

Northern Star will continue to meet its obligations under the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Heritage Sites are disturbed by proposed clearing activities.

European heritage values within Jundee are limited. While pastoral homesteads in the region date back to the late nineteenth century, no European heritage sites are known to occur within or adjacent to the proposed clearing areas, and no impacts to European heritage are anticipated.

Aboriginal heritage sites in the vicinity of Jundee are presented in Figure 3-9.



Figure 3-9
Aboriginal Heritage Sites

Jundee Sitewide Clearing Permit

- Proposed Clearing Footprint
- Aboriginal Cultural Heritage - Register (DPLH-099)
- Aboriginal Cultural Heritage - Lodged (DPLH-100)

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4 Assessment of Clearing Principles

Northern Star has undertaken an assessment of the proposed clearing against the ten native vegetation clearing principles (EP Act, Schedule 5). These principles aim to ensure that potential impacts resulting from clearing of native vegetation are assessed in a consistent method which applies to all lands throughout Western Australia. The assessment identified that the proposed native vegetation clearing is either not at variance or not likely to be at variance with any of the clearing principles with rationale outlined in Table 4-1.

Table 4-1: Clearing Principles Assessment

Assessment against the clearing principles	Variance Level	Further Consideration Required?
Environmental value: biological values		
Principle (a): "Native vegetation should not be cleared if it comprises a high level of biodiversity." Northern Star Assessment Native vegetation within the Purpose Permit Area does not display high levels of biodiversity, with several genera dominating the landscape. Widely represented taxa are found within the broader surrounding region. No TECs are located within the proposed clearing footprint. Data Sources Botanica (2020), Botanica (2023), DBCA-038.	Not likely to be at variance.	No.
Principle (b): "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna." Northern Star Assessment An assessment of significant fauna habitat within the proposed clearing footprint was completed during the two surveys that found: - No fauna species of conservation significant were confirmed occurring within the two survey areas. Only two raptor species, the Grey Falcon (*Falco hypoleucos*) and Peregrine Falcon (*Falco peregrinus*), are considered to potentially utilise the area on an infrequent and transient basis, with no suitable breeding habitat present. - Two habitat types were identified, neither of which presents isolated or high value habitat for conservation significant fauna. Areas outside of these surveys have extensive mining disturbance or are covered by existing permits and therefore are considered unlikely to maintain high habitat value. The proposed clearing is not considered to comprise the whole or a significant part of, nor be necessary for the maintenance of, a significant fauna habitat, and is not expected to result in a material impact on fauna value. Data Sources Botanica (2020), Botanica (2023).	Not likely to be at variance.	No
Principle (c): "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora." Northern Star Assessment No Threatened flora species pursuant to the BC Act or EPBC Act were located within the proposed clearing footprint during field surveys. No known Threatened flora are known to occur at Jundee. Data Sources Botanica (2020); Botanica (2023); DBCA-036.	Not at variance	No.

Assessment against the clearing principles	Variance Level	Further Consideration Required?
Principle (d): "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community." Northern Star Assessment There are no known TECs located within or in vicinity of the proposed clearing footprint. No vegetation analogous of TECs were recorded in vegetation and flora surveys. Data Sources Botanica (2020); Botanica (2023); DBCA-038.	Not at variance.	No.
Environmental value: significant remnant vegetation and conservation areas		
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." Northern Star Assessment The proposed clearing footprint includes the pre-European vegetation association Wiluna 18, which retains more than 99% of its pre-European extent at the regional scale. The proposed clearing represents a very minor proportion of the regional extent of this association (<0.02%) and occurs within a largely intact landscape characterised by low fragmentation and high vegetation connectivity. As such, the vegetation is not considered a significant remnant within an extensively cleared area, and remaining extents will continue to exceed 99% following clearing. Data Sources DPIRD-006.	Not at variance.	No.
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." Northern Star Assessment The nearest conservation reserve Matuwa Kurrara Kurrara National Park is located approximately 40 km east of the proposed clearing footprint. Therefore, the proposed clearing will not impact the conservation values of any adjacent or nearby conservation areas. Data Sources DBCA-011.	Not at variance.	No.
Environmental value: land and water resources		
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." Northern Star Assessment There are no permanent watercourses or wetlands within the proposed clearing footprint. There are no inland waters (lakes/ playas) or naturals surface watercourses within the proposed clearing footprint. No vegetation growing in, or in association with a watercourse or wetland were identified within the proposed clearing footprint Surface water flows at Jundee are modified by 30 years of mining activities. Data Sources Botanica (2020); Botanica (2023); Geoscience Australia (2025).	Not at variance.	No.

Assessment against the clearing principles	Variance Level	Further Consideration Required?
Principle (g): "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation." Northern Star Assessment The proposed clearing area contains extensive mining and exploration disturbances, and proposed mining activities will result in further disturbance to soil resources. Soils are Jundee are typical of soils across the Goldfields region (weathered and nutrient poor). Proposed clearing activities include topsoil stripping and stockpiling for future rehabilitation of mining infrastructure as required under the *Mining Act 1978*. Clearing within the widespread land systems with Jundee is not likely to lead to land degradation issues such as salinity, water logging or acidic soils. Data Sources OES (2013); DPIRD-064.	Not likely to be at variance.	No.
Principle (i): "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water." Northern Star Assessment There are no inland waters (lakes / playas) or drainage lines within the proposed clearing footprint. No vegetation growing in, or in association with a watercourse or wetland were identified within the combined survey area. Most rainfall is lost by evaporation or surface runoff with only a small portion infiltrating the soil and recharging groundwater. Data Sources BoM (2026a); Geoscience Australia (2025).	Not likely to be at variance.	No.
Principle (j): "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding." Northern Star Assessment Rainfall is unreliable and highly variable with an average rainfall of 200 mm and an evaporation rate of 2,461 mm. The region is not prone to flooding and does not contain ephemeral water sources. Data Sources BoM (2026a); Geoscience Australia (2025).	Not likely to be at variance.	No.

Although the assessment has determined that the proposed native vegetation clearing is not likely to be at variance with any of the clearing principles, a suite of environmental management measures will be implemented by Northern Star to ensure potential environmental impacts are mitigated during clearing activities. The application of these measures will ensure that clearing is undertaken in a controlled and responsible manner and that unintended impacts to surrounding vegetation, fauna habitat, and environmental values are minimised.

5 Environmental Management

5.1 Clearing Mitigation

Northern Star utilises a hierarchy of avoid, minimise, rehabilitate and offset to reduce impacts of clearing activities. This hierarchy is achieved primarily through optimisation in design during mine planning and implementation of mitigation measures during operations. Measures to avoid, minimise, rehabilitate and offset clearing impacts are outlined below.

5.1.1 Avoid

Registered and lodged Aboriginal cultural heritage sites have been excluded from the proposed clearing footprint to avoid impacting heritage values. Prior to any clearing commencing, a disturbance permit form (NSR-ENV-001-FOR) will be authorised by Northern Star's environmental department to ensure that all proposed clearing occurs within approved boundaries, abides by relevant approval conditions, and avoids any impacts to protected sites / exclusion areas. Survey control for new disturbance (vegetated) areas including pegs and / or flagging tape must be in place prior to approval of a disturbance permit form to ensure that appropriate visual controls are implemented prior to clearing commencing.

5.1.2 Minimise

Design considerations to minimise clearing requirements are predominantly achieved by clearing only where necessary and reutilising existing disturbed land where practicable. This may include reutilising existing drill pads and access tracks for new exploration activities and placing new mining infrastructure over existing mining infrastructure (i.e. extending existing WRLs). Furthermore, vegetation associated with watercourses (including modified drainage) will be avoided as far as possible and mining infrastructure will avoid placement in areas prone to flooding and subsequent erosion.

Clearing is conducted as close as possible to construction activities to prevent over clearing areas not required for infrastructure and enabling optimisation in designs to occur. Furthermore, this aids in preventing erosion and sedimentation by maintaining soil stability for as long as possible prior to clearing. The project may include the development of a diversion channel to redivert intercepted surface water drainage to existing flow paths, ensuring that surface water flows are maintained to downstream receptors and preventing erosion within cleared areas.

5.1.3 Rehabilitate

Cleared areas will be rehabilitated in accordance with mine closure obligations pursuant to the *Mining Act 1978*. Whilst some clearing such as that for mining voids will be permanent, most cleared areas will undergo progressive rehabilitation during the mining schedule in accordance with the approved Jundee Mine Closure Plan. During clearing, vegetation will be stockpiled for possible reuse as erosion control, and topsoil will also be stripped and stockpiled for rehabilitation purposes. Following rehabilitation, monitoring will be conducted to ensure vegetation growth outcomes track towards approved performance criteria.

5.1.4 Offset

The proposed native vegetation clearing will not result in any significant residual impacts to the environment and therefore no environmental offsets should be required.

5.2 Environmental Management System

Clearing will be implemented in accordance with Northern Star's Environmental Management System (EMS). The EMS outlines plans, procedures and other strategies to managing environmental impacts from Northern Star's activities, as guided by Northern Star's Environmental Policy (NSR-COR-003-POL). Training is regularly conducted by Northern Star's environmental department to ensure workers are aware of the requirements of the EMS and adhere to expectations of management.

Applicable management measures from the EMS in relation to clearing of native vegetation are summarised below:

5.2.1 Air quality

Fugitive dust generated from clearing activities and topsoil stripping and handling can have detrimental impacts on surrounding flora and fauna. Excessive dust generation is minimised by implementing the following controls:

- Monitoring of weather conditions and restricting clearing activities during high winds.
- Provision of watercarts for wetting down soils during clearing activities as required.

5.2.2 Land and Soils

Land and soil resources can be negatively impacted during clearing including via spills of hydrocarbons from mobile plant and poor topsoil stripping and handling practises. Potential impacts to land and soil resources are managed by:

- Regular maintenance and daily pre-start inspections on all mobile plant used in clearing activities.
- Provision of spill response kits on service trucks and strategic locations around site (i.e. go-lines and laydowns).
- Minimising timeframes between clearing, topsoil stripping and handling, and construction of infrastructure to prevent erosion of topsoil resources.

5.2.3 Fauna

Fauna impacts (vehicle strike) during clearing activities may result in injury or death of native fauna or livestock. Whilst not all incidents are avoidable, impacts are minimised through:

- Maintaining speed limits on site and utilising existing cleared areas where possible.
- Reporting and investigating all incidents of fauna injury or death.

5.2.4 Weeds

Weeds can be introduced into areas following disturbance of vegetation and soils. Weed and seed hygiene protocols are utilised to prevent weeds from being transported into clearing areas by:

- Requiring mobile plant to be thoroughly cleaned prior to entering Jundee.
- Undertaking inspections on mobile plant before entering Jundee.
- Restricting mobile plant access to proposed clearing areas and existing roads.

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7 Appendices

APPENDIX A – BOTANICA 2020

Reconnaissance Flora/ Vegetation & Fauna Survey within M53/191 Prepared For Northern Star Resources Limited



June 2020
Version 2

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Disclaimer

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Contents **Page No.**

1 Introduction 1
1.1 Project Description 1
1.2 Objectives 1
2 Regional Biophysical Environment 3
2.1 Regional Environment 3
2.2 Soils and Landscape Systems 5
2.3 Remnant Vegetation 7
2.4 Climate 9
2.5 Hydrology 9
2.6 Land Use 11
3 Survey Methodology 11
3.1 Desktop Assessment 11
3.2 Field Assessment 13
3.2.1 Flora Assessment 13
3.2.2 Fauna Assessment 13
3.2.3 Personnel involved 14
3.2.4 Scientific licences 14
3.3 Survey limitations and constraints 14
4 Results 16
4.1 Desktop Assessment 16
4.1.1 Flora and Vegetation 16
4.1.2 Fauna 18
4.2 Field Assessment 22
4.2.1 Vegetation Types 22
4.2.2 Vegetation Condition 26
4.2.3 Fauna Habitat 28
4.2.4 Introduced Species 30
4.2.5 Significant Flora 31
4.2.6 Significant Vegetation 31
4.2.7 Significant Fauna 32
4.3 Matters of National Environmental Significance 32
4.3.1 *Environment Protection and Biodiversity Conservation Act 1999* 32
4.4 Matters of State Environmental Significance 33
***4.4.1 Environmental Protection Act WA 1986* 33**
***4.4.2 Biodiversity Conservation Act 2016* 33**
4.4.3 Conservation Reserves 34
4.5 Native Vegetation Clearing Principles 34
5 Bibliography 36

Appendices

Appendix 1: Conservation Ratings BC Act and EPBC Act 40
Appendix 2: Regional map of the survey area in relation to conservation areas 44
Appendix 3: List of species identified within each vegetation type 45
Appendix 4: Vegetation Condition Rating 46
Appendix 5: Potential Fauna Species List 47

Tables

Table 2-1: Soil Landscape Systems within the survey area 5
Table 2-2: Pre-European Vegetation Associations within the survey area 7
Table 3-1: Scientific Licences of Botanica Staff coordinating the flora survey 14

Table 3-2: Limitations and constraints associated with the survey 15
Table 4-1: Likelihood of occurrence for Threatened and Priority Flora within the survey area 17
Table 4-2: Likelihood of Occurrence – Fauna Species of Conservation Significance 20
Table 4-3: Summary of vegetation types within the survey area 22
Table 4-4: Vegetation assemblage for Low woodland of *Acacia incurvaneura* over low shrubland of *Eremophila forrestii/ E. margarethae* and low tussock grassland of *Eragrostis eriopoda* on clay-loam plain 24
Table 4-5: Vegetation assemblage for Low woodland of *Acacia caesaneura/ A. incurvaneura* over mid open shrubland of *Eremophila forrestii* and low hummock grassland of *Triodia basedowii* on sand-loam plain 25
Table 4-6: Vegetation Condition within the survey area 26
Table 4-7: Main Terrestrial Fauna Habitats within the survey area 28
Table 4-8: Summary of Potential Vertebrate Fauna Species 30
Table 4-9: Assessment of development within the survey area against native vegetation clearing principles 34

Figures

Figure 1-1: Regional map of the survey area 2
Figure 2-1: Map of IBRA Subregions in relation to the survey area 4
Figure 2-2: Map of Soil Landscape Systems within the survey area 6
Figure 2-3: Pre-European Vegetation Associations within the survey area 8
Figure 2-4: Monthly rainfall and mean monthly rainfall (January 2019 to April 2020) for the Wiluna Aero weather station #13044 (BoM, 2020) 9
Figure 2-5: Surface Hydrology of the survey area 10
Figure 4-1: Vegetation types within the survey area 23
Figure 4-2: Vegetation Condition within the survey area 27
Figure 4-3: Main Terrestrial Fauna Habitats within the survey area 29

Plates

Plate 4-1: Low woodland of *Acacia incurvaneura* over low shrubland of *Eremophila forrestii/ E. margarethae* and low tussock grassland of *Eragrostis eriopoda* on clay-loam plain 24
Plate 4-5: Low woodland of *Acacia caesaneura/ A. incurvaneura* over mid open shrubland of *Eremophila forrestii* and low hummock grassland of *Triodia basedowii* on sand-loam plain 25

Glossary

Acronym	Description
ANCA	Australian Nature Conservation Agency.
BA	Birdlife Australia (Formerly RAOU, Birds Australia).
BAM Act	*Biosecurity and Agriculture Management Act 2007*, WA Government.
BC Act	*Biodiversity Conservation Act 2016*, WA Government.
Botanica	Botanica Consulting Pty Ltd.
BoM	Bureau of Meteorology.
CAMBA	China Australia Migratory Bird Agreement 1998.
DAFWA	Department of Agriculture and Food (now DPIRD), WA Government.
DAWE	Department of the Agriculture, Water and Environment (formerly known as DotEE), Australian Government.
DBCA	Department of Biodiversity, Conservation and Attractions (formerly DPaW), WA Government.
DEC	Department of Environment and Conservation (now DBCA), WA Government.
DER	Department of Environment Regulation (now DWER), WA Government.
DMIRS	Department of Mines, Industry Regulation and Safety (formerly DMP), WA Government

Acronym	Description
DMP	Department of Mines and Petroleum (now DMIRS), WA Government.
DotEE	Department of the Environment and Energy (now known as DAWE), Australian Government.
DoW	Department of Water (now DWER), WA Government.
DPaW	Department of Parks and Wildlife (now DBCA), WA Government.
DPIRD	Department of Primary Industries and Regional Development, WA Government
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DotEE,), Australian Government.
DWER	Department of Water and Environmental Regulation (formerly EPA, DER and DoW), WA Government
EP Act	Environmental Protection Act 1986, WA Government.
EP Regulations	Environmental Protection (Clearing of Native Vegetation) Regulations 2004, WA Government.
EPA	Environmental Protection Authority, WA Government.
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*, Australian Government.
ESA	Environmentally Sensitive Area.
Ha	Hectare (10,000 square meters).
IBRA	Interim Biogeographic Regionalisation for Australia.
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union.
JAMBA	*Japan Australia Migratory Bird Agreement 1981*.
Km	Kilometer (1,000 meters).
MVG	Major Vegetation Groups.
NVIS	National Vegetation Information System.
OEPA	Office of the Environmental Protection Authority (now DWER), WA Government.
PEC	Priority Ecological Community.
Northern Star	Northern Star Resources Limited.
RAOU	Royal Australia Ornithologist Union.
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement 2007.
SRE	Short Range Endemic.
SSC	Species Survival Commission, International.
TEC	Threatened Ecological Community.
WA	Western Australia.
WAHERB	Western Australian Herbarium.
WAM	Western Australian Museum, WA Government.
WC Act	*Wildlife Conservation Act 1950*, WA Government.

Executive Summary

Botanica Consulting (Botanica) was commissioned by Northern Star Resources Limited (Northern Star) to undertake a reconnaissance flora survey and fauna survey within the north-east corner of mining tenement M53/191 (referred to as the 'survey area'). The survey area is located within the Jundee Pastoral Lease, approximately 40km north-east of Wiluna, Western Australia. The survey was conducted on the 17th April 2020 covering a total area of 173 ha.

Two vegetation types were identified within the survey area. These vegetation types were located within two different landform types and comprised of one major vegetation group, which were represented by a total of 13 Families, 19 Genera and 37 Taxa. The broad scale terrestrial fauna habitats within the survey area have been identified as comprising a mosaic of clay-loam plains and sand-loam plains.

Results of the literature review identified 35 mammals (including 11 bat species), 109 birds, 90 reptiles and 11 frog species that have previously been recorded in the general area, some of which have the potential to occur, subject to the identified habitats being suitable.

No Threatened Flora, Threatened Fauna, Migratory Fauna or Threatened Ecological Communities (TEC) as listed under the Western Australian *Biodiversity Conservation (BC) Act 2016* or Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* were identified within the survey area. No Priority Ecological Communities (PEC) as listed by the Department of Biodiversity, Conservation and Attractions (DBCA) were identified within the survey area. No Priority Flora or Fauna taxa as listed by the DBCA were identified within the survey area.

A review of the EPBC Act threatened fauna list, DBCA's Threatened Fauna Database and Priority List, unpublished reports and scientific publications identified a number of specially protected, migratory or priority fauna species as having been previously recorded or as being potentially present in the general vicinity of the survey area. However, no fauna of conservation significance is likely to be significantly impacted on by the proposed development. This conclusion is primarily based on the lack of suitable habitats, the known local extinction of some species, the relatively small size of the impact footprint and the extensive habitat connectivity with adjoining areas. Impacts on fauna and fauna habitat are therefore anticipated to be localised, small/negligible and consequently, manageable.

The survey area does not contain any world or national heritage places and does not occur within a Bush Forever site. There are no wetlands of international importance (Ramsar Wetlands), national importance (Australian Nature Conservation Agency (ANCA) Wetlands) or conservation category wetlands within the survey area.

The survey area does not contain any Environmentally Sensitive Areas (ESA) or Schedule 1 Areas listed under the *Environmental Protection (EP) Act 1986*; The survey is not located within DBCA managed land. The closest conservation reserve is the ex. Lorna Glen Unallocated Crown Land Reserve (LR3014/946), which is managed by DBCA and is located approximately 43km east of the survey area.

Based on the vegetation condition rating scale adapted from Keighery, 1994 and Trudgen, 1988 (ranging from ‘pristine’ to ‘completely degraded’), vegetation was rated as ‘good’. Two introduced species were recorded during the survey; *Cynodon dactylon* (Couch) and *Tribulus terrestris* (Caltrop). Neither species is listed as a Declared Pest under the *Biosecurity and Agriculture Management (BAM) Act 2007.*

1 Introduction

1.1 Project Description

Botanica Consulting (BC) was commissioned by Northern Star Resources Limited (Northern Star) to undertake a reconnaissance flora and fauna survey of the north-east corner of mining tenement M53/191 (referred to as the 'survey area'). The survey area is located within the Jundee Pastoral Lease, approximately 40km north-east of Wiluna, Western Australia. (Figure 1-1). The survey was conducted on the 17th April 2020 covering a total area of 173 ha.

1.2 Objectives

The flora assessment was conducted in accordance with the requirements of a reconnaissance flora survey as defined in *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment – December 2016* (EPA, 2016a). The objectives of the assessment were to:

- gather background information on flora and vegetation in the target area (literature review, database and map-based searches);
- identify significant flora, vegetation/ecological communities and assess the potential sensitivity to impact;
- conduct a field survey to verify / ground truth the desktop assessment findings;
- undertake floristic community mapping to a scale appropriate for the bioregion and described according to the National Vegetation Information System (NVIS) structure and floristics;
- undertake vegetation condition mapping;
- assess the project area's plant species diversity, density, composition, structure and weed cover, using NVIS classification system for vegetation description;
- assess Matters of National Environmental Significance (MNES) and indicate whether potential impacts on MNES as protected under the EPBC Act are likely to require referral of the project to the Commonwealth DotEE; and
- determine the State legislative context of environmental aspects required for the assessment.

The fauna assessment was conducted in accordance with the requirements of a reconnaissance terrestrial fauna survey as defined in *Technical Guidance - Terrestrial Fauna Surveys for Environmental Impact Assessment – December 2016* (EPA, 2016b). The objectives of the assessment were to:

- Gather background information on fauna in the survey area (literature review, database and map-based searches);
- Delineate and characterise the faunal assemblages and fauna habitats present in the survey area;
- Document and map locations of any Threatened or Priority listed fauna species located; and
- Assess the regional and local conservation status of fauna species and fauna habitats within the survey area.

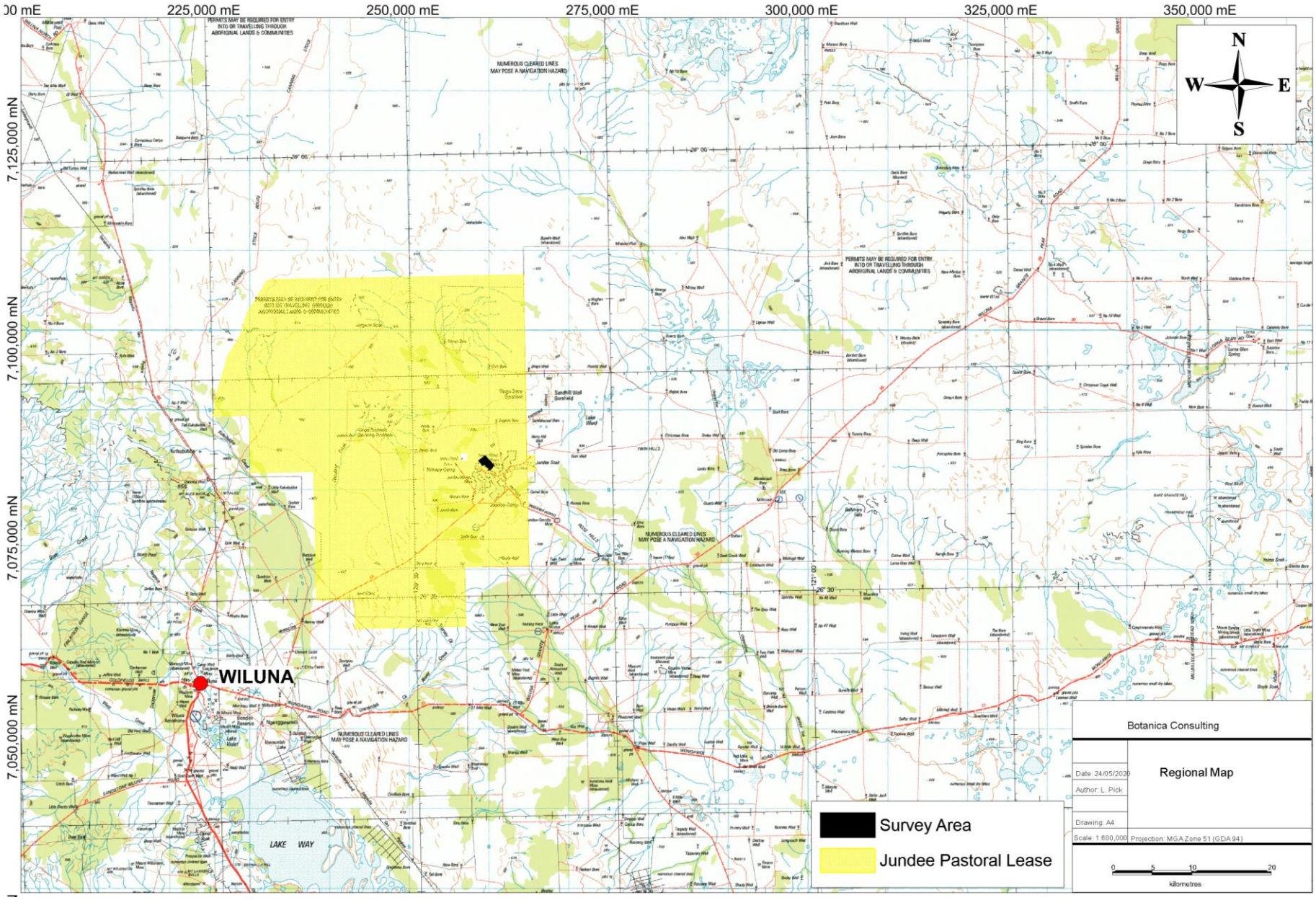


Figure 1-1: Regional map of the survey area

2 Regional Biophysical Environment

2.1 Regional Environment

The survey area lies within the Murchison Region of the Eremaean Province of WA in a region known as the Austin Botanical District. The Murchison Region is further divided into subregions, based on the Interim Biogeographic Regionalisation of Australia (IBRA), with the survey area located within the Eastern Murchison (MUR1) as shown in Figure 2-1.

The landscape of the Murchison bioregion comprises low hills, mesas of duricrust separated by flat colluvium and alluvial plains (Commonwealth Government, 2008). It is dominated by the Archaean (over 2500 million years ago) granite greenstone terrain of the Yilgarn Craton (Commonwealth Government, 2008). Alluvial soils and sands mantle the granitic and greenstone units of the Yilgarn Craton. These soils are shallow, sandy and infertile. Underlying the soils in low areas is a red-brown siliceous hard pan (Curry et al. 1994). The soils in the eastern half of the bioregion are typically red sands, calcareous red earth soil, duplex soil and clays. There are 41 vegetation associations (hummock grasslands, succulent steppe or low woodlands) that have at least 85 per cent of their total area in the bioregion. The bioregion is rich and diverse in both its flora and fauna but most species are wide ranging and usually occur in adjoining regions (McKenzie, May and McKenna, 2002).

The Eastern Murchison comprises the northern parts of the craton's Southern Cross and Eastern Goldfields Terrains and is characterised by internal drainage and extensive areas of elevated red desert sandplains with minimal dune development. Salt Lake systems are associated with the occluded paleodrainage system. Broad plains of red-brown soils and breakaways complexes as well as red sandplains are widespread. Vegetation is dominated by Mulga woodlands and is often rich in ephemerals, hummock grasslands, saltbush shrublands and Samphire shrublands (McKenzie *et. al.,* 2002). The Eastern Murchison subregion comprises diverse mulga woodlands, which occur on low greenstone belts. The sand plains have red loamy earths and red deep sands are found on the sandy banks.

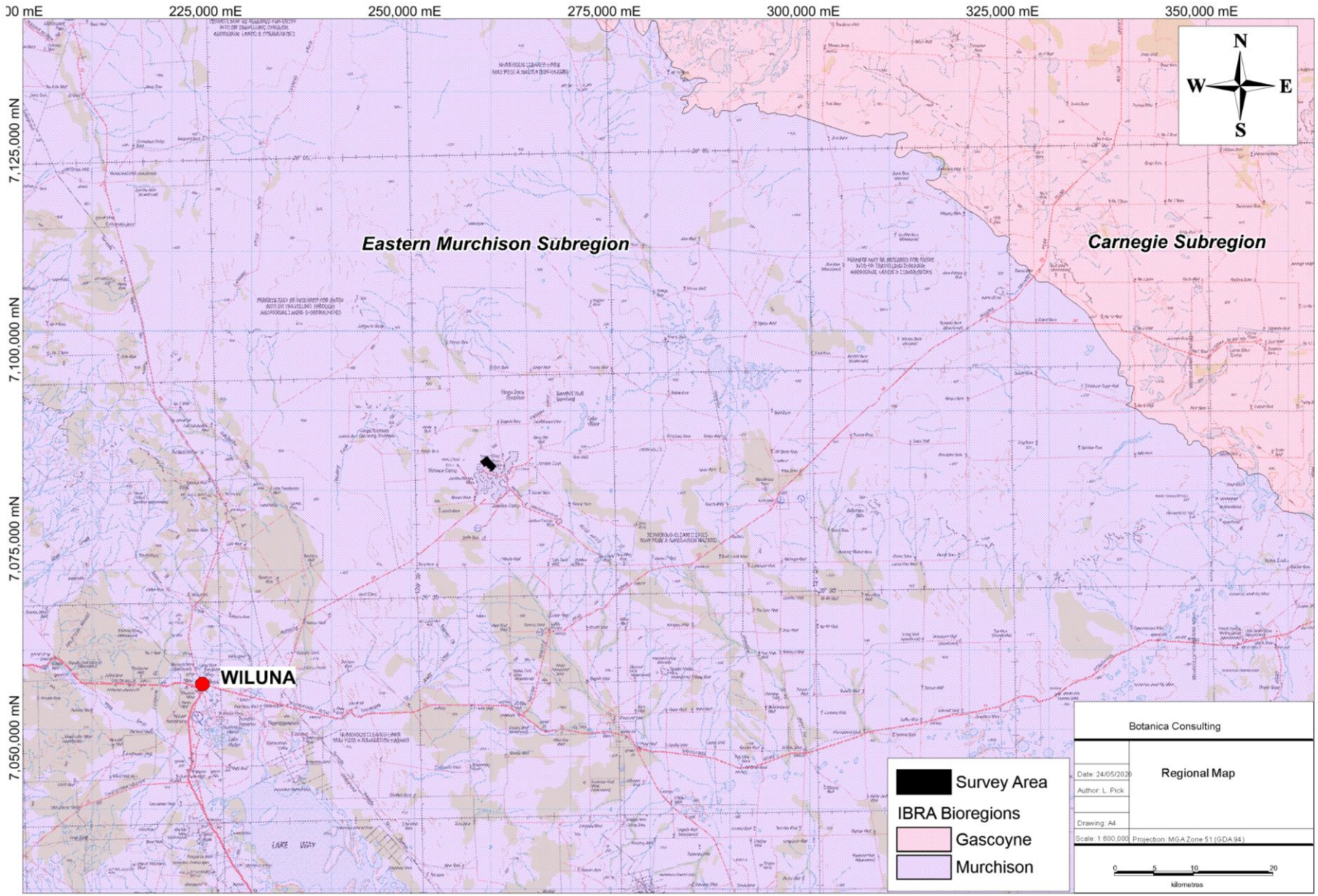


Figure 2-1: Map of IBRA Subregions in relation to the survey area

2.2 Soils and Landscape Systems

The survey area lies within the Murchison Province, which consists of Hardpan wash plains and sandplains (with some stony plains, hills, mesas and salt lakes) on the granitic rocks and greenstone of the Yilgarn Craton. The Murchison Province is located in the inland Mid-west and northern Goldfields between three Springs, the Gascoyne River, Wiluna, Cosmo Newberry and Menzies Soil types are dominated by red loamy earths, red sandy earths, red shallow loams, red deep sands and red-brown hardpan shallow loams with some red shallow sands and red shallow sandy duplexes present. Vegetation communities are dominated by Mulga shrublands with spinifex grasslands and some bowgada shrublands, Eucalypt woodlands and halophytic shrublands (Tille, 2006).

The Murchison Province is further divided into seven soil-landscape zones, with the survey area located within the Salinaland Plains Zone (279). The Salinaland Plains Zone comprises of sandplains (with hardpan wash plains and some mesas, stony plains and salt lakes) on granitic rocks (and some greenstone) of the Yilgarn Craton. Soils include red sandy earths, red deep sands, red shallow loams and red loamy earths with some red-brown hardpan shallow loams, salt lake soils and red shallow sandy duplexes. Vegetation is dominated by mulga shrublands with spinifex grasslands (and some halophytic shrublands and eucalypt woodlands). This zone is located in the northern Goldfields from Lakes Barlee and Ballard to Wiluna and Laverton (Tille, 2006). The Salinaland Plains Zone is further divided into soil landscape systems, with the survey area located within two soil landscape systems Table 2-1 and Figure 2-2 below.

Table 2-1: Soil Landscape Systems within the survey area

Soil Landscape System	Description
Jundee System	Hardpan plains with variable gravelly mantles and minor sandy banks supporting weakly groved mulga shrublands.
Wiluna System	Low greenstone hills with occasional lateritic breakaways and broad stony slopes, lower saline stony plains and broad drainage tracts; supporting sparse mulga and other acacia shrublands with patches of halophytic shrubs.

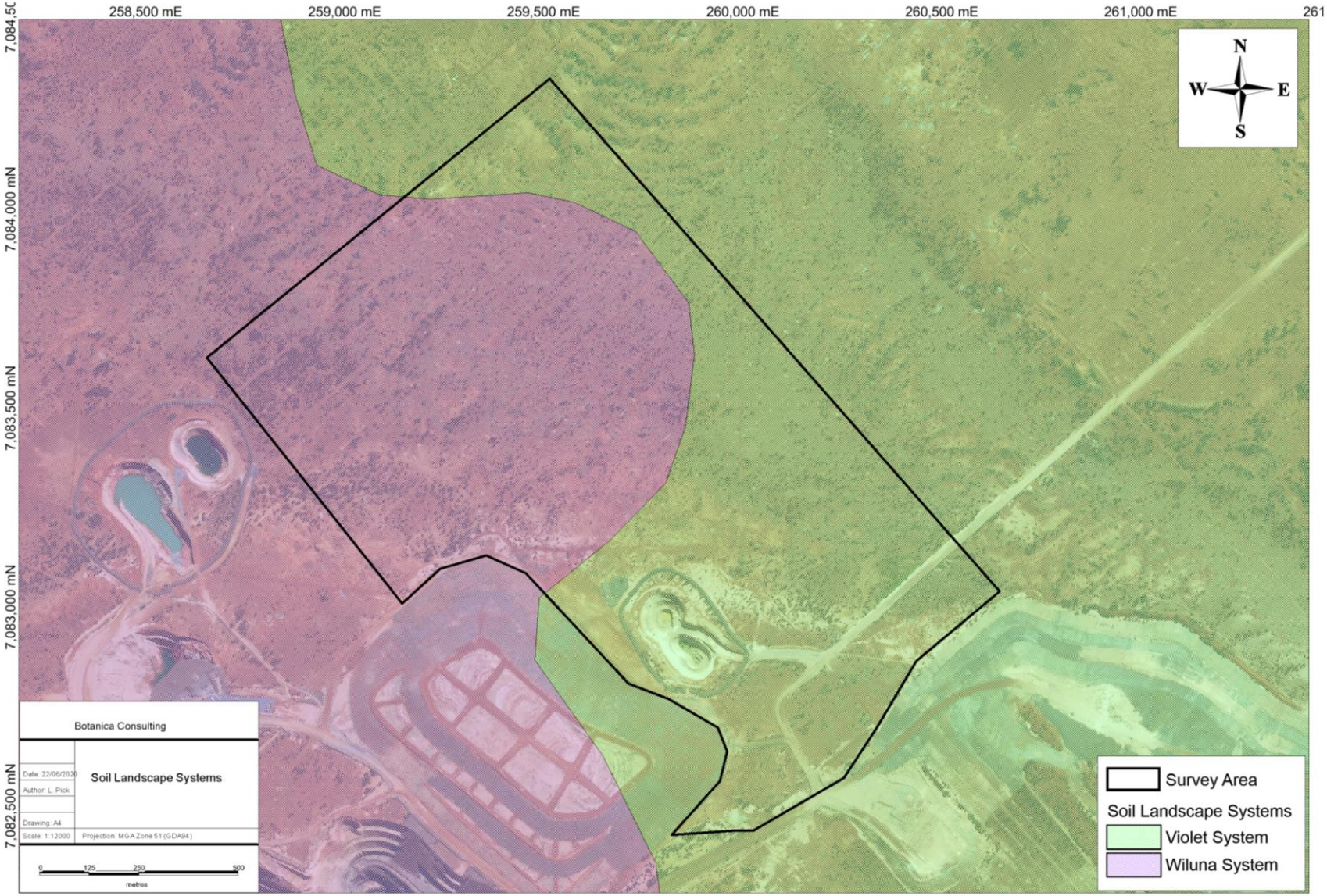


Figure 2-2: Map of Soil Landscape Systems within the survey area

2.3 Remnant Vegetation

The survey area is situated in the Austin Botanical District within the Eremaean Botanical Province. This botanical district is predominantly Mulga low woodlands on plains, often rich in ephemerals, which reduce to scrub on hills. It is also characterised by hummock grasslands, Saltbush shrublands and Samphire shrublands, according to the DAFWA. The Eremaean Province is the largest of the three botanical provinces within Western Australia. The vegetation of the Austin Botanical District of the Murchison Region is predominantly low mulga (*Acacia aneura*) woodlands on plains and reduced to scrub on hills. This district is often associated with a tree steppe of *Eucalyptus* spp. and *Triodia basedowii* on sand plains.

The Department of Primary Industries and Regional Development GIS file (DPIRD, 2018) indicates that the survey area is located within Pre-European Beard vegetation association Wiluna 18. The extent of this vegetation association, as specified in the 2018 Statewide Vegetation Statistics (DBCA, 2017) is provided in Table 2-2 and Figure 2-3.

Areas retaining less than 30% of their pre-European vegetation extent generally experience exponentially accelerated species loss, while areas with less than 10% are considered "endangered" (EPA, 2000). Development within the survey area will not significantly reduce the extent of pre-European vegetation.

Table 2-2: Pre-European Vegetation Associations within the survey area

Vegetation Association	Pre-European Extent (ha)	Pre-European extent remaining (%)	% of Current extent within DBCA managed lands	Vegetation Description (Beard, 1990)
Wiluna 18	4,273,509.56	99.59	1.05	Low woodland; mulga (*Acacia aneura*)

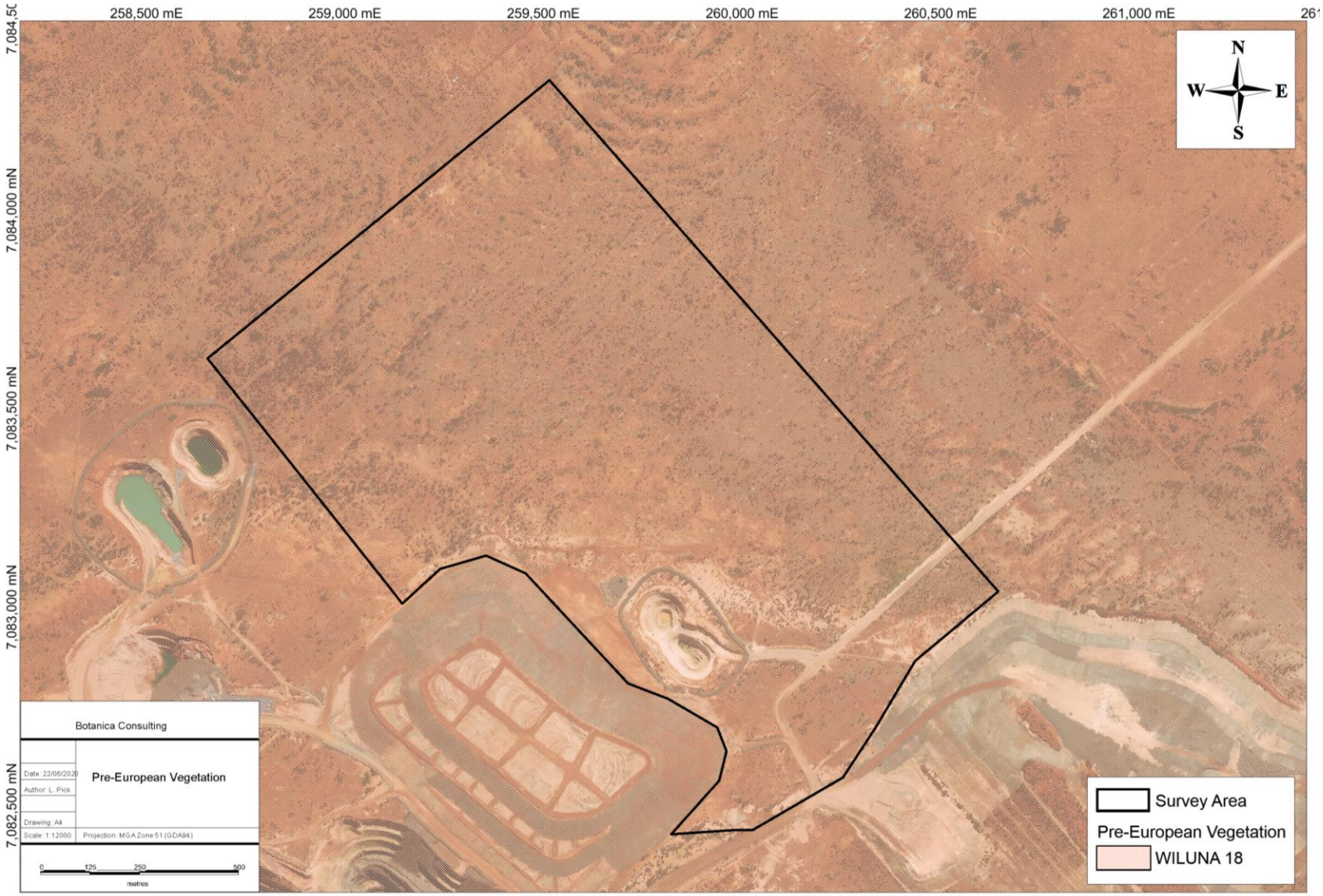
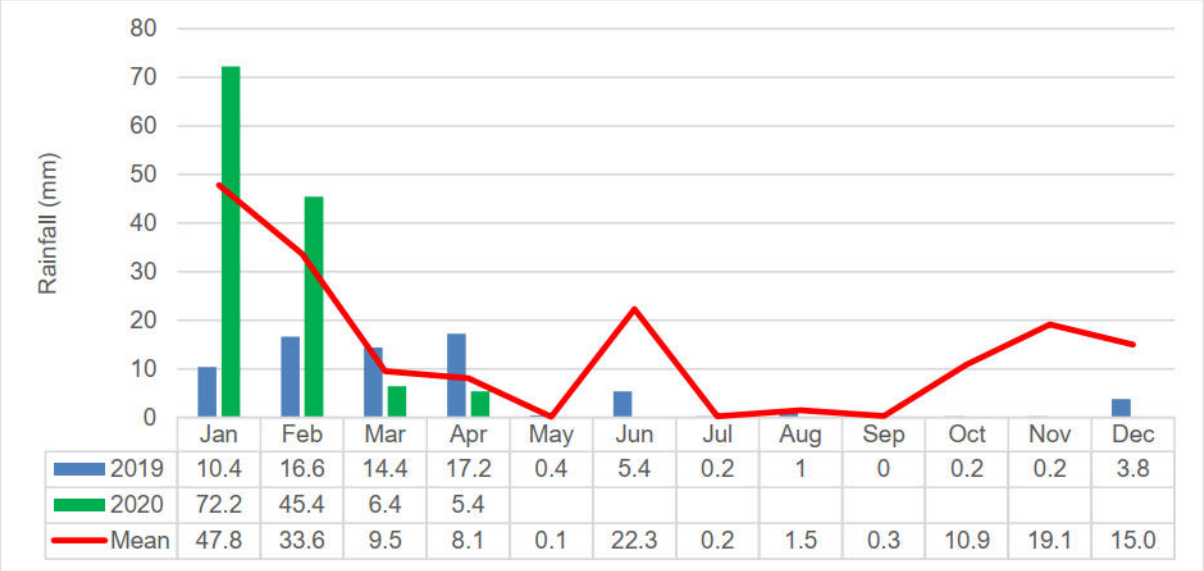


Figure 2-3: Pre-European Vegetation Associations within the survey area

2.4 Climate

The climate of the Eastern Murchison subregion is characterised as an arid climate with mainly winter rainfall and annual rainfall of approximately 200 mm (Beard, 1990; Cowan, 2001). Rainfall data for the Wiluna aero weather station (#13044) located approximately 40km south-west of the survey area is shown in Figure 2-4 (BoM, 2020). Monthly mean maximum temperature at Wiluna ranges from 38ºC during January to 19.4ºC in July. Mean monthly rainfall ranges from 38 mm in February to 5 mm in September, whilst the mean annual rainfall is 263 mm. Monthly rainfall was above average in January and February 2020 (Figure 2-4).



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	10.4	16.6	14.4	17.2	0.4	5.4	0.2	1	0	0.2	0.2	3.8
2020	72.2	45.4	6.4	5.4								
Mean	47.8	33.6	9.5	8.1	0.1	22.3	0.2	1.5	0.3	10.9	19.1	15.0

Figure 2-4: Monthly rainfall and mean monthly rainfall (January 2019 to April 2020) for the Wiluna Aero weather station #13044 (BoM, 2020)

2.5 Hydrology

According to the Geoscience Australia database (2015), there are no permanent or non-perennial inland waters within the survey area. The closest inland water to the survey area is Lake Ward which is located 10km north-east of the survey area. No permanent or non-perennial drainage lines intersect the survey area (Figure 2-5).

Groundwater Dependent Ecosystems (GDE) includes biological assemblages of species such as wetlands or woodlands that use groundwater either opportunistically or as their primary water source. For the purposes of this report, a GDE is defined as any vegetation community that derives part of its water budget from groundwater and must be assumed to have some degree of groundwater dependency. According to the BoM *Atlas of Groundwater Dependent Ecosystems* (BoM, 2019b) database, there are no known or potential aquatic/ terrestrial GDEs located within the survey area (Figure 2-5).

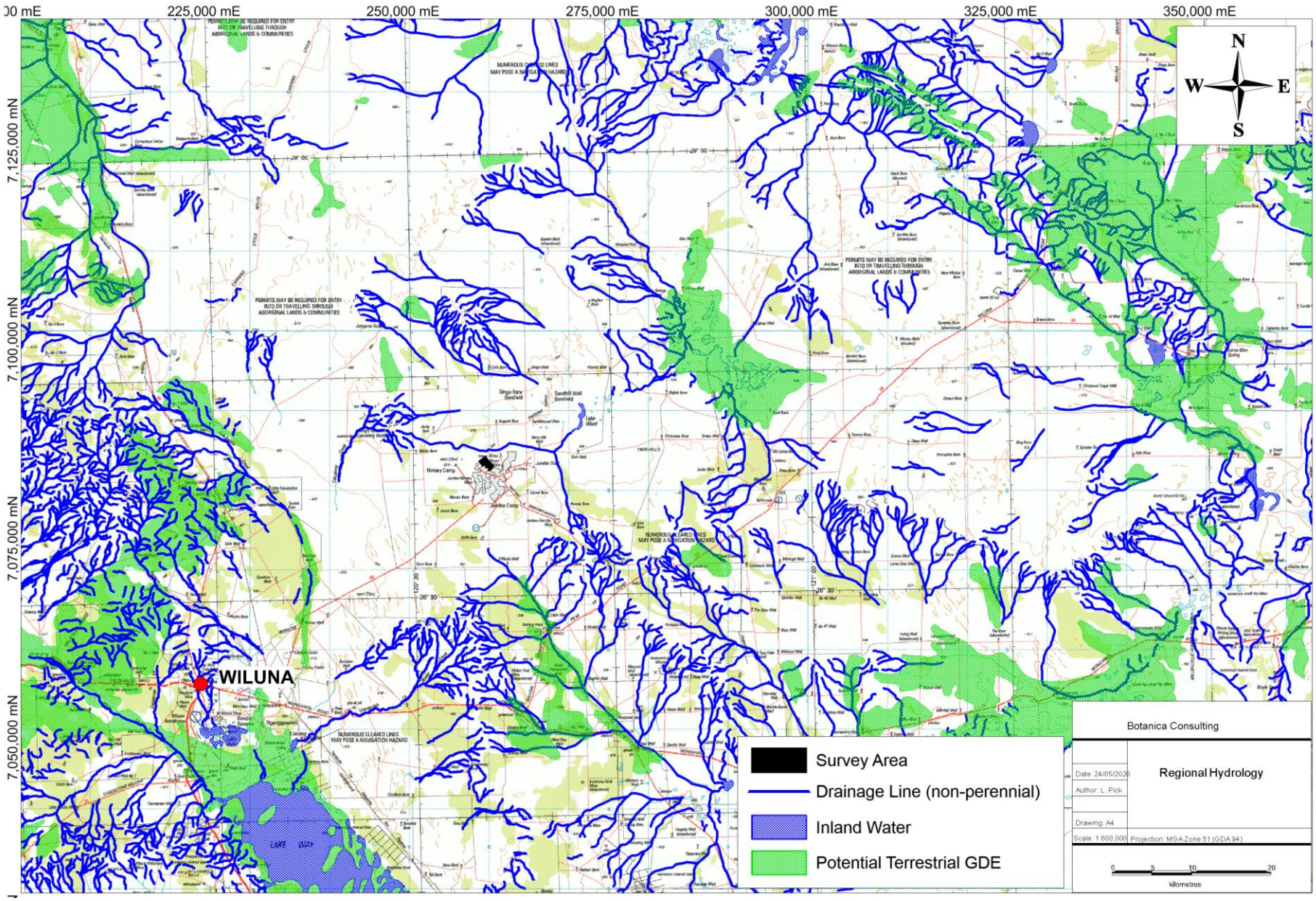


Figure 2-5: Surface Hydrology of the survey area

2.6 Land Use

The dominant land uses of the Eastern Murchison subregion include grazing native pastures (85.47%), unallocated crown reserves (11.34%), conservation (1.4%) and mining (1.79%) (Cowan, 2001). The survey area is located within the Jundee Pastoral Lease.

3 Survey Methodology

3.1 Desktop Assessment

Prior to the field assessment a literature review was undertaken of previous flora and fauna assessments conducted within the local region. Documents reviewed included:

- Animal Plant Mineral (2015). Vegetation Clearing Permit Application, Matilda Gold Project, Support Information for Matilda Mine Site Native Vegetation Clearing (Purpose) Permit Application, October 2015.
- Biota Environmental Sciences (2004). Waterloo and Amorac Extension Fauna Site Inspection. Unpublished report for LionOre.
- Botanica Consulting (2014). Level 1 Flora and Vegetation Survey of the Thunderbox to Bannockburn Project.
- Botanica Consulting (2016). Level 1 Flora and Fauna Survey Julius Project, Prepared for Echo Resources Limited.
- Botanica Consulting (2019a). Reconnaissance Flora/ Vegetation and Fauna Survey Orelia Project. Prepared for Echo Resources Limited.
- Botanica Consulting (2019b). Reconnaissance Flora/ Vegetation & Fauna Survey. Mt Joel Project. Prepared For Echo Resources Limited.
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- Ecologia (1995). Jundee Gold Project Environmental Assessment.
- Engenium (2015). Lake Maitland - Level 2 Vertebrate Fauna and Targeted Reptile Survey Report. Unpublished report for Toro Energy Limited
- Hall, N.J., Newbey, K.R., McKenzie, N.L., Keighery, G.J., Rolfe, J.K & Youngson, W. K., (1993). *The Biological survey of the Eastern Goldfields of Western Australia Part 7: Sandstone-Sir Samuel. Laverton-Leonora study area,* West. Aust. Mus. Suppl. 47.
- Outback Ecology (2008a). Bronzewing – Mt McClure, Application for a Purpose Permit to Clear Native Vegetation at the Bronzewing – Mt McClure Project – Corboys Prospect M53/15, prepared for View Resources
- Outback Ecology (2008b). Bronzewing – Mt McClure, Report on the distribution of *Eremophila pungens* (P4) within the Bronzewing – Mt McClure Gold Project, prepared for View Resources.
- Paul Armstrong and Associates (2001). Rare Flora Search, and Flora and Vegetation Survey of the Exploration and Mine Lease of Thunderbox.
- Paul Armstrong and Associates (2004). Rare Flora Search and Vegetation Survey at the Waterloo Prospects.
- Trudgen, M (1989). A Flora and Vegetation Survey of Part of the Cyprus Gold Mount McClure Gold Mining Leases. Report prepared for Cyprus Gold for inclusion in the Mt McClure Project Feasibility Study, Volume 2 Environmental Study

In addition to the literature review, searches of the following databases were undertaken to aid in the compilation of a list of flora and fauna taxa within the survey area:

- DBCA Priority/ Threatened Flora Database Search (DBCA, 2019a);

- DBCA Priority/ Threatened Ecological Communities Database Search (DBCA, 2019b);
- DBCA NatureMap Database (DBCA, 2020); and
- DAWE Protected Matters search tool (DAWE, 2020).

The NatureMap and Protected Matters Search were conducted for an area encompassing a 40km radius of the centre coordinates -26.357S 120.591E. It should be noted that these lists are based on observations from a broader area than the assessment area (40km radius) and therefore may include taxa not present. The databases also often include very old records that may be incorrect or in some cases the taxa in question have become locally or regionally extinct. Information from these sources should therefore be taken as indicative only and local knowledge and information also needs to be taken into consideration when determining what actual species may be present within the specific area being investigated.

The conservation significance of flora and fauna taxa was assessed using data from the following sources:

- *Environment Protection and Biodiversity and Conservation* (EPBC) *Act 1999*. Administered by the Australian Government (DAWE);
- *Biodiversity Conservation* (BC) *Act 2016*. Administered by the WA Government (DBCA);
- Red List produced by the Species Survival Commission (SSC) of the World Conservation Union (also known as the IUCN Red List – the acronym derived from its former name of the International Union for Conservation of Nature and Natural Resources). The Red List has no legislative power in Australia but is used as a framework for State and Commonwealth categories and criteria; and
- Priority Flora/ Fauna list. A non-legislative list maintained by DBCA for management purposes (fauna list released January 2019; flora list released December 2018).

The EPBC Act also requires the compilation of a list of migratory species that are recognised under international treaties including the:

- Japan Australia Migratory Bird Agreement 1981 (JAMBA)[1];
- China Australia Migratory Bird Agreement 1998 (CAMBA);
- Republic of Korea-Australia Migratory Bird Agreement 2007 (ROKAMBA); and
- Bonn Convention 1979 (The Convention on the Conservation of Migratory Species of Wild Animals).

Most but not all migratory bird species listed in the annexes to these bilateral agreements are protected in Australia as Matters of National Environmental Significance (MNES) under the EPBC Act. Descriptions of conservation significant species and communities are provided in Appendix 1.

[1] Most but not all species listed under JAMBA are also specially protected under Specially Protected Species of the BC Act.

3.2 Field Assessment

Botanica conducted a reconnaissance flora/ vegetation and fauna survey covering an area of 173 ha. The survey was conducted on the 17th April 2020 with the area traversed on foot and 4WD by two staff members.

3.2.1 Flora Assessment

Prior to the commencement of field work, aerial photography was inspected and obvious differences in the vegetation assemblages were identified. The different vegetation communities identified were then inspected during the field survey to assess their validity. A handheld GPS unit was used to record the coordinates of the boundaries between existing vegetation communities. At each sample point, the following information was recorded:

- GPS location;
- Photograph of vegetation;
- Dominant taxa for each stratum;
- All vascular taxa (including annual taxa);
- Landform classification;
- Vegetation condition rating;
- Collection and documentation of unknown plant specimens; and
- GPS location, photograph and collection of flora of conservation significance if encountered.

Unknown specimens collected during the survey were identified with the aid of samples housed at the BC Herbarium and Western Australian Herbarium. Vegetation was classified in accordance with NVIS classifications.

3.2.2 Fauna Assessment

Vegetation and landform units identified during the flora assessment have been used to define broad fauna habitat types across the site. This information has been supplemented with observations made during the fauna assessment.

The main aim of the fauna habitat assessment was to determine if it was likely that any species of conservation significance would be utilising the areas that maybe impacted on as a consequence of development at the site. The habitat information obtained was also used to aid in finalising the overall potential fauna list.

As part of the desktop literature review, available information on the habitat requirements of the species of conservation significance listed as possibly occurring in the area was researched. During the field survey, the habitats within the study area were assessed and specific elements identified, if present, to determine the likelihood of listed threatened species utilising the area and its significance to them.

Opportunistic observations of fauna species were made during all field survey work which involved a series of transects across the study area during the day including observations of bird species with binoculars. Secondary evidence of a species presence such as tracks, scats, skeletal remains, foraging evidence or calls were also noted if observed/heard.

3.2.3 Personnel involved

Lauren Pick- Senior Environmental Consultant (Bachelor of Science-Zoology/Conservation Biology)
Matthew Newlands-Environmental Technician

3.2.4 Scientific licences

Table 3-1: Scientific Licences of Botanica Staff coordinating the flora survey

Licensed staff	Permit Number	Valid Until
Lauren Pick	FB62000109 (Licence to flora for scientific purposes)	27/05/2019-27/05/2022

3.3 Survey limitations and constraints

It is important to note that flora surveys will entail limitations notwithstanding careful planning and design. Potential limitations are listed in Table 3-2.

The conclusions presented in this report are based upon field data and environmental assessments and/or testing carried out over a limited period of time and are therefore merely indicative of the environmental condition of the site at the time of the field assessments. Also, it should be recognised that site conditions can change with time. Information not available at the time of this assessment which may subsequently become available may alter the conclusions presented.

Some species are reported as potentially occurring based on there being suitable habitat (quality and extent) within the survey area or immediately adjacent. The habitat requirements and ecology of many of the species known to occur in the wider area are however often not well understood or documented. It can therefore be difficult to exclude species from the potential list based on a lack of a specific habitats or microhabitats within the survey area. As a consequence of this limitation, the potential species list produced is most likely an overestimation of those species that actually utilise the survey area for some purpose.

In recognition of survey limitations, a precautionary approach has been adopted for this assessment. Any flora and fauna species that would possibly occur within the survey area (or immediately adjacent), as identified through ecological databases, publications, discussions with local experts/residents and the habitat knowledge of the author, has been listed as having the potential to occur.

Table 3-2: Limitations and constraints associated with the survey

Variable	Potential Impact on Survey	Details
Access problems	Not a constraint	The survey was conducted via 4WD and on foot. Numerous tracks were located within the survey area, providing ease of access.
Competency/ Experience	Not a constraint	The BC personnel that conducted the survey were regarded as suitably qualified and experienced. **Coordinating Botanist/ Zoologist:** Lauren Pick **Data Interpretation:** Jim Williams, Lauren Pick and Greg Harewood.
Timing of survey, weather & season	Not a constraint	Fieldwork was completed within the EPA's recommended primary survey time period (i.e., 6-8 weeks post wet season (March – June) for the Eremaean Province and was conducted following cyclonic rainfall received in January to February 2020.
Area disturbance	Not a constraint	The area has been disturbed from exploration and cattle grazing; however, vegetation was mostly intact and comprised of native vegetation.
Survey Effort/ Extent	Not a constraint	Survey intensity was appropriate for the size/significance of the area with a reconnaissance survey completed to identify vegetation types/fauna habitats and conservation significant species/communities.
Availability of contextual information at a regional and local scale	Not a constraint	Threatened flora database searches provided by the DBCA were used to identify any potential locations of Threatened/Priority taxa. BoM, DWER, DPIRD, DBCA and DotEE databases were reviewed to obtain appropriate regional desktop information on the biophysical environment of the local region. Flora/ Fauna surveys within the local area have been limited however Botanica was able to obtain information about the regional area from previous flora/fauna assessments conducted within the region which provided context on the local environment.
Completeness	Minor constraint	In the opinion of Botanica, the survey area was covered sufficiently in order to identify vegetation assemblages. Few of the plants during the survey were in flower, however annual species present. It is estimated that approximately 90% of the flora within the survey area were able to be fully identified. The vegetation types for this study were based on visual descriptions of locations in the field. The distribution of these vegetation communities/ fauna habitats outside the study area is not known, however vegetation types identified were categorised via comparison to vegetation distributions throughout WA specified in the NVIS Major Vegetation Groups (DotEE, 2017b).

4 Results

4.1 Desktop Assessment

4.1.1 Flora and Vegetation

According to the results of the NatureMap search (DBCA, 2020), a total of 206 flora taxa have been recorded within a 40 km radius of the survey area. Dominant genera include *Acacia* and *Eremophila.* Results of database searches identified five introduced taxa as potentially occurring within a 40 km radius of the survey area:

1. *Carrichtera annua* (Wards weed)
2. *Cenchrus ciliaris* (Buffel Grass)
3. *Cynodon dactylon* (Couch)
4. *Polypogon monspeliensis* (Annual Beard grass)
5. *Tribulus terrestris* (Caltrop)

The results of the literature review, combined search of the DBCA's Flora of Conservation Significance databases (DBCA, 2019a) and DAWE protected matters search (DAWE, 2020) recorded no Threatened Flora or Priority Flora within the survey area. No Threatened Flora and a total of eleven Priority Flora taxa were listed on the databases as occurring within a 40km radius of the survey area (map of flora locations provided in Appendix 2). A description of the known habitat for each taxon is provided in Table 4-1.

Table 4-1: Likelihood of occurrence for Threatened and Priority Flora within the survey area

Taxon	EPBC Act	BC Act	DBCA Priority Rating	Habitat Description (WAHERB, 2020)	Habitat present in Survey Area
Aristida jerichoensis var. *subspinulifera*			P3	Hardpan plains.	No
Eremophila arguta			P1	Loamy soils, floodplains.	No
Eremophila congesta			P1	Lateritic outcrops in greenstone hills, stony quartzite slopes.	No
Eremophila pungens			P4	Sandy loam, clayey sand over laterite. Plains, ridges, breakaways.	No
Hemigenia exilis			P4	Rocky lower slopes of hill sides, drainage lines.	No
Ptilotus luteolus			P3	Rocky slopes, screes, and ridges	No
Sida picklesiana			P3	Breakaways and outcrops, banded ironstone.	No
Stackhousia clementii			P3	Skeletal soils. Sandstone hills.	No
Tribulus adelacanthus			P3	Lower slopes. Gravelly loam soils.	No
Vittadinia pustulata			P3	Sandy soils.	No
Xanthoparmelia nashii			P3	Granite rocks	No

4.1.2 Fauna

According to the results of the NatureMap search (DBCA, 2020), a total of 152 vertebrate fauna taxa have been recorded within a 40 km radius of the survey area including 87 bird species, 5 amphibians, 16 mammals and 44 reptiles. Combined results of database searches identified nine introduced taxa as potentially occurring within the survey area, these being:

1. *Camelus dromedaries* (Camel)
2. *Canis lupus familiaris* (Dog)
3. *Capra hircus* (Goat)
4. *Columba livia* (Rock Pigeon)
5. *Equus asinus* (Donkey)
6. *Felis catus* (Cat)
7. *Mus musculus* (House Mouse)
8. *Oryctolagus cuniculus* (Rabbit)
9. *Vulpes vulpes* (Red Fox)

Fauna of conservation significance identified during the literature review as previously being recorded in the general area were assessed and ranked for their likelihood of occurrence within the survey area itself (Table 4-2). The rankings and criteria used were:

- Would Not Occur: There is no suitable habitat for the species in the survey area and/or there is no documented record of the species in the general area since records have been kept and/or the species is generally accepted as being locally/regionally extinct (supported by a lack of recent records).
    - Locally Extinct: Populations no longer occur within a small part of the species natural range, in this case within 10 or 20km of the survey area. Populations do however persist outside of this area.
    - Regionally Extinct: Populations no longer occur in a large part of the species natural range, in this case within the northern goldfields region. Populations do however persist outside of this area.
- Unlikely to Occur: The survey area is outside of the currently documented distribution for the species in question, or no suitable habitat (type, quality and extent) was identified as being present during the field assessment. Individuals of some species may occur occasionally as vagrants/transients especially if suitable habitat is located nearby but the site itself would not support a population or part population of the species
- Possibly Occurs: Survey area is within the known distribution of the species in question and habitat of at least marginal quality was identified as likely to be present during the field survey and literature review, supported in some cases by recent records being documented in literature from within or near the survey area. In some cases, while a species may be classified as possibly being present at times, habitat may be marginal (e.g. poor quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.

- Known to Occur: The species in question has been positively identified as being present (for sedentary species) or as using the survey area as habitat for some other purpose (for non-sedentary/mobile species) during field surveys within or near the survey area. This information may have been obtained by direct observation of individuals or by way of secondary evidence (e.g. tracks, foraging debris, scats). In some cases, while a species may be classified as known to occur, habitat may be marginal (e.g. poor quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.

Table 4-2: Likelihood of Occurrence – Fauna Species of Conservation Significance

Species	Conservation Status			Habitat Description	Likelihood of Occurrence
	EPBC Act	BC Act	DBCA Priority		
Malleefowl *Leipoa ocellata*	VU	VU	-	Scrublands and woodlands dominated by mallee and wattle species (DAWE, 2020).	Unlikely to Occur. No recent records nearby and habitat unsuitable/very marginal
Grey Falcon *Falco hypoleucos*		VU		The species frequents timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses. The species has been observed hunting in treeless areas and frequents tussock grassland and open woodland, especially in winter (DAWE, 2020).	Possibly Occurs aerially over survey area on very rare occasions. No suitable breeding habitat.
Peregrine Falcon *Falco peregrinus*	-	OS	-	The Peregrine Falcon is found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites, and prefers coastal and inland cliffs or open woodlands near water, and may even be found nesting on high city buildings (Birdlife Australia, 2018).	Possibly Occurs aerially over survey area on very rare occasions. No suitable breeding habitat.
Migratory Shorebirds (Various species)	MI	IA	-	Prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline salt lakes inland (DAWE, 2020).	Would Not Occur. No Suitable Habitat.
Grey Wagtail *Motacilla cinerea*	MI	IA	-	Running water in disused quarries, sandy, rocky streams in escarpments and rainforest, sewerage ponds, ploughed fields and airfields (Morecombe 2004).	Would Not Occur. No documented records in goldfields region
Yellow Wagtail *Motacilla flava*	MI	IA	-	Occurs in a variety of damp or wet habitats with low vegetation, from rushy pastures, meadows, hay fields and marshes to damp steppe and grassy tundra (Morecombe 2004).	Would Not Occur. No documented records in the goldfields region.
Night Parrot *Pezoporus occidentalis*	EN	CR	-	Broad habitat requirements include areas of old-growth spinifex (*Triodia*) for roosting and nesting, together with foraging habitats that are likely to include various native grasses and herbs, and may or may not contain shrubs or low trees. (DPaW, 2017).	Unlikely to Occur. No recent records nearby and no suitable habitat.
Princess Parrot *Polytelis alexandrae*	VU	-	P4	Inhabits sand dunes and sand flats in the arid zone of western and central Australia. It occurs in open savanna woodlands and shrublands that usually consist of scattered stands of *Eucalyptus* (including *E. gongylocarpa*, *E. chippendalei* and mallee species), *Casuarina* or *Allocasuarina* trees; an understorey of shrubs such as *Acacia* (especially *A. aneura*), *Cassia*, *Eremophila*, *Grevillea*, *Hakea* and *Senna*; and a ground cover dominated by *Triodia* species (DAWE, 2020)	Unlikely to Occur. Rarely recorded this far south and no recent records nearby.
Brush-tailed Mulgara *Dasycercus blythi*	-	-	P4	Occurs on sand dunes with sparse cover of sandhill cain grass or areas around salt lakes (DAWE, 2020).	Unlikely to Occur. No recent records nearby and habitat unsuitable/very marginal.

Species	Conservation Status			Habitat Description	Likelihood of Occurrence
	EPBC Act	BC Act	DBCA Priority		
Greater Bilby *Macrotis lagotis*	VU	VU		Suitable habitat includes; open tussock grassland (both grasses and forbs) growing on uplands and hills, mulga woodland/shrubland (both pure mulga and mixed stands of mulga/witchetty bush) growing on ridges and rises, and hummock grassland growing on sand plains and dunes, drainage systems, salt lake systems and other alluvial areas Pavey, C., 2006).	Unlikely to Occur. No recent records nearby and habitat unsuitable/very marginal

4.2 Field Assessment

4.2.1 Vegetation Types

Two vegetation types were identified within the survey area. These vegetation types were identified within two landform types and comprised of one major vegetation group according to the NVIS, Major Vegetation Group (MVG) definition (Table 4-3). These vegetation types were represented by a total of 13 Families, 19 Genera and 37 Taxa as listed in Appendix 3. A map showing the vegetation types present in the survey area is provided in Figure 4-1.

Table 4-3: Summary of vegetation types within the survey area

Landform	Major Vegetation Group	Vegetation Type	Vegetation Code	Area (ha)	Area (%)
Clay-Loam Plain	Acacia Forests and Woodland (MVG 6)	Low woodland of *Acacia incurvaneura* over low shrubland of *Eremophila forrestii/ E. margarethae* and low tussock grassland of *Eragrostis eriopoda* on clay-loam plain	CLP-AFW1	51	29.2
Sand-Loam Plain	Acacia Forests and Woodland (MVG 6)	Low woodland of *Acacia caesaneura/ A. incurvaneura* over mid open shrubland of *Eremophila forrestii* and low hummock grassland of *Triodia basedowii* on sand-loam plain	SLP-AFW1	88	51.0
N/A	N/A	Cleared/ Disturbed Vegetation	CV	34	19.7
TOTAL				**173**	**100**

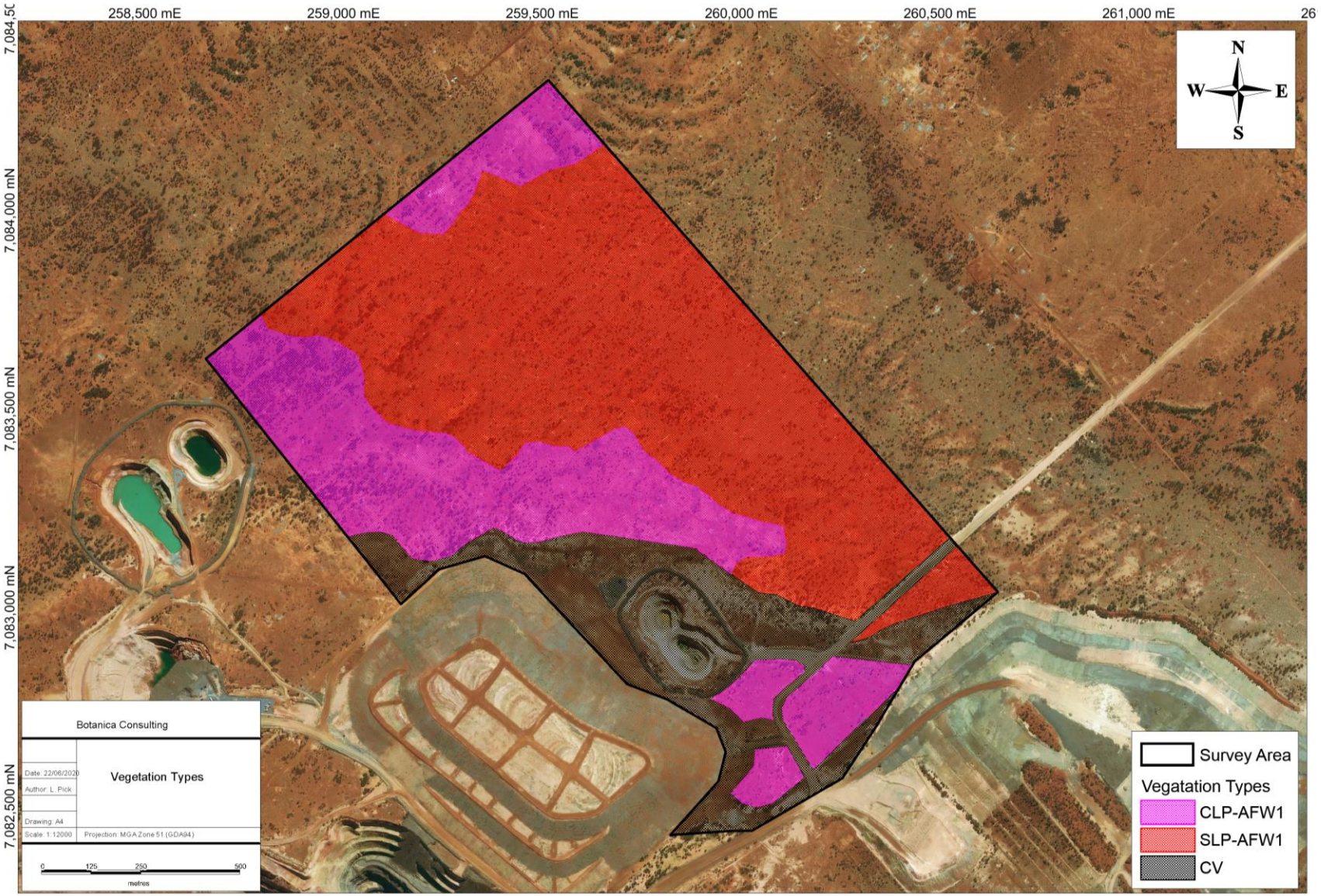


Figure 4-1: Vegetation types within the survey area

Clay-Loam Plain: Acacia Forests and Woodlands

4.2.1.1 Low woodland of *Acacia incurvaneura* over low shrubland of *Eremophila forrestii/ E. margarethae* and low tussock grassland of *Eragrostis eriopoda* on clay-loam plain (CLP-AFW1)

The total flora recorded within this vegetation type was represented by a total of 11 Families, 14 Genera and 22 Taxa (Plate 4-1). Dominant taxa are shown in Table 4-4. According to the NVIS, this vegetation community is best represented by the MVG 6-Acacia Forests and Woodlands (DotEE, 2017b).

Table 4-4: Vegetation assemblage for Low woodland of *Acacia incurvaneura* over low shrubland of *Eremophila forrestii/ E. margarethae* and low tussock grassland of *Eragrostis eriopoda* on clay-loam plain

Life Form/Height Class	Canopy Cover	Dominant taxa present
Tree <10m	30-70%	*Acacia incurvaneura*
Shrub <1m	30-70%	*Eremophila forrestii* subsp. *forrestii* *Eremophila margarethae*
Tussock Grass <1m	30-70%	*Eragrostis eriopoda*



Plate 4-1: Low woodland of *Acacia incurvaneura* over low shrubland of *Eremophila forrestii/ E. margarethae* and low tussock grassland of *Eragrostis eriopoda* on clay-loam plain

Sand-Loam Plain: Acacia Forests and Woodlands

4.2.1.2 Low woodland of *Acacia caesaneura/ A. incurvaneura* over mid open shrubland of *Eremophila forrestii* and low hummock grassland of *Triodia basedowii* on sand-loam plain (SLP-AFW1)

The total flora recorded within this vegetation type was represented by a total of 11 Families, 12 Genera and 27 Taxa (Plate 4-2). Dominant taxa are shown in Table 4-5. According to the NVIS, this vegetation community is best represented by the MVG 6-Acacia Forests and Woodlands (DotEE, 2017b).

Table 4-5: Vegetation assemblage for Low woodland of *Acacia caesaneura/ A. incurvaneura* over mid open shrubland of *Eremophila forrestii* and low hummock grassland of *Triodia basedowii* on sand-loam plain

Life Form/Height Class	Canopy Cover	Dominant taxa present
Tree <10m	30-70%	*Acacia caesaneura* *Acacia incurvaneura*
Shrub 1-2m	10-30%	*Eremophila forrestii* subsp. *forrestii*
Hummock Grass <1m	30-70%	*Triodia basedowii*



Plate 4-2: Low woodland of *Acacia caesaneura/ A. incurvaneura* over mid open shrubland of *Eremophila forrestii* and low hummock grassland of *Triodia basedowii* on sand-loam plain

4.2.2 Vegetation Condition

Based on the vegetation condition rating scale adapted from Keighery, 1994 and Trudgen, 1988 (Appendix 4), vegetation was rated as 'good' (Table 4-6; Figure 4-2). 'Good' condition depicts 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.

Table 4-6: Vegetation Condition within the survey area

Condition Rating	Area (ha)	Area (%)
Cleared/ Disturbed Vegetation	34	19.7
Good	139	80.2

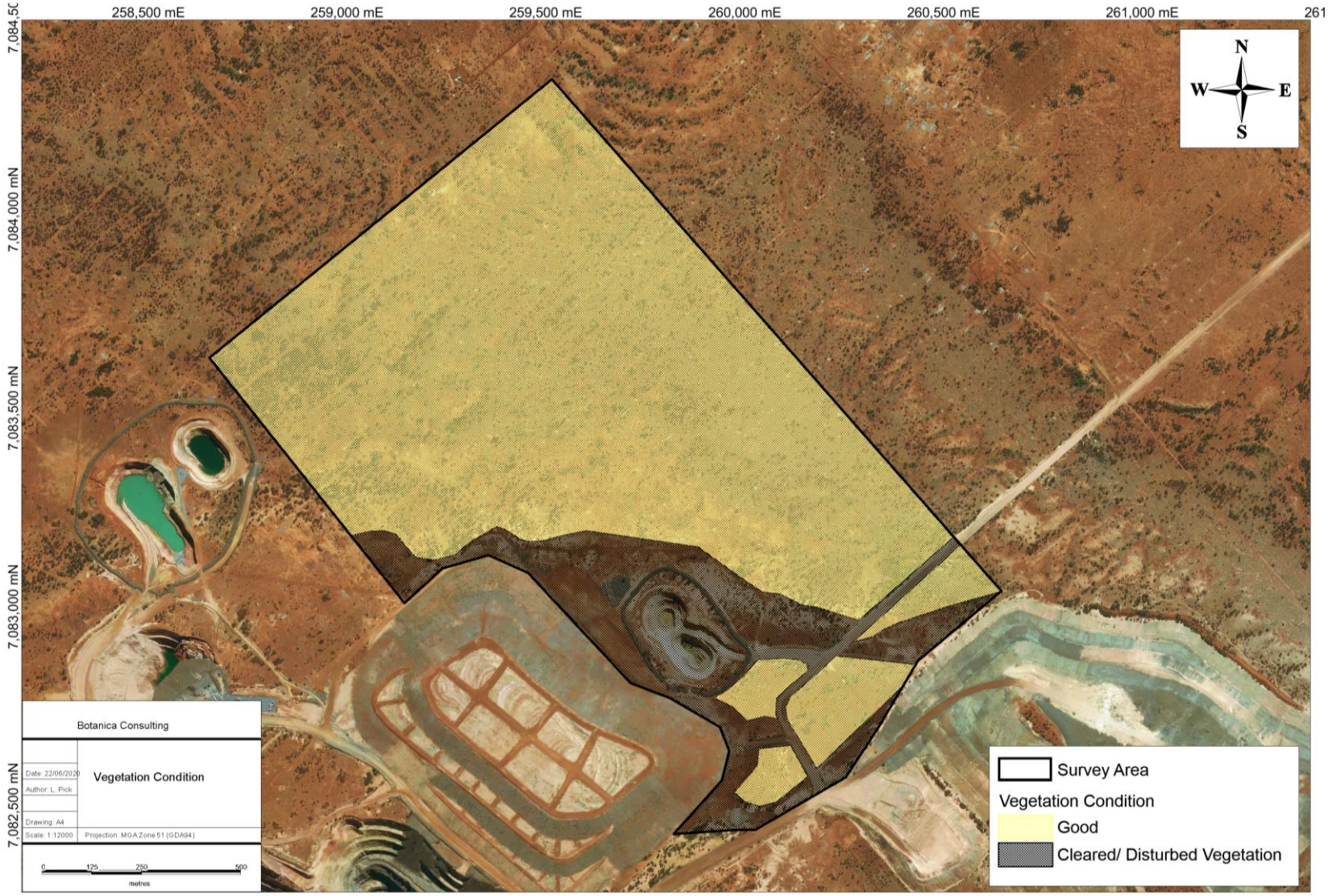


Figure 4-2: Vegetation Condition within the survey area

4.2.3 Fauna Habitat

The broad scale terrestrial fauna habitats within the survey area presented below are based on vegetation and associated landforms identified during the flora and vegetation assessment. The extent of the identified fauna habitats and a summary description of each are provided in Table 4-7 below.

Table 4-7: Main Terrestrial Fauna Habitats within the survey area

Fauna Habitat Description	Example Image
Clay-Loam Plain Acacia Woodland (approximate area = 51 ha; 29.2%).	
Sand-Loam Plain Acacia Woodland (approximate area = 88 ha; 51%).	



Figure 4-3: Main Terrestrial Fauna Habitats within the survey area

A list of expected vertebrate fauna species likely to occur in the survey area was compiled from information obtained during the literature review and is presented in Appendix 5. The results of some previous fauna surveys carried out in the general area are also summarised in this species listing as are the DBCA NatureMap database search results. Table 4-8 summarises the numbers of potential species based on vertebrate class considered likely to be present in the general vicinity of the survey area based on the complete list held Appendix 5.

Not all species listed in existing databases and publications as potentially occurring within the region (i.e. *EPBC Act* Threatened Fauna and Migratory species lists, DBCA NatureMap Fauna Database and various publications) are considered likely to be present within the survey area. The list of potential fauna takes into consideration that firstly the species in question is not known to be locally/regionally extinct and secondly that suitable habitat for each species, as identified during the habitat assessment, is present within the survey area, though compiling an accurate list has limitations (see **Section 3.3 Survey limitations and constraints**).

Table 4-8: Summary of Potential Vertebrate Fauna Species

Group	Total number of potential species	Potential number of specially protected species	Potential number of migratory species	Potential number of priority species
Amphibians	11	0	0	0
Reptiles	90	0	0	0
Birds	109	1	0	1
Non-Volant Mammals	24[8]	0	0	0
Volant Mammals (Bats)	11	0	0	0
Total	**245[8]**	**1**	**0**	**2**

Superscript = number of introduced species included in the total. Note: Where a species state and federal conservation status is different, the highest category is used.

Despite the omission of some species it should be noted that the list provided is still very likely an over estimation of the fauna species utilising the survey area (either on a regular or infrequent basis) as a result of the precautionary approach adopted for the assessment. At any one time only, a subset of the listed potential species is likely to be present within the bounds of the study area.

4.2.4 Introduced Species

Two introduced species were recorded during the survey; *Cynodon dactylon* (Couch) and *Tribulus terrestris* (Caltrop). Neither species is listed as a Declared Pest under the *Biosecurity and Agriculture Management (BAM) Act 2007*.

No introduced fauna were observed during the survey however there was evidence of cattle tracks and scats within the survey area.

4.2.5 Significant Flora

According to the EPA *Environmental Factor Guideline for Flora and Vegetation* (EPA, 2016a) significant flora includes:

- flora being identified as threatened or priority species;
- locally endemic flora or flora associated with a restricted habitat type (e.g. surface water or groundwater dependent ecosystems);
- new species or anomalous features that indicate a potential new species;
- flora 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; and
- flora with relictual status, being representative of taxonomic groups that no longer occur widely in the broader landscape.

No significant flora were identified within the survey area. A map showing regional Threatened and Priority Flora known records in relation to the survey area is provided in Appendix 2.

4.2.6 Significant Vegetation

According to the EPA *Environmental Factor Guideline for Flora and Vegetation* (EPA, 2016b) significant vegetation includes:

- vegetation being identified as threatened or priority ecological communities;
- vegetation with restricted distribution;
- vegetation subject to a high degree of historical impact from threatening processes;
- vegetation which provides a role as a refuge; and
- vegetation providing an important function required to maintain ecological integrity of a significant ecosystem.

No significant vegetation was identified within the survey area. Seven Priority 1 Ecological Communities (PEC) occur within a 40km radius of the survey area (see Appendix 2) none of which occur within the survey area. These PECs are underground invertebrate assemblages and are not pertinent to vegetation.

1. Hinkler Well calcrete groundwater assemblage type on Carey palaeodrainage on Lake Way Station (intersects the on-playa development envelope);
2. Lake Violet south and lake Violet calcrete groundwater assemblage types on Carey palaeodrainage on Millbillillie Station (intersects the on-playa development envelope);
3. Lake Way South calcrete groundwater assemblage type on Carey palaeodrainage on Lake Way Station;
4. Uramurdah Lake calcrete groundwater assemblage type on Carey palaeodrainage on Millbillillie Station;
5. Wiluna BF calcrete groundwater assemblage type on Carey palaeodrainage on Millbillillie Station;
6. Jundee South Hill calcrete groundwater assemblage type on Carnegie palaeodrainage on Jundee Station; and
7. Jundee Homestead calcrete groundwater assemblage type on Carnegie palaeodrainage on Jundee Station.

4.2.7 Significant Fauna

According to the EPA *Environmental Factor Guideline for Terrestrial Fauna* (EPA, 2016d) significant fauna includes:

- Fauna being identified as a threatened or priority species;
- Fauna species with restricted distribution;
- Fauna subject to a high degree of historical impact from threatening processes; and
- Fauna providing an important function required to maintain the ecological integrity of a significant ecosystem.

No significant fauna species were observed during the survey.

The current status of some species on site and/or in the general area is difficult to determine, however, based on the habitats present and, in some cases, direct observations or recent nearby records, the following species of conservation significance can be regarded as possibly utilising the survey area for some purpose at times, these being:

- **Greg Falcon *Falco hypoleucos* – P4 (DBCA Priority Species)**
  The species potentially utilises some sections of the survey area as part of a much larger home range, though records in this area are rare and therefore it is only likely to be present very occasionally. No suitable breeding habitat. No significant impact likely.

- **Peregrine Falcon *Falco peregrinus* – OS (BC Act)**
  The species potentially utilises some sections of the survey area as part of a much larger home range, though records in this area are rare and therefore it is only likely to be present very occasionally. No suitable breeding habitat. No significant impact likely.

It should be noted that while habitats onsite for one or more of the species listed above are considered possibly suitable, some or all may be marginal in extent/quality and therefore the fauna species considered as possibly occurring may in fact only visit the area for short periods as infrequent vagrants.

4.3 Matters of National Environmental Significance

4.3.1 *Environment Protection and Biodiversity Conservation Act 1999*

The EPBC Act protects matters of national environmental significance, and is used by the Commonwealth DotEE to list threatened taxa and ecological communities into categories based on the criteria set out in the Act (www.environment.gov.au/epbc/index.html). The Act provides a national environmental assessment and approval system for proposed developments and enforces strict penalties for unauthorised actions that may affect matters of national environmental significance. Matters of national environmental significance as defined by the Commonwealth EPBC Act include:

- Nationally threatened flora species;
- World heritage properties;
- National heritage places;
- Wetlands of international importance (often called ‘Ramsar’ wetlands after the international treaty under which such wetlands are listed);
- Nationally threatened ecological communities;
- Commonwealth marine area;
- The Great Barrier Reef Marine Park; and

- Nuclear actions (including uranium mining) a water resource, in relation to coal seam gas development and large coal mining development.

No matters of national environmental significance as defined by the Commonwealth EPBC Act were identified within the survey area.

4.4 Matters of State Environmental Significance

4.4.1 Environmental Protection Act WA 1986

The EP Act provides for the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment. The Act is administered by The Department of Water and Environment Regulation (DWER), which is the State Government's environmental regulatory agency.

Under Section 51C of the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations (Regulations) WA 2004* any clearing of native vegetation in Western Australia that is not eligible for exemption under Schedule 6 of the *EP Act 1986* or under the Regulations 2004 requires a clearing permit from the DWER or DMIRS. Under Section 51A of the *EP Act 1986* native vegetation includes aquatic and terrestrial vegetation indigenous to Western Australia, and intentionally planted vegetation declared by regulation to be native vegetation, but not vegetation planted in a plantation or planted with commercial intent. Section 51A of the *EP Act 1986* defines clearing as "the killing or destruction of; the removal of; the severing or ringbarking of trunks or stems of; or the doing of substantial damage to some or all of the native vegetation in an area, including the flooding of land, the burning of vegetation, the grazing of stock or an act or activity that results in the above". Exemptions under Schedule 6 of the EP Act and the EP Regulations do not apply in ESAs as declared under Section 51B of the EP Act or TEC listed under State and Commonwealth legislation.

No evidence of the survey area containing any TEC or Threatened Flora or Fauna was found during the survey period. The survey area is not located within an ESA.

4.4.2 Biodiversity Conservation Act 2016

This Act is used by the Western Australian DBCA for the conservation and protection of biodiversity and biodiversity components in Western Australia and to promote the ecologically sustainable use of biodiversity components in the State. Taxa are classified as 'Threatened" when their populations are geographically restricted or are threatened by local processes (see following sections for Threatened definitions). Under this Act all native flora and fauna are protected throughout the State. Financial penalties are enforced under this Act if threatened species are collected without an appropriate licence.

Under Section 54(1) of the BC Act, habitat is eligible for listing as critical habitat if:
(a) it is critical to the survival of a threatened species or a threatened ecological community; and
(b) its listing is otherwise in accordance with the ministerial guidelines.

No threatened species or critical habitat listed under the BC Act were recorded within the survey area.

4.4.3 Conservation Reserves

The survey area is not located within a proposed or vested Conservation Reserve. The survey is not located within DBCA managed land. The closest DBCA managed land is the ex. Lorna Glenn UCL, which is located approximately 43km east of the survey area. A map showing areas of proposed and vested Conservation Reserves in relation to the survey area is provided in Appendix 2.

4.5 Native Vegetation Clearing Principles

Based on the outcomes from the survey undertaken, as presented in this report, Botanica provides the following comments regarding the native vegetation clearing principles listed under Schedule 5 of the EP Act (Table 4-9).

Table 4-9: Assessment of development within the survey area against native vegetation clearing principles

Letter	Principle	Assessment	Outcome
Native vegetation should not be cleared if it:			
(a)	comprises a high level of biological diversity.	Vegetation identified within the survey area is not considered to be of high biological diversity and is well represented in the local area.	Clearing is unlikely to be at variance to this principle
(b)	comprises the whole or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to WA.	No significant fauna were observed within the survey area. Majority of the survey area comprises of broad fauna habitats that are typical of those in the wider region. No water bodies (both perennial/ non-perennial) occur within the survey area.	Clearing may be at variance to this principle
(c)	includes, or is necessary for the continued existence of rare flora.	No Threatened Flora taxa, pursuant to the BC Act and the EPBC Act were identified within the survey area.	Clearing is unlikely to be at variance to this principle
(d)	comprises the whole or part of or is necessary for the maintenance of a threatened ecological community (TEC).	No TEC listed under the EPBC Act or by the BC Act occur within the survey area.	Clearing is unlikely to be at variance to this principle
(e)	is significant as a remnant of native vegetation in an area that has been extensively cleared	The survey area occurs within the pre-European Beard vegetation association Wiluna 18 which retains >98% of the original pre-European vegetation extent.	Clearing is unlikely to be at variance to this principle
(f)	is growing, in, or in association with, an environment associated with a watercourse or wetland	There are no inland waters (lakes/ playas) or drainage lines within the survey area. No vegetation growing in, or in association with a watercourse or wetland were identified within the survey area.	Clearing is unlikely to be at variance to this principle
(g)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	The Project area occurs within the pre-European Beard vegetation association Wiluna 18 which retains >98% of the original pre-European vegetation extent. Clearing within these vegetation associations is not likely to lead to land degradation issues such as salinity, water logging or acidic soils.	Clearing is unlikely to be at variance to this principle
(h)	Native vegetation should not be cleared if the	The survey area is not located within a conservation area. The closest conservation	Clearing is unlikely to be at variance to this

Letter	Principle	Assessment	Outcome
Native vegetation should not be cleared if it:			
	clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.	reserve is the ex. Lorna Glenn UCL, which is located approximately 43km south of the survey area. Given the distance from the survey area, impacts to the environmental values of this conservation reserve are unlikely.	principle
(i)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	There are no inland waters (lakes/ playas) or drainage lines within the survey area. No vegetation growing in, or in association with a watercourse or wetland were identified within the survey area. Most rainfall is lost by evaporation or surface runoff. Only a small portion infiltrates the soil and recharges the groundwater.	Clearing is unlikely to be at variance to this principle
(j)	Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding	Rainfall is unreliable and highly variable with an average rainfall of 200mm and an evaporation rate of 2461mm. The region is not prone to flooding and does not contain ephemeral water sources.	Clearing is unlikely to be at variance to this principle

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Appendix 1: Conservation Ratings BC Act and EPBC Act

Definitions of Conservation Significant Species

Code	Category
State categories of threatened and priority species	
Threatened Species (T) 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).	
CR	**Critically Endangered** 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 2018 for critically endangered flora.
EN	**Endangered** 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** 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 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 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 Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection. Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.	
IA	**International Agreement/ Migratory** 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

Code	Category
	of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.
CD	**Species of special conservation interest** 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 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.	
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.
Commonwealth categories of threatened species	
EX	**Extinct** Taxa where there is no reasonable doubt that the last member of the species has died.
EW	**Extinct in the Wild** Taxa where it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or 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.
CR	**Critically Endangered** Taxa that are facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
EN	**Endangered** Taxa which are not critically endangered and is facing a very high risk of extinction in the

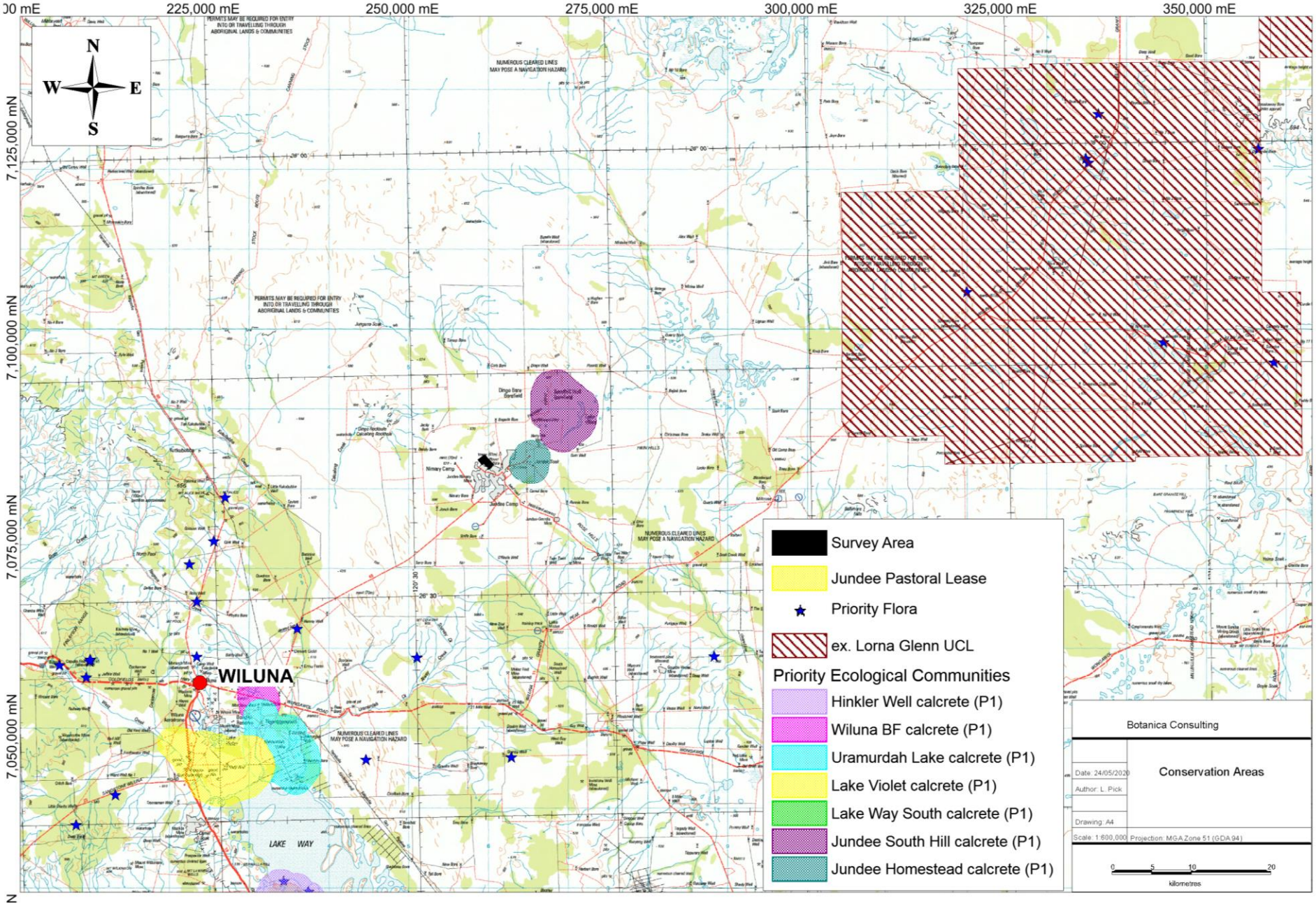
Code	Category
	wild in the near future, as determined in accordance with the prescribed criteria.
VU	**Vulnerable** Taxa which are not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
CD	**Conservation Dependent** Taxa which are 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 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.

Definitions of Conservation Significant Communities

Category Code	Category
State categories of Threatened Ecological Communities (TEC)	
PD	**Presumed Totally Destroyed** An ecological community will be listed as Presumed Totally Destroyed if there are no recent records of the community being extant and either of the following applies: • records within the last 50 years have not been confirmed despite thorough searches or known likely habitats or; • all occurrences recorded within the last 50 years have since been destroyed.
CR	**Critically Endangered** An ecological community will be listed as Critically Endangered when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future, meeting any one of the following criteria: The estimated geographic range and distribution has been reduced by at least 90% and is either continuing to decline with total destruction imminent, or is unlikely to be substantially rehabilitated in the immediate future due to modification; The current distribution is limited i.e. highly restricted, having very few small or isolated occurrences, or covering a small area; The ecological community is highly modified with potential of being rehabilitated in the immediate future.
EN	**Endangered** An ecological community will be listed as Endangered when it has been adequately surveyed and is not Critically Endangered but is facing a very high risk of total destruction in the near future. The ecological community must meet any one of the following criteria: The estimated geographic range and distribution has been reduced by at least 70% and is either continuing to decline with total destruction imminent in the short-term future, or is unlikely to be substantially rehabilitated in the short-term future due to modification; The current distribution is limited i.e. highly restricted, having very few small or isolated occurrences, or covering a small area; The ecological community is highly modified with potential of being rehabilitated in the short-term future.
VU	**Vulnerable** An ecological community will be listed as Vulnerable when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing high risk of total destruction in the medium to long term future. The ecological community must meet any one of the following criteria: The ecological community exists largely as modified occurrences that are likely to be able to be substantially restored or rehabilitated; The ecological community may already be modified and would be vulnerable to threatening process, and restricted in range or distribution;

Category Code	Category
	The ecological community may be widespread but has potential to move to a higher threat category due to existing or impending threatening processes.
Commonwealth categories of Threatened Ecological Communities (TEC)	
CE	**Critically Endangered** If, at that time, an ecological community is facing an extremely high risk of extinction in the wild in the immediate future (indicative timeframe being the next 10 years).
EN	**Endangered** If, at that time, an ecological community is not critically endangered but is facing a very high risk of extinction in the wild in the near future (indicative timeframe being the next 20 years).
VU	**Vulnerable** If, at that time, an ecological community is not critically endangered or endangered, but is facing a high risk of extinction in the wild in the medium–term future (indicative timeframe being the next 50 years).
Priority Ecological Communities (PEC)	
P1	**Poorly-known ecological communities** Ecological communities with apparently few, small occurrences, all or most not actively managed for conservation (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) and for which current threats exist.
P2	**Poorly-known ecological communities** Communities that are known from few small occurrences, all or most of which are actively managed for conservation (e.g. within national parks, conservation parks, nature reserves, State forest, un-allocated Crown land, water reserves, etc.) and not under imminent threat of destruction or degradation.
P3	**Poorly known ecological communities** 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: Communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or; Communities made up of large, and/or widespread occurrences, that may or not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing and inappropriate fire regimes.
P4	**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.
P5	**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 2: Regional map of the survey area in relation to conservation areas



Appendix 3: List of species identified within each vegetation type

Blue text (A)-annual species (WAHERB, 2020); Green text (W)-introduced species (WAHERB, 2020).

Family	Genus	Taxon	CLP-AFW1	SLP-AFW1
Amaranthaceae	*Ptilotus*	*obovatus*	*	*
Amaranthaceae	*Ptilotus*	*schwartzii*		*
Fabaceae	*Acacia*	*aptaneura*		*
Fabaceae	*Acacia*	*caesaneura*		*
Fabaceae	*Acacia*	*incurvaneura*	*	*
Fabaceae	*Acacia*	*mulganeura*		*
Fabaceae	*Acacia*	*pachyacra*	*	*
Fabaceae	*Acacia*	*pruinocarpa*	*	*
Fabaceae	*Acacia*	*tetragonophylla*	*	*
Loranthaceae	*Amyema*	*fitzgeraldii*		*
Malvaceae	*Brachychiton*	*gregorii*	*	
Malvaceae	*Sida*	*calyxhymenia*	*	
Poaceae	*Aristida*	*contorta (A)*	*	
Poaceae	*Cynodon*	*dactylon (W)*	*	
Poaceae	*Dactyloctenium*	*radulans (A)*	*	*
Poaceae	*Eragrostis*	*eriopoda*	*	
Poaceae	*Eriachne*	*mucronata*		*
Poaceae	*Triodia*	*basedowii*		*
Poaceae	*Triodia*	*melvillei*		*
Portulacaceae	*Portulaca*	*oleracea (A)*	*	
Proteaceae	*Hakea*	*lorea*		*
Pteridaceae	*Cheilanthes*	*sieberi* subsp. *sieberi*	*	*
Rubiaceae	*Psydrax*	*latifolia*	*	*
Rubiaceae	*Psydrax*	*suaveolens*	*	
Santalaceae	*Santalum*	*lanceolatum*		*
Santalaceae	*Santalum*	*spicatum*	*	*
Scrophulariaceae	*Eremophila*	*alternifolia*	*	
Scrophulariaceae	*Eremophila*	*forrestii* subsp. *forrestii*	*	*
Scrophulariaceae	*Eremophila*	*fraseri*	*	*
Scrophulariaceae	*Eremophila*	*gilesii* subsp. *variabilis*	*	*
Scrophulariaceae	*Eremophila*	*latrobei* subsp. *glabra*	*	
Scrophulariaceae	*Eremophila*	*longifolia*	*	*
Scrophulariaceae	*Eremophila*	*margarethae*	*	*
Scrophulariaceae	*Eremophila*	*oldfieldii* subsp. *angustifolia*		*
Solanaceae	*Solanum*	*lasiophyllum*	*	*
Zygophyllaceae	*Tribulus*	*astrocarpus (A)*	*	
Zygophyllaceae	*Tribulus*	*terrestris (W)*	*	

Appendix 4: Vegetation Condition Rating

Vegetation Condition Rating	South West and Interzone Botanical Provinces	Eremaean and Northern Botanical Provinces
Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.	
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.	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	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.	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		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	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.	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	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 and shrubs.	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 5: Potential Fauna Species List

Potential Vertebrate Fauna List

Compiled by Greg Harewood - June 2020

Recorded (Sighted/Heard/Signs) = X

M 53/191 - Northern Star Resources Limited

Approximate centroid 26.357°S and 120.591°E

Botanica (2020). Reconnaissance Flora/ Vegetation and Fauna Survey Jundee TSF alternative locations. Unpublished report for Northern Star Resources Limited.

Engenium (2015). Lake Maitland - Level 2 Vertebrate Fauna and Targeted Reptile Survey Report. Unpublished report for Toro Energy Limited.

Harewood, G. (2015). Fauna Assessment (L1) - Laverton Gold Project. Unpublished report for Bullseye Mining Limited.

Outback Ecology Services (2009). Lake Maitland Baseline Terrestrial Fauna Survey. Unpublished report for Mega Uranium Pty Ltd.

Ninox (2007). A Vertebrate Fauna Survey of the Wiluna West Project Area Western Australia # 3. Unpublished report for Golden West Resources Ltd.

Biota Environmental Sciences (2017). Mt Keith Satellite Proposal Vertebrate Fauna Review. Unpublished report for BHP Billiton Nickel West.

Hall, N.J., McKenzie, N.L. and Keighery, G.J. (eds) (1994). The Biological Survey of the Eastern Goldfields of WA - Pt 10: Sandstone-Sir Samuel and Laverton-Leonora Study Areas. Records of the WAM, Supplement 47: 1 – 166

DBCA (2020). NatureMap Database Search – "By Circle" Centre 120° 35' 28" E, 26° 21' 25" S (plus 40km buffer). Accessed 2 April 2020.

Class **Family** *Species*	Common Name	Conservation Status	Botanica 2020	Engenium 2015	Harewood 2015	Outback 2009	Ninox 2007	Biota 2017	Hall et al. 1994	DBCA 2020
Amphibia										
Myobatrachidae Ground or Burrowing Frogs										
Neobatrachus aquilonius	Northern Burrowing Frog	LC								X
Neobatrachus centralis	Trilling Frog	LC								
Neobatrachus kunapalari	Kunapalari Frog	LC							X	
Neobatrachus sutor	Shoemaker Frog	LC								X
Neobatrachus wilsmorei	Plonking Frog	LC								X
Notaden nichollsi	Desert Spadefoot	LC		X				X		

BC Act Status - S1 to S7, EPBC Act Status - CR - Critically Endangered, EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, IUCN Red List Category Definitions - LC =Least Concern, see Appendix A and http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria for others

Class **Family** *Species*	Common Name	Conservation Status	Botanica 2020	Engenium 2015	Harewood 2015	Outback 2009	Ninox 2007	Biota 2017	Hall et al. 1994	DBCA 2020
Platyplectrum spenceri	Centralian Burrowing Frog	LC								
Pseudophryne occidentalis	Western Toadlet	LC						X		
Hylidae Tree or Water-Holding Frogs										
Cyclorana maini	Sheep Frog	LC		X				X	X	X
Cyclorana occidentalis	Water-holding Frog	LC		X				X	X	
Litoria rubella	Little Red Tree Frog	LC					X	X		X
Reptilia										
Carphodactylidae Knob-tailed Geckos										
Nephrurus laevis	Smooth Knob-tail Gecko			X						
Nephrurus laevissimus	Pale Knob-tail Gecko							X		
Nephrurus vertebralis	Midline Knob-tailed Gecko			X		X	X	X		
Nephrurus wheeleri	Banded Knob-tailed Gecko			X		X	X			

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Class **Family** *Species*	Common Name	Conservation Status	Botanica 2020	Engenium 2015	Harewood 2015	Outback 2009	Ninox 2007	Biota 2017	Hall et al. 1994	DBCA 2020
Diplodactylidae Geckoes										
Diplodactylus conspicillatus	Fat-tailed Gecko			X		X		X	X	X
Diplodactylus granariensis	Western Stone Gecko						X	X		X
Diplodactylus pulcher	Western Saddled Ground Gecko			X		X	X	X		X
Lucasium squarrosus	Mottled Ground Gecko						X	X	X	
Lucasium stenodactylus	Sand-plain Gecko			X		X	X			
Rhynchoedura ornata	Beaked Gecko			X		X	X	X	X	X
Strophurus assimilis	Goldfields Spiny-tailed Gecko									
Strophurus elderi	Jewelled Gecko			X		X		X	X	X
Strophurus strophurus	Ring-tailed Gecko			X				X	X	
Strophurus wellingtonae	Western-shield Spiny-tailed Gecko						X	X	X	X

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Gekkonidae Geckoes										
Gehyra purpurascens	Purple Arid Dtella			X		X			X	
Gehyra variegata	Variegated Dtella			X	X	X	X	X	X	X
Heteronotia binoei	Bynoe's Gecko			X		X	X	X	X	X
Underwoodisaurus milii	Barking Gecko			X					X	
Pygopodidae Legless Lizards										
Delma butleri	Unbanded Delma							X	X	X
Delma nasuta	Long-nosed Delma			X		X		X	X	X
Lialis burtonis	Burton’s Legless Lizard			X		X		X	X	
Pygopus nigriceps	Hooded Scaly Foot			X				X		X

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Agamidae Dragon Lizards										
Caimanops amphiboluroides	Mulga Dragon						X			
Ctenophorus caudicinctus	Ring-tailed Dragon						X	X		X
Ctenophorus cristatus	Bicycle Dragon				X					
Ctenophorus fordi	Mallee Sand Dragon								X	
Ctenophorus isolepis	Military Dragon			X	X	X	X	X	X	X
Ctenophorus nuchalis	Central Netted Dragon			X	X	X		X	X	X
Ctenophorus reticulatus	Western Netted Dragon							X	X	X
Ctenophorus salinarum	Salt Pan Dragon			X	X	X		X	X	
Ctenophorus scutulatus	Lozenge-marked Bicycle Dragon			X	X	X	X	X	X	X
Moloch horridus	Thorny Devil			X		X		X	X	
Pogona minor	Western Bearded Dragon			X		X		X	X	X
Tympanocryptis cephala	Pebble Dragon							X		
Tympanocryptis cephalus	Pebble Dragon									

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Varanidae Monitor's or Goanna's										
Varanus brevicauda	Short-tailed Pygmy Monitor			X				X	X	X
Varanus caudolineatus	Stripe-tailed Pygmy Monitor			X			X	X	X	X
Varanus eremius	Pygmy Desert Monitor			X		X	X	X		
Varanus giganteus	Perentie							X		
Varanus gouldii	Sand Monitor			X	X	X		X	X	
Varanus panoptes	Yellow-spotted Monitor		X	X	X	X	X	X		
Varanus tristis	Racehorse Monitor							X		X

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Scincidae Skinks										
Cryptoblepharus buchananii	Buchanan's Snake-eyed Skink			X		X	X		X	
Cryptoblepharus plagiocephalus	Fence Skink					X	X			
Ctenotus ariadnae	Ariadna's Ctenotus							X		X
Ctenotus atlas	Southern Mallee Ctenotus			X		X		X		
Ctenotus brooksi	Central Wedge-snout Ctenotus									
Ctenotus calurus	Blue-tailed Skink			X				X		X
Ctenotus dux	Narrow-lined Skink									
Ctenotus grandis	Giant Desert Ctenotus			X		X		X		X
Ctenotus greeri	Greer's Ctenotus								X	
Ctenotus hanloni	Nimble Ctenotus							X		
Ctenotus helenae	Dusky Ctenotus			X		X		X	X	X
Ctenotus leonhardii	Leonhardi's Skink			X	X	X		X		X
Ctenotus pantherinus	Leopard Ctenotus			X		X		X	X	X

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Ctenotus piankai	Pianka's Ctenotus									
Ctenotus quattuordecimlineatus	Fourteen-lined Ctenotus			X				X		
Ctenotus schomburgkii	Barred Wedge-snout Ctenotus			X	X	X	X	X	X	X
Ctenotus severus	Stern Rock Ctenotus			X		X				
Ctenotus uber	Spotted Ctenotus				X			X		X
Cyclodomorphus melanops	Eastern Slender Blue-tongue									
Egernia depressa	Pygmy Spiny-tailed Skink			X		X		X		X
Egernia formosa	Goldfields Crevise Skink									
Egernia inornata	Desert Skink							X		
Egernia striata	Night Skink									
Eremiascincus richardsonii	Broad-banded Sand Swimmer			X		X		X		X
Lerista bipes	Western Two-toed Slider			X		X				X
Lerista desertorum	Giant Desert Slider			X		X	X	X	X	X
Lerista kingi	Common Mulch Skink			X					X	

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Lerista muelleri	Common Mulch Skink			X		X	X			X
Lerista timida	Dwarf Three-toed Slider			X			X	X		X
Menetia greyii	Dwarf Skink			X		X	X	X	X	X
Morethia butleri	Woodland Dark-flecked Morethia			X				X	X	X
Tiliqua multifasciata	Central Blue-tongue			X		X		X	X	
Tiliqua occipitalis	Western Bluetongue							X	X	
Typhlopidae Blind Snakes										
Anilios bicolor	Dark-spined Blind Snake									
Anilios hamatus	Northern Hook-snouted Blind Snake			X			X	X	X	
Anilios waitii	Common Beaked Blind Snake							X		
Boidae Pythons, Boas										
Antaresia stimsoni	Stimson's Python			X				X		

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Elapidae Elapid Snakes										
Brachyurophis fasciolata	Narrow-banded Shovel-nosed Snake							X		
Brachyurophis semifasciata	Southern Shovel-nosed Snake			X				X		
Demansia psammophis	Yellow-faced Whipsnake									X
Furina ornata	Moon Snake			X				X	X	
Parasuta monachus	Monk Snake			X		X	X	X		X
Pseudechis australis	Mulga Snake							X	X	
Pseudechis butleri	Spotted Mulga Snake									
Pseudonaja mengdeni	Western Brown Snake									
Pseudonaja modesta	Ringed Brown Snake						X	X		X
Simoselaps bertholdi	Jan's Banded Snake			X			X	X	X	X
Suta fasciata	Rosen's Snake							X		

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Aves										
Casuariidae Emus, Cassowarries										
Dromaius novaehollandiae	Emu	LC	X	X	X	X	X	X	X	X
Accipitridae Kites, Goshawks, Eagles, Harriers										
Accipiter cirrocephalus	Collared Sparrowhawk	LC		X		X	X	X		X
Accipiter fasciatus	Brown Goshawk	LC		X				X		X
Aquila audax	Wedge-tailed Eagle	LC			X	X	X	X	X	X
Aquila morphnoides	Little Eagle	LC			X	X		X	X	
Circus assimilis	Spotted Harrier	LC							X	X
Elanus caeruleus	Black-shouldered Kite	LC		X	X	X		X		X
Haliastur sphenurus	Whistling Kite	LC		X				X		X
Hamirostra isura	Square-tailed Kite	LC								
Hamirostra melanosternon	Black-breasted Buzzard	LC		X			X	X		
Milvus migrans	Black Kite	LC		X		X				

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Falconidae Falcons										
Falco berigora	Brown Falcon	LC		X	X	X	X	X	X	X
Falco cenchroides	Australian Kestrel	LC		X	X	X	X	X	X	X
Falco hypoleucos	Grey Falcon	P4 VU								X
Falco longipennis	Australian Hobby	LC		X		X		X	X	X
Falco peregrinus	Peregrine Falcon	S7 LC		X			X			X
Otididae Bustards										
Ardeotis australis	Australian Bustard	LC		X			X	X	X	X
Turnicidae Button-quails										
Turnix velox	Little Button-quail	LC					X	X		X
Burhinidae Stone Curlews										
Burhinus grallarius	Bush Stone-curlew	LC		X		X				

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Charadriidae Lapwings, Plovers, Dotterels										
Vanellus tricolor	Banded Lapwing	LC		X				X	X	X
Columbidae Pigeons, Doves										
Geopelia cuneata	Diamond Dove	LC		X	X	X	X	X	X	X
Ocyphaps lophotes	Crested Pigeon	LC	X	X	X	X	X	X	X	X
Phaps chalcoptera	Common Bronzewing	LC		X	X	X	X	X	X	X
Psittacidae Parrots										
Cacatua roseicapilla	Galah	LC		X	X	X	X	X	X	X
Cacatua sanguinea	Little Corella	LC		X		X				
Melopsittacus undulatus	Budgerigar	LC		X	X	X	X	X	X	X
Neophema bourkii	Bourke's Parrot	LC			X		X	X	X	
Nymphicus hollandicus	Cockatiel	LC		X	X	X			X	X
Platycercus varius	Mulga Parrot	LC	X	X	X	X	X	X	X	X
Platycercus zonarius	Australian Ringneck	LC	X	X	X	X	X	X	X	X

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Cuculidae Parasitic Cuckoos										
Chrysococcyx basalis	Horsfield's Bronze Cuckoo	LC		X	X			X	X	X
Chrysococcyx osculans	Black-eared Cuckoo	LC			X		X	X		X
Cuculus pallidus	Pallid Cuckoo	LC		X	X			X	X	
Strigidae Hawk Owls										
Ninox novaeseelandiae	Boobook Owl	LC								
Tytonidae Barn Owls										
Tyto alba	Eastern Barn Owl	LC		X						
Podargidae Frogmouths										
Podargus strigoides	Tawny Frogmouth	LC		X	X	X			X	
Caprimulgidae Nightjars										
Eurostopodus argus	Spotted Nightjar	LC		X	X	X				X

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Aegothelidae Owlet-nightjars										
Aegotheles cristatus	Australian Owlet-nightjar	LC		X		X	X	X	X	X
Halcyonidae Tree Kingfishers										
Todiramphus pyrrhopygia	Red-backed Kingfisher	LC			X		X		X	
Meropidae Bee-eaters										
Merops ornatus	Rainbow Bee-eater	JA LC						X		X
Climacteridae Treecreepers										
Climacteris affinis	White-browed Treecreeper	LC			X			X	X	
Maluridae Fairy Wrens, GrassWrens										
Malurus lamberti	Variegated Fairy-wren	LC		X	X	X		X	X	X
Malurus leucopterus	White-winged Fairy-wren	LC		X	X	X		X	X	X
Malurus splendens	Splendid Fairy-wren	LC		X	X	X	X	X		X
Stipiturus ruficeps	Rufous-crowned Emu-wren	LC		X				X		

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Acanthizidae Thornbills, Geryones, Fieldwrens & Whitefaces										
Acanthiza apicalis	Broad-tailed Thornbill	LC		X	X		X	X	X	X
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	LC		X	X		X	X	X	X
Acanthiza robustirostris	Slaty-backed Thornbill	LC		X	X	X	X	X		X
Acanthiza uropygialis	Chestnut-rumped Thornbill	LC			X	X	X	X	X	X
Aphelocephala leucopsis	Southern Whiteface	LC			X		X	X	X	X
Calamanthus campestris	Rufous Fieldwren	LC		X				X		
Gerygone fusca	Western Gerygone	LC		X				X		X
Pyrrholaemus brunneus	Redthroat	LC		X	X	X	X	X		
Smicrornis brevirostris	Weebill	LC		X		X	X	X	X	X
Pardalotidae Pardalotes										
Pardalotus rubricatus	Red-browed Pardalote	LC								
Pardalotus striatus	Striated Pardalote	LC						X	X	X

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Meliphagidae Honeyeaters, Chats										
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	LC			X	X	X	X	X	X
Certhionyx niger	Black Honeyeater	LC						X	X	
Certhionyx variegatus	Pied Honeyeater	LC		X	X			X	X	X
Epthianura aurifrons	Orange Chat	LC		X						
Epthianura tricolor	Crimson Chat	LC		X	X	X	X	X	X	X
Lichenostomus keartlandi	Grey-headed Honeyeater	LC				X				
Lichenostomus leucotis	White-eared Honeyeater	LC								
Lichenostomus ornatus	Yellow-plumed Honeyeater	LC				X				
Lichenostomus penicillatus	White-plumed Honeyeater	LC		X		X		X		
Lichenostomus plumulus	Grey-fronted Honeyeater	LC		X	X	X		X	X	
Lichenostomus virescens	Singing Honeyeater	LC		X	X	X	X	X	X	
Lichmera indistincta	Brown Honeyeater	LC		X		X		X	X	X
Manorina flavigula	Yellow-throated Miner	LC		X	X	X	X	X	X	X

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Phylidonyris albifrons	White-fronted Honeyeater	LC		X	X			X	X	
Petroicidae Australian Robins										
Microeca fascinans	Jacky Winter	LC							X	
Petroica cucullata	Hooded Robin	LC			X		X	X	X	
Petroica goodenovii	Red-capped Robin	LC	X	X	X	X	X	X	X	X
Pomatostomidae Babblers										
Pomatostomus superciliosus	White-browed Babbler	LC		X	X	X	X	X	X	
Pomatostomus temporalis	Grey-crowned Babbler	LC		X	X		X	X		X
Cinclosomatidae Whipbirds, Wedgebills, Quail Thrushes										
Cinclosoma castaneothorax	Chestnut-breasted Quail-thrush	LC			X		X	X		X
Cinclosoma castanotus	Chestnut Quail-thrush	LC		X		X		X		
Psophodes occidentalis	Chiming Wedgebill	LC		X		X				

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Neosittidae Sitellas										
Daphoenositta chrysoptera	Varied Sittella	LC			X		X	X		
Pachycephalidae Crested Shrike-tit, Crested Bellbird, Shrike Thrushes, Whistlers										
Colluricincla harmonica	Grey Shrike-thrush	LC		X	X	X	X	X	X	X
Oreoica gutturalis	Crested Bellbird	LC		X	X	X	X	X	X	X
Pachycephala rufiventris	Rufous Whistler	LC		X	X	X	X	X	X	X
Dicruridae Monarchs, Magpie Lark, Flycatchers, Fantails, Drongo										
Grallina cyanoleuca	Magpie-lark	LC		X	X	X	X	X	X	X
Rhipidura fuliginosa	Grey Fantail	LC								
Rhipidura leucophrys	Willie Wagtail	LC		X	X	X	X	X	X	X

BC Act Status - S1 to S7, EPBC Act Status - CR - Critically Endangered, EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, IUCN Red List Category Definitions - LC =Least Concern, see Appendix A and http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria for others

Class **Family** *Species*	Common Name	Conservation Status	Botanica 2020	Engenium 2015	Harewood 2015	Outback 2009	Ninox 2007	Biota 2017	Hall et al. 1994	DBCA 2020
Campephagidae Cuckoo-shrikes, Trillers										
Coracina maxima	Ground Cuckoo-shrike	LC		X			X	X	X	
Coracina novaehollandiae	Black-faced Cuckoo-shrike	LC	X	X	X	X	X	X	X	X
Lalage tricolor	White-winged Triller	LC		X	X	X	X	X	X	X
Artamidae Woodswallows, Butcherbirds, Currawongs										
Artamus cinereus	Black-faced Woodswallow	LC		X	X	X	X	X	X	X
Artamus minor	Little Woodswallow	LC					X	X		
Artamus personatus	Masked Woodswallow	LC		X	X		X	X	X	X
Cracticidae Currawongs, Magpies & Butcherbirds										
Cracticus nigrogularis	Pied Butcherbird	LC		X	X	X	X	X	X	X
Cracticus tibicen	Australian Magpie	LC		X	X	X	X	X	X	X
Cracticus torquatus	Grey Butcherbird	LC		X	X	X	X	X	X	X
Strepera versicolor	Grey Currawong	LC					X	X	X	

BC Act Status - S1 to S7, EPBC Act Status - CR - Critically Endangered, EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, IUCN Red List Category Definitions - LC =Least Concern, see Appendix A and http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria for others

Class **Family** *Species*	Common Name	Conservation Status	Botanica 2020	Engenium 2015	Harewood 2015	Outback 2009	Ninox 2007	Biota 2017	Hall et al. 1994	DBCA 2020
Corvidae Ravens, Crows										
Corvus bennetti	Little Crow	LC		X		X	X	X	X	X
Corvus orru	Torresian Crow	LC		X	X		X	X		X
Ptilonorhynchidae Bowerbirds										
Ptilonorhynchus maculatus	Western Bowerbird	LC		X	X	X	X	X		X
Motacillidae Old World Pipits, Wagtails										
Anthus australis	Australian Pipit	LC	X	X	X	X	X	X	X	X
Estrilidae Grass Finches & Mannikins										
Taeniopygia guttata	Zebra Finch	LC		X	X	X	X	X	X	X
Dicaeidae Flowerpeckers										
Dicaeum hirundinaceum	Mistletoebird	LC					X		X	X

BC Act Status - S1 to S7, EPBC Act Status - CR - Critically Endangered, EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, IUCN Red List Category Definitions - LC =Least Concern, see Appendix A and http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria for others

Class **Family** *Species*	Common Name	Conservation Status	Botanica 2020	Engenium 2015	Harewood 2015	Outback 2009	Ninox 2007	Biota 2017	Hall et al. 1994	DBCA 2020
Hirundinidae Swallows, Martins										
Cheramoeca leucosternus	White-backed Swallow	LC		X		X	X	X	X	
Hirundo ariel	Fairy Martin	LC						X		
Hirundo neoxena	Welcome Swallow	LC		X	X	X	X	X		X
Hirundo nigricans	Tree Martin	LC		X				X	X	
Sylviidae Old World Warblers										
Cincloramphus cruralis	Brown Songlark	LC		X				X	X	
Cincloramphus mathewsi	Rufous Songlark	LC						X	X	
Eremiornis carteri	Spinifex-bird	LC		X						
Zosteropidae White-eyes										
Zosterops lateralis	Silvereye	LC								
Mammalia										
Tachyglossidae Echidnas										
Tachyglossus aculeatus	Echidna	LC		X	X	X	X	X	X	

BC Act Status - S1 to S7, EPBC Act Status - CR - Critically Endangered, EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, IUCN Red List Category Definitions - LC =Least Concern, see Appendix A and http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria for others

Class **Family** *Species*	Common Name	Conservation Status	Botanica 2020	Engenium 2015	Harewood 2015	Outback 2009	Ninox 2007	Biota 2017	Hall et al. 1994	DBCA 2020
Dasyuridae Carnivorous Marsupials										
Antechinomys laniger	Kultarr	LC					X	X		
Dasycercus blythi	Brush-tailed Mulgara	P4 LC		X			X	X		X
Ningaui ridei	Wongai Ningaui	LC		X		X	X	X	X	X
Pseudantechinus woolleyae	Woolley's Pseudantechinus	LC					X	X		X
Sminthopsis crassicaudata	Fat-tailed Dunnart	LC		X				X	X	
Sminthopsis dolichura	Little long-tailed Dunnart	LC					X	X		X
Sminthopsis hirtipes	Hairy-footed Dunnart	LC						X	X	
Sminthopsis macroura	Stripe-faced Dunnart	LC		X		X	X	X	X	X
Sminthopsis ooldea	Ooldea Dunnart	LC		X		X		X	X	X
Macropodidae Kangaroos, Wallabies										
Macropus robustus	Euro	LC		X	X	X	X	X	X	X
Macropus rufus	Red Kangaroo	LC	X	X	X	X	X	X	X	X

BC Act Status - S1 to S7, EPBC Act Status - CR - Critically Endangered, EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, IUCN Red List Category Definitions - LC =Least Concern, see Appendix A and http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria for others

Class **Family** *Species*	Common Name	Conservation Status	Botanica 2020	Engenium 2015	Harewood 2015	Outback 2009	Ninox 2007	Biota 2017	Hall et al. 1994	DBCA 2020
Emballonuridae Sheath-tailed Bats										
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	LC						X		
Taphozous hilli	Hill's Sheathtail-bat	LC		X	X	X	X	X		
Molossidae Freetail Bats										
Austronomus australis	White-striped Freetail-bat	LC		X		X		X	X	
Mormopterus beccarii	Beccari's Freetail-bat	LC					X			
Ozimops petersi	Inland Freetail-bat	LC		X	X	X	X	X	X	
Vespertilionidae Ordinary Bats										
Chalinolobus gouldii	Gould's Wattled Bat	LC		X	X	X	X	X	X	X
Nyctophilus geoffroyi	Lesser Long-eared Bat	LC		X		X	X	X	X	X
Scotorepens balstoni	Inland Broad-nosed Bat	LC		X		X	X	X	X	X
Vespadelus baverstocki	Inland Forest Bat	LC						X		
Vespadelus finlaysoni	Finlayson's Cave Bat	LC		X	X	X	X	X		
Vespadelus regulus	Southern Forest Bat	LC						X		

BC Act Status - S1 to S7, EPBC Act Status - CR - Critically Endangered, EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, IUCN Red List Category Definitions - LC =Least Concern, see Appendix A and http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria for others

Class **Family** *Species*	Common Name	Conservation Status	Botanica 2020	Engenium 2015	Harewood 2015	Outback 2009	Ninox 2007	Biota 2017	Hall et al. 1994	DBCA 2020
Muridae Rats, Mice										
Mus musculus	House Mouse	Introduced		X		X	X	X	X	X
Notomys alexis	Spinifex Hopping-mouse	LC		X		X	X	X	X	
Pseudomys bolami	Bolam's Mouse	LC						X		
Pseudomys desertor	Desert Mouse	LC		X		X		X		X
Pseudomys hermannsburgensis	Sandy Inland Mouse	LC		X		X	X	X	X	X
Canidae Dogs, Foxes										
Canis lupus	Dog/Dingo	Introduced		X	X	X	X	X		
Vulpes vulpes	Red Fox	Introduced		X		X			X	
Felidae Cats										
Felis catus	Cat	Introduced		X	X	X	X		X	X

BC Act Status - S1 to S7, EPBC Act Status - CR - Critically Endangered, EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, IUCN Red List Category Definitions - LC =Least Concern, see Appendix A and http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria for others

Class **Family** *Species*	Common Name	Conservation Status	Botanica 2020	Engenium 2015	Harewood 2015	Outback 2009	Ninox 2007	Biota 2017	Hall et al. 1994	DBCA 2020
Bovidae Horned Ruminants										
Bos taurus	European Cattle	Introduced		X	X	X	X	X		
Capra hircus	Goat	Introduced			X			X		
Camelidae Camels										
Camelus dromedarius	Camel	Introduced			X		X	X	X	
Leporidae Rabbits, Hares										
Oryctolagus cuniculus	Rabbit	Introduced		X	X	X	X	X	X	

BC Act Status - S1 to S7, EPBC Act Status - CR - Critically Endangered, EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, IUCN Red List Category Definitions - LC =Least Concern, see Appendix A and http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria for others

APPENDIX B – BOTANICA 2023

Jundee Project-Cook Pit

Flora and Fauna Assessment

Prepared for Northern Star Resources Limited



FINAL
April 2023

Prepared by

BOTANICA CONSULTING

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Cover Photo: Cook pit survey area vegetation (taken 22nd October 2022)

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Contents

1 EXECUTIVE SUMMARY 1
2 INTRODUCTION 2
2.1 Objectives 2
3 REGIONAL BIOPHYSICAL ENVIRONMENT 4
3.1 Regional Environment 4
3.2 Soil Landscape Systems 6
3.3 Vegetation 8
3.4 Climate 9
3.5 Hydrology 9
3.6 Land Use 11
4 SURVEY METHODOLOGY 12
4.1 Desktop Assessment 12
4.2 Flora and Vegetation Field Assessment 15
4.2.1 Vegetation Mapping 16
4.2.2 Detailed Flora and Vegetation Survey 16
4.2.3 Flora Identification 16
4.3 Data Analysis Tools 16
4.3.1 PATN Analysis 17
4.3.2 EstimateS 17
4.4 Terrestrial Fauna Field Assessment 17
4.5 Scientific Licences 18
4.6 Survey Limitations and Constraints 18
5 RESULTS 20
5.1 Desktop Assessment 20
5.1.1 Flora/ Vegetation 20
5.1.2 Fauna 21
5.2 Field Assessment 24
5.2.1 Vegetation Types 24
5.2.2 Floristic Composition 27
5.2.3 Significant Flora 28
5.2.4 Significant Vegetation 28
5.2.5 Vegetation Condition 28
5.2.6 Introduced Flora 30
5.2.7 Fauna Habitat 31
5.2.8 Significant Fauna 34
5.3 Matters of National Environmental Significance 35
5.3.1 Environment Protection and Biodiversity Conservation Act 1999 35
5.4 Matters of State Environmental Significance 35
5.4.1 Environmental Protection Act WA 1986 35

5.4.2 Biodiversity Conservation Act 2016 *36*
5.4.3 Conservation Reserves *36*
5.5 Native Vegetation Clearing Principles 36
6 Bibliography 38

Tables

Table 3-1: Soil landscape systems within the survey area 6
Table 3-2: Pre-European vegetation associations within the survey area 8
Table 4-1: Scientific Licenses of Botanica Staff coordinating the survey 18
Table 4-2: Limitations and constraints associated with the flora/ vegetation and fauna survey 18
Table 5-1: Introduced flora within 40km radius of the survey area 20
Table 5-2: Flora of Conservation Significance identified as possible to occur within the survey area 20
Table 5-3: Likelihood of Occurrence – Fauna Species of Conservation Significance 22
Table 5-4: Summary of vegetation types within the survey area 25
Table 5-5: Vegetation types and associated flora quadrats 27
Table 5-6: Vegetation condition within the survey area 28
Table 5-7: Fauna species observed during the field survey 31
Table 5-8: Main terrestrial fauna habitats within the survey area 32
Table 5-9: Assessment of development within the survey area against native vegetation clearing principles 37

Figures

Figure 2-1: Regional map of the survey area 3
Figure 3-1: Map of IBRA Bioregions in relation to the survey area 5
Figure 3-2: Soil landscape systems within the survey area 7
Figure 3-3: Monthly rainfall and mean monthly rainfall (January 2017 – December 2022) for the Wiluna Aero weather station #3044 (BoM, 2023a) 9
Figure 3-4: Regional hydrology of the survey area 10
Figure 4-1: Quadrat locations, survey area boundary and GPS tracks traversed throughout the survey area 15
Figure 5-1: Vegetation types within the survey area 26
Figure 5-2: Species accumulation curve 27
Figure 5-3: Vegetation condition within the survey area 29
Figure 5-4: Introduced flora recorded within the survey area 30
Figure 5-5: Fauna habitats within the survey area 33

APPENDICES

Appendix A: Significant Species/ Communities Categories (BC Act and EPBC Act)

Appendix B: Regional map of the survey area in relation to areas of significance

Appendix C: Flora species list

Appendix D: Vegetation Condition Rating

Appendix E: Quadrat Locations (NW Corner-GDA94)

Appendix F: Quadrat Datasheets

Appendix G: Quadrat Photographs

Appendix H: PATN Analysis Results

Appendix I: Database Search Results

1 EXECUTIVE SUMMARY

Botanica Consulting Pty Ltd (Botanica) was commissioned by Northern Star Resources Limited (NSR) to undertake a detailed flora/ vegetation survey and basic fauna survey surrounding the Cook Pit (referred to as the 'survey area'). The survey area is located at the Jundee Project, located approximately 45 km north-east of Wiluna, Western Australia. The survey area encompasses an approximate area of 330 ha. The survey was conducted from the 21st to 23rd October 2022. The flora/vegetation and fauna assessment were conducted in accordance with Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment – December 2016 (EPA, 2016a), and with the requirements of a basic terrestrial fauna survey as defined in Technical Guidance - Terrestrial Fauna Surveys for Environmental Impact Assessment – June 2020 (EPA, 2020), respectively.

Two vegetation types were identified within the survey area which was represented by a total of 18 families and 70 taxa. No Threatened Flora or Threatened Ecological Communities as listed under the Western Australian *Biodiversity Conservation (BC) Act 2016* or Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* were identified within the survey area. No Priority Flora or Priority Ecological Communities (as listed by DBCA) were identified within the survey area.

Based on the vegetation condition rating scale specified in the (EPA, 2016a), vegetation was rated as 'good' to 'very good'. One introduced flora taxon was identified within the survey area.

Two fauna habitats were identified within the survey area. 13 fauna species were observed during the field survey (including two introduced taxa). No Threatened fauna or other specially protected species as listed under the Western Australian BC Act or the Commonwealth EPBC Act was identified within the survey area. No Priority fauna as listed by DBCA were recorded within the survey area.

There are no wetlands of international importance (Ramsar Wetlands) or national importance (Australian Nature Conservation Agency Wetlands) within the survey area. The survey area is not located within an Environmentally Sensitive Area (ESA) as listed under the *Environmental Protection (EP) Act 1986.* The survey area is not located within any vested or proposed Conservation Reserves.

Based on the outcomes from the survey undertaken, as presented in this report, Botanica considers that Clearing is 'not at variance' or 'unlikely' to be at variance with the native vegetation clearing principles listed under Schedule 5 of the EP Act.

2 INTRODUCTION

Botanica Consulting Pty Ltd (Botanica) was commissioned by Northern Star Resources Limited (NSR) to undertake a detailed flora/ vegetation survey and basic fauna survey surrounding the Cook Pit (referred to as the 'survey area'). The survey area is located at the Jundee Project, located approximately 45 km north-east of Wiluna, Western Australia (Figure 2-1). The survey area encompasses an approximate area of 330 ha. The survey was conducted from the 21st to 23rd October 2022.

2.1 Objectives

The flora/vegetation assessment was conducted in accordance with the requirements of a detailed survey as defined in *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment – December 2016* (EPA, 2016a). The objectives of the assessment were to:

1. Gather background information on flora and vegetation in the survey area (literature review, database and map-based searches);
2. Conduct a field survey to verify / ground truth the desktop assessment;
3. Define and map vegetation communities of the survey area to a scale appropriate for the Bioregion and described according to the National Vegetation Information System (NVIS) classification (NVIS Level V – Association);
4. Record the species composition of each vegetation community within the survey area and compile a species list for the survey area by vegetation type;
5. Provide quadrat-based data from plots representative of each vegetation type (minimum of three quadrats per vegetation type) according to Environmental Protection Authority (EPA, 2016a) guidelines;
6. Assess the species composition of each quadrat;
7. Determine the local and regional significance of flora and vegetation within the survey area;
8. Identify and record the locations of any significant flora/vegetation within the survey area;
9. Identify and record the locations of any introduced flora species (including Declared Pests) within the survey area;
10. Provide a map showing the distribution of significant flora/vegetation within the survey area; and
11. Define and map the condition of vegetation within the survey area in accordance with the vegetation condition rating scale specified in the Environmental Protection Authority (EPA) *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment – December 2016* (EPA, 2016a).

The fauna assessment was conducted in accordance with the requirements of a basic terrestrial fauna survey as defined in *Technical Guidance - Terrestrial Fauna Surveys for Environmental Impact Assessment – June 2020* (EPA, 2020). The objectives of the assessment were to:

1. Undertake a literature review, including map-based information searches of all current and relevant literature sources and databases relating to the survey area;
2. Conduct fauna habitat mapping and identify habitat types which are suitable for each significant fauna considered likely or possible to occur, or fauna recorded in the survey area;
3. Compile an inventory of fauna species occurrences within the survey area;
4. Undertake opportunistic, low intensity sampling of fauna; and
5. Report on the conservation status of species present using the Western Australian Museum and *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act) databases for presence of Threatened and Priority listed fauna species within the survey area.

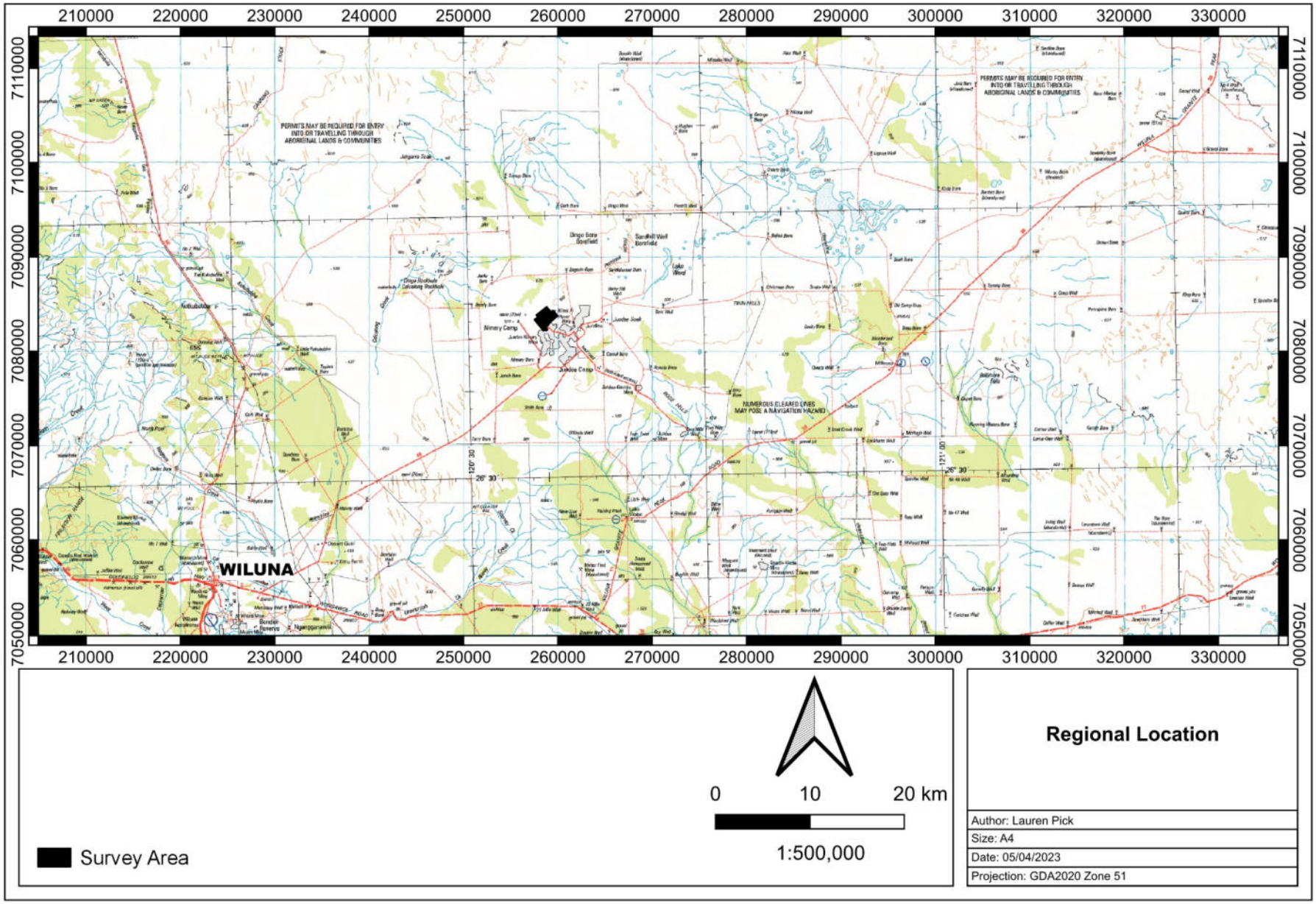


Figure 2-1: Regional map of the survey area

3 REGIONAL BIOPHYSICAL ENVIRONMENT

3.1 Regional Environment

The survey area lies within the Eremaean Province of Western Australia. Based on the Interim Biogeographic Regionalisation of Australia (IBRA), Version 7 (DotEE, 2012), the survey area is located within the Murchison Bioregion. The Murchison Bioregion is further divided into subregions with the survey area located within the Eastern Murchison subregion (MUR02) of the Murchison Bioregion (Figure 3-1).

The Eastern Murchison comprises the northern parts of the craton's Southern Cross and Eastern Goldfields Terrains and is characterised by internal drainage and extensive areas of elevated red desert sandplains with minimal dune development. Salt Lake systems are associated with the occluded paleodrainage system. Broad plains of red-brown soils and breakaways complexes as well as red sandplains are widespread. Vegetation is dominated by Mulga woodlands and is often rich in ephemerals, hummock grasslands, saltbush shrublands and *Tecticornia* shrublands (Cowan, 2001).



Figure 3-1: Map of IBRA Bioregions in relation to the survey area

3.2 Soil Landscape Systems

Based on geographic information provided by DPIRD (2019), the survey area is located within the South-eastern Zone of Ancient Drainage (250) of the Murchison Province

The Murchison Province consists of hardpan wash plains and sandplains (with some stony plains, hills, mesas and salt lakes) on the granitic rocks and greenstone of the Yilgarn Craton. The Murchison Province is located in the inland Mid-west and northern Goldfields between Three Springs, the Gascoyne River, Wiluna, Cosmo Newberry and Menzies Soil types consist of red loamy earths, red sandy earths, red shallow loams, red deep sands and red-brown hardpan shallow loams with some red shallow sands and red shallow sandy duplexes present. Vegetation communities are predominately Mulga shrublands with spinifex grasslands, with areas of bowgada shrublands, Eucalypt woodlands and halophytic shrublands (Tille, 2006).

The Murchison Province is further divided into soil-landscape zones, with the survey area located within the Salinaland Plains Zone (279). The Salinaland Plains Zone comprises of sandplains (with hardpan wash plains and some mesas, stony plains and salt lakes) on granitic rocks (and some greenstone) of the Yilgarn Craton. Soils include red sandy earths, red deep sands, red shallow loams and red loamy earths with some red-brown hardpan shallow loams, salt lake soils and red shallow sandy duplexes. Vegetation consists of mulga shrublands with spinifex grasslands (and some halophytic shrublands and eucalypt woodlands). This zone is located in the northern Goldfields from Lakes Barlee and Ballard to Wiluna and Laverton (Tille, 2006).

The Salinaland Plains Zone (279) is further divided into soil landscape systems within the soil landscape systems of the survey area described in Table 3-1.

Table 3-1: Soil landscape systems within the survey area

Landscape System/ Mapping Unit	Description
Violet System	Gently undulating gravelly plains on greenstone, laterite and hardpan, with low stony rises and minor saline plains; supporting groved mulga and bowgada shrublands and occasionally chenopod shrublands.
Wiluna System	Low greenstone hills with occasional lateritic breakaways and broad stony slopes, lower saline stony plains and broad drainage tracts; supporting sparse mulga and other acacia shrublands with patches of halophytic shrubs.



Figure 3-2: Soil landscape systems within the survey area

3.3 Vegetation

The survey area is located within the Austin Botanical District within the Eremaean Botanical Province. This botanical district is predominantly Mulga low woodlands on plains, often rich in ephemerals, which reduce to scrub on hills. It is also characterised by hummock grasslands, Saltbush shrublands and Samphire shrublands (Beard, 1990). The Eremaean Province is the largest of the three botanical provinces within Western Australia. The vegetation of the Austin Botanical District of the Murchison Region is predominantly low mulga (*Acacia aneura*) woodlands on plains and reduced to scrub on hills. This district is often associated with a tree steppe of *Eucalyptus* spp. and *Triodia basedowii* on sand plains.

The DPIRD GIS file (2021) indicates that the survey area is located within Pre-European Beard vegetation association Wiluna 18. The extent of this vegetation association as specified in the *2018 Statewide Vegetation Statistics* (Government of Western Australia, 2019) is provided in Table 3-2.

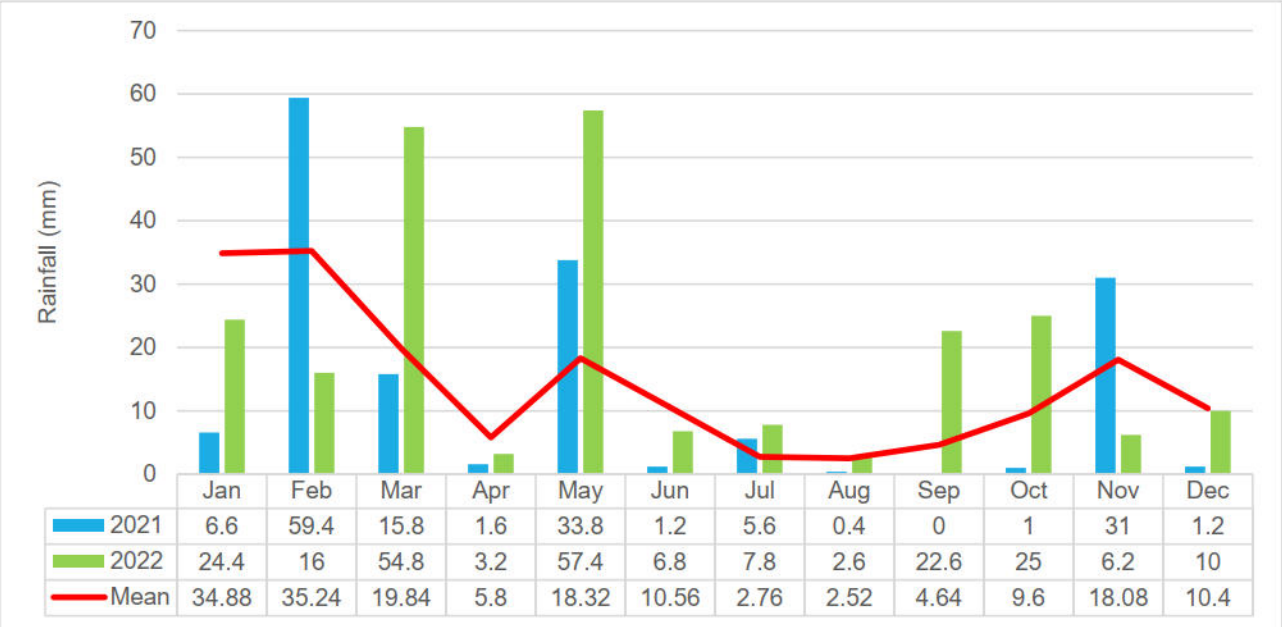
Areas retaining less than 30% of their pre-European vegetation extent generally experience exponentially accelerated species loss, while areas with less than 10% are considered "endangered" (EPA, 2000).

Table 3-2: Pre-European vegetation associations within the survey area

Vegetation Association	Pre-European Extent (ha)	Pre-European extent remaining (%)	% of Current extent within DBCA managed lands	Vegetation Description (Beard, 1990)
Wiluna 18	4,273,509.57	99.59	1.05	Low woodland; mulga (*Acacia aneura*)

3.4 Climate

The climate of the Eastern Murchison subregion is characterised as an arid climate with mainly winter rainfall and annual rainfall of approximately 200 mm (Beard, 1990; Cowan, 2001). Rainfall data for the Wiluna Aero weather station (#13044) located approximately 45 km south-west of the survey area is shown in Figure 3-2 (BoM, 2022a). Rainfall received in the months preceding the survey (July-October) was above average. Survey work was undertaken in late October 2022, outside of the EPA recommended timing for primary surveys of the Eremaean Province (i.e. Autumn) (EPA, 2016a) but occurred following months of above average rainfall.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	6.6	59.4	15.8	1.6	33.8	1.2	5.6	0.4	0	1	31	1.2
2022	24.4	16	54.8	3.2	57.4	6.8	7.8	2.6	22.6	25	6.2	10
Mean	34.88	35.24	19.84	5.8	18.32	10.56	2.76	2.52	4.64	9.6	18.08	10.4

Figure 3-3: Monthly rainfall and mean monthly rainfall (January 2017 – December 2022) for the Wiluna Aero weather station #3044 (BoM, 2023a)

3.5 Hydrology

According to the Geoscience Australia database (2015) there are no inland waters or perennial/ ephemeral drainage lines that intersect the survey area (Figure 3-4).

Groundwater Dependent Ecosystems (GDE) includes biological assemblages of species such as wetlands or woodlands that use groundwater either opportunistically or as their primary water source. For the purposes of this report, a GDE is defined as any vegetation community that derives part of its water budget from groundwater and must be assumed to have some degree of groundwater dependency. According to the BoM *Atlas of Groundwater Dependent Ecosystems* (BoM, 2022b) database, there are no known or potential aquatic or terrestrial GDEs located within the survey area.

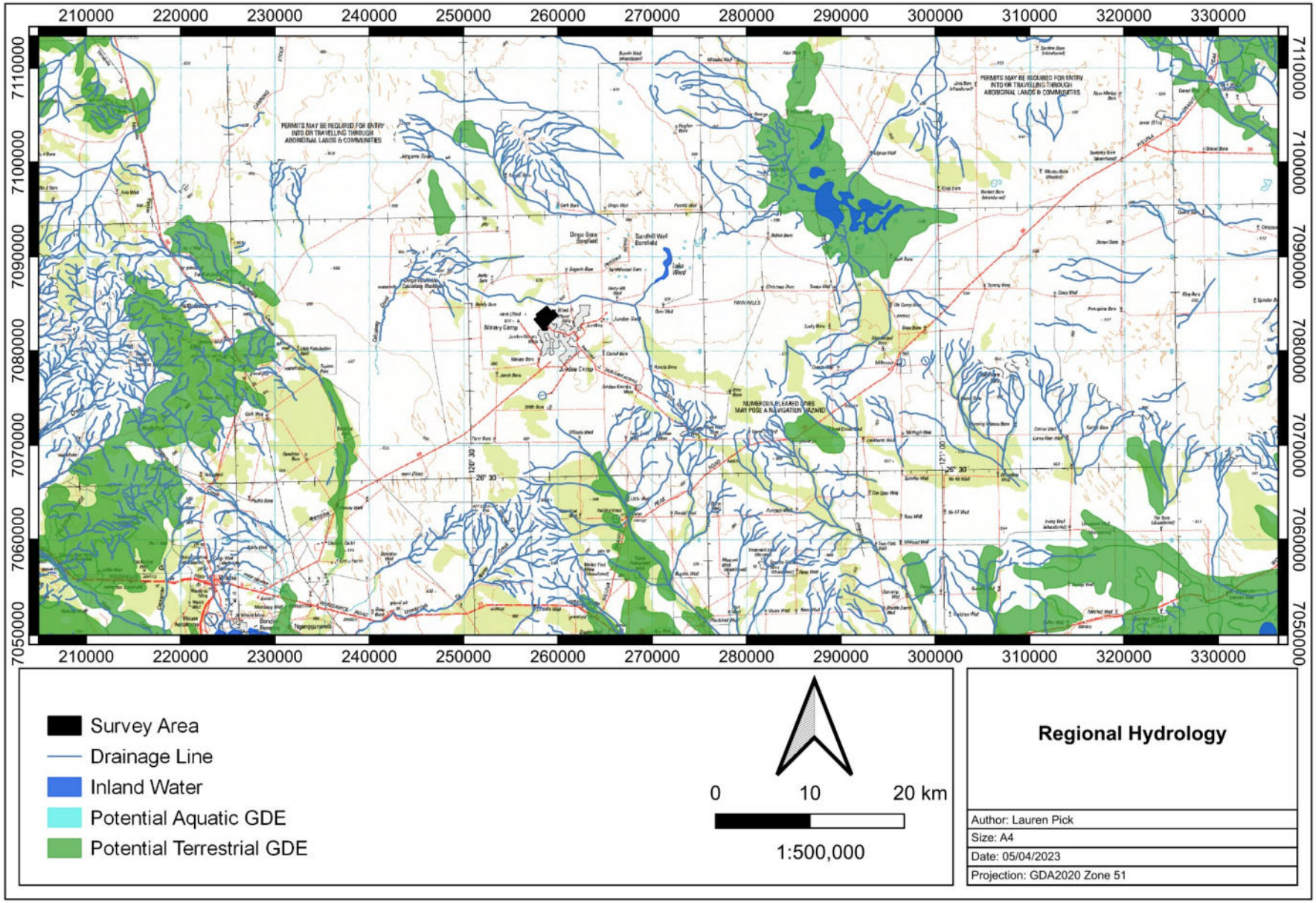


Figure 3-4: Regional hydrology of the survey area

3.6 Land Use

The dominant land uses of the Eastern Murchison subregion have been defined as grazing – native pastures (85.47%), Unallocated Crown Land (UCL) and Crown Reserves (11.34%), mining (1.79%) and Conservation Reserves which account for 1.4% of the land use (Cowan, 2001).

4 SURVEY METHODOLOGY

4.1 Desktop Assessment

Prior to the field assessment a literature review was undertaken of previous flora and fauna assessments conducted within the local region. Documents reviewed included:

- Animal Plant Mineral (2015). Vegetation Clearing Permit Application, Matilda Gold Project, Support Information for Matilda Mine Site Native Vegetation Clearing (Purpose) Permit Application, October 2015.
- Biota Environmental Sciences (2004). Waterloo and Amorac Extension Fauna Site Inspection. Unpublished report for LionOre.
- Botanica Consulting (2014). Level 1 Flora and Vegetation Survey of the Thunderbox to Bannockburn Project.
- Botanica Consulting (2016). Level 1 Flora and Fauna Survey Julius Project, Prepared for Echo Resources Limited.
- Botanica Consulting (2019a). Reconnaissance Flora/ Vegetation and Fauna Survey Orelia Project. Prepared for Echo Resources Limited.
- Botanica Consulting (2019b). Reconnaissance Flora/ Vegetation & Fauna Survey. Mt Joel Project. Prepared For Echo Resources Limited.
- Botanica Consulting (2020a). Detailed Flora/ Vegetation Survey Lake Way Potash Project. Prepared for Salt Lake Potash Limited.
- Botanica Consulting (2020b). Reconnaissance Flora/ Vegetation & Fauna Survey within M53/191. Prepared for Northern Star Resources Limited.
- Engenium (2015). Lake Maitland - Level 2 Vertebrate Fauna and Targeted Reptile Survey Report. Unpublished report for Toro Energy Limited
- Hall, N.J., Newbey, K.R., McKenzie, N.L., Keighery, G.J., Rolfe, J.K & Youngson, W. K., (1993). *The Biological survey of the Eastern Goldfields of Western Australia Part 7: Sandstone-Sir Samuel. Laverton-Leonora study area,* West. Aust. Mus. Suppl. 47.
- Outback Ecology (2008a). Bronzewing – Mt McClure, Application for a Purpose Permit to Clear Native Vegetation at the Bronzewing – Mt McClure Project – Corboys Prospect M53/15, prepared for View Resources
- Outback Ecology (2008b). Bronzewing – Mt McClure, Report on the distribution of *Eremophila pungens* (P4) within the Bronzewing – Mt McClure Gold Project, prepared for View Resources.
- Paul Armstrong and Associates (2001). Rare Flora Search, and Flora and Vegetation Survey of the Exploration and Mine Lease of Thunderbox.
- Paul Armstrong and Associates (2004). Rare Flora Search and Vegetation Survey at the Waterloo Prospects.
- Trudgen, M (1989). A Flora and Vegetation Survey of Part of the Cyprus Gold Mount McClure Gold Mining Leases. Report prepared for Cyprus Gold for inclusion in the Mt McClure Project Feasibility Study, Volume 2 Environmental Study

Searches of the following databases were undertaken to aid in the compilation of a list of flora, vegetation and fauna taxa within the survey area:

- Department of Biodiversity, Conservation and Attractions (DBCA) Priority/ Threatened Flora Database Search (DBCA, 2022a);
- DBCA Priority/ Threatened Ecological Communities Database Search (DBCA, 2022b);
- DBCA NatureMap Database (DBCA, 2021); and
- Department of Climate Change, Energy the Environment and Water Protected Matters search tool (DCCEEW, 2022).

It should be noted that these lists are based on observations from a broader area (ie. within a 40 km radius from the survey area). It is on this basis it may include taxa not present. The databases also often include very old records that may be incorrect or in some cases the taxa in question have become locally or regionally extinct.

Information from the above sources should therefore be taken as indicative only and local knowledge and information also need to be taken into consideration when determining what actual species may be present within the specific area being investigated.

The significance of flora and fauna taxa was assessed using data from the following sources:

- *Environment Protection and Biodiversity Conservation* (EPBC) *Act 1999*. Administered by the Australian Government (DCCEEW);
- *Biodiversity Conservation* (BC) *Act 2016*. Administered by the WA Government (DBCA);
- Red List produced by the Species Survival Commission (SSC) of the World Conservation Union (also known as the IUCN Red List – the acronym derived from its former name of the International Union for Conservation of Nature and Natural Resources). The Red List has no legislative power in Australia but is used as a framework for State and Commonwealth categories and criteria; and
- Priority Flora/ Fauna list. A non-legislative list maintained by DBCA for management purposes (fauna list released 7th October 2022; flora list released 22nd June 2022).

The EPBC Act also requires the compilation of a list of migratory species that are recognised under international treaties including the:

- Japan Australia Migratory Bird Agreement 1981 (JAMBA)[1];
- China Australia Migratory Bird Agreement 1998 (CAMBA);
- Republic of Korea-Australia Migratory Bird Agreement 2007 (ROKAMBA); and
- Bonn Convention 1979 (The Convention on the Conservation of Migratory Species of Wild Animals).

Most but not all migratory bird species listed in the annexes to these bilateral agreements are protected in Australia as Matters of National Environmental Significance (MNES) under the *EPBC Act*. Descriptions of significant species and communities are provided in Appendix 1.

[1] Most but not all species listed under JAMBA are also specially protected under Specially Protected Species of the BC Act.

Flora of significance identified during the literature review and database searches as previously being recorded in the general area were assessed and ranked for their likelihood of occurrence within the survey area. The rankings and criteria used were:

- Unlikely: Area is outside of the currently documented distribution for the species/no suitable habitat (type, quality and extent) was identified as being present during the field/desktop study.
- Possible: Area is within the known distribution of the species in question and habitat of at least marginal quality was identified as being present during the field/desktop study, supported in some cases by recent records being documented from within or near the area.
- Known to Occur: The species in question was positively identified as being present during previous field surveys.

Fauna of significance identified during the literature review and database searches as previously being recorded in the general area were assessed and ranked for their likelihood of occurrence within the survey area. The rankings and criteria used were:

- Would Not Occur: There is no suitable habitat for the species in the survey area and/or there is no documented record of the species in the general area since records have been kept and/or the species is generally accepted as being locally/regionally extinct (supported by a lack of recent records).
- Locally Extinct: Populations no longer occur within a small part of the species natural range, in this case within 10 or 20 km of the survey area. Populations do however persist outside of this area.
- Regionally Extinct: Populations no longer occur in a large part of the species natural range, in this case within the goldfields region. Populations do however persist outside of this area.
- Unlikely to Occur: The survey area is outside of the currently documented distribution for the species in question, or no suitable habitat (type, quality and extent) was identified as being present during the field assessment. Individuals of some species may occur occasionally as vagrants/transients especially if suitable habitat is located nearby but the site itself would not support a population or part population of the species.
- Possibly Occurs: Survey area is within the known distribution of the species in question and habitat of at least marginal quality was identified as likely to be present during the field survey and literature review, supported in some cases by recent records being documented in literature from within or near the survey area. In some cases, while a species may be classified as possibly being present at times, habitat may be marginal (e.g. poor quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.
- Known to Occur: The species in question has been positively identified as being present (for sedentary species) or as using the survey area as habitat for some other purpose (for non-sedentary/mobile species) during field surveys within or near the survey area. This information may have been obtained by direct observation of individuals or by way of secondary evidence (e.g. tracks, foraging debris, scats). In some cases, while a species may be classified as known to occur, habitat may be marginal (e.g. poor quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.

4.2 Flora and Vegetation Field Assessment

Botanica conducted a detailed flora and vegetation survey of the 330 ha survey area from the 21st to 23rd October 2022. The survey area was traversed by two Botanica staff members on foot and four-wheel drive (Figure 4-1).



Figure 4-1: Quadrat locations, survey area boundary and GPS tracks traversed throughout the survey area

4.2.1 Vegetation Mapping

Prior to the commencement of field work, aerial photography was inspected and obvious differences in the vegetation assemblages were identified. The different vegetation types identified were then inspected during the field survey to assess their validity. A handheld GPS unit was used to record the coordinates of the boundaries between vegetation types.

At each sample point, the following information was recorded:

- GPS location;
- Photograph of vegetation;
- Dominant taxa for each stratum (including height and percentage cover of dominant taxa);
- All vascular taxa (including annual taxa);
- Landform classification;
- Vegetation condition rating;
- Collection and documentation of unknown plant specimens; and
- Collection of flora of significance if encountered.

Vegetation types were classified in accordance with the NVIS Level V-Association classification.

4.2.2 Detailed Flora and Vegetation Survey

Twenty 50 m X 50 m quadrats were established within the survey area (Figure 4-1 and Appendix E). The recommended quadrat size specified in the Environmental Protection Authority (EPA) Guidelines for the Murchison Bioregion is 20 m X 20 m, however 50 m X 50 m were established due to the low species richness. The quadrats were established by inserting metal pickets into the NW corner, and measuring the length of the resultant boundaries to verify the quadrats were 50 m X 50 m (square quadrats). The objective was to have at least three quadrats per vegetation type to capture the floristic variations within the survey area.

Following their establishment and boundary verification, the NW corner of each quadrat was recorded by GPS (Appendix E) and three photographs of the quadrat were taken from the NW corner (Appendix G). All vascular plants within the quadrat were recorded (Appendix F). This included recording of dominant taxa from the upper, middle and lower stratum, and sampling of all unknown taxa. Unknown taxa were identified using Botanica's own reference herbarium and relevant taxonomic keys or by a taxonomic consultant. Data on level of disturbance, presence of coarse fragments on surface, topographical position, elevation, aspect, percentage litter, percentage bare ground, percentage surface rock (bedrock and surface deposits), soil types (colour, profile, field texture and surface type), and vegetation structure were collected from each quadrat (Appendix F). Methods of recording data from these quadrats largely follow those outlined in CSIRO's *Australian Soil and Land Survey Field Handbook* (McDonald *et al.* 1998) and in accordance with EPA Guidelines (2016). Presence/absence data of taxa from sample sites were used to compile the representative vegetation types.

4.2.3 Flora Identification

Unknown specimens collected during the survey were identified with the aid of samples housed at the Botanica Herbarium and the Western Australian Herbarium.

4.3 Data Analysis Tools

Following field assessments, vegetation types and condition were mapped using the GIS program QGIS, and the hectare area/ percentage area of each vegetation type and condition within the survey area was calculated. Spatial maps illustrating the location of vegetation types and any significant flora/ vegetation and fauna were generated using QGIS.

4.3.1 PATN Analysis

The PATN software package was used to assess the similarities/ dissimilarities between quadrats based on presence/absence of species. One sterile taxon were recorded during the survey which were excluded from the analysis. 14 annual taxa were also excluded from the analysis. Singleton taxa were included in the analysis (19 taxa). A total of 54 taxa recorded within the quadrats were included in the analysis.

The analysis produced a quantitative estimate of the relationship between species composition of each quadrat. The classifications were based upon a Bray-Curtis association matrix using a flexible Unweighted Pair Group Arithmetic Mean (UPGMA) method (with a beta value of -0.1) which standardises the data enabling the analysis to be completed. Semi-strong hybrid (SSH) ordination of the quadrat is then undertaken to show spatial relationships between groups and to elucidate possible environmental correlates with the classification.

The analysis also produced a stress value which is a measure of the 'strength' of the analysis (i.e., how well the quadrats are grouped together into the appropriate floristic groups). The lower the stress value the greater the strength of the analysis with a value of less than 0.3 showing that the analysis appropriately grouped quadrats. A stress value greater than 0.3 suggests that the analysis was unable to group quadrats appropriately due to extraneous variables (i.e., other factors influencing differences in floristic groups other than species composition e.g., fire, clearing disturbance etc.).

4.3.2 EstimateS

EstimateS software was used to estimate species richness present using the Chao2 richness estimator. For any number of samples, the estimator uses the existing pattern of species accumulation to estimate the true number of species at a site. The estimators tend to under-estimate species number when sample size is small, hence the estimated number of true species can be seen to increase with sample size. This software was also used to compute Coleman rarefaction curves estimates which were used to calculate species accumulation curves.

4.4 Terrestrial Fauna Field Assessment

Botanica conducted a basic fauna survey of the 330 ha survey area from the 21st to 23rd October 2022. The survey area was traversed by two people on foot (Figure 4-1).

Fauna habitat types were identified across the survey area based on broad major vegetation groups and associated landform. A handheld GPS unit was used to record the coordinates of the boundaries between fauna habitats and each habitat was photographed. The main aim of the fauna habitat assessment was to determine the likelihood of a species of significance utilising habitat within the survey area. The habitat information obtained was also used to aid in finalising the overall potential fauna list.

Available information on the habitat requirements of the species of significance listed as possibly occurring in the area (determined from the desktop assessment) was researched. During the field survey, the habitats within the survey area were assessed and specific elements identified, if present, to determine the likelihood of listed Threatened and Priority species utilising habitat within the survey area. Opportunistic observations of fauna species were made during all field survey work.

4.5 Scientific Licences

Table 4-1: Scientific Licenses of Botanica Staff coordinating the survey

Licensed Staff	Permit Number	Date of Expiry
Jim Williams	FB62000457(licence to take flora for scientific purposes)	04/08/2025
Jennifer Jackson	FB62000309 (Licence to take flora for scientific purposes)	11/01/2024

4.6 Survey Limitations and Constraints

It is important to note that flora/ vegetation and fauna surveys will entail limitations notwithstanding careful planning and design. Potential limitations are listed in Table 4-2.

Table 4-2: Limitations and constraints associated with the flora/ vegetation and fauna survey

Variable	Potential Impact on Survey	Details
Access problems	Not a constraint	The survey was conducted on foot. Access was readily available from existing access tracks located within the survey area.
Competency/ Experience	Not a constraint	The Botanica personnel that conducted the survey were regarded as suitably qualified and experienced. **Coordinating Staff**: Jim Williams & Jennifer Jackson (Botanist) **Field Staff**: Jim Williams & Jennifer Jackson (Botanist) **Data Interpretation**: Jim Williams, Jennifer Jackson and Lauren Pick (Botanist/ Zoologist).
Timing of survey, weather & season	Not a constraint	Survey work was undertaken in late October 2022, outside of the EPA recommended timing for primary surveys of the Eremaean Province (i.e. post wet season; March-June) (EPA, 2016a) but occurred following months of above average rainfall. Numerous annual taxa were recorded during the survey.
Area disturbance	Not a constraint	Vegetation within the survey area was in good to very good condition and comprised of native vegetation.
Survey Effort/ Extent	Not a constraint	Survey intensity was appropriate for the size/significance of the area with a detailed flora survey and basic fauna survey completed to identify vegetation types/ fauna habitats and significant flora, fauna and vegetation.
Availability of contextual information at a regional and local scale	Not a constraint	Significant flora database searches provided by the DBCA were used to identify any potential locations of Threatened/Priority flora species. BoM, DWER, DPIRD, DBCA and DCCEEW databases were reviewed to obtain appropriate regional desktop information on the biophysical environment of the local region. Botanica has conducted a number of surveys within the Forrestania region and were able to obtain information about the area from previous research conducted within the area. Results of previous assessments in the local area were reviewed to provide context on the local environment.
Data Analysis	Minor constraint	Botanica staff conducting the PATN statistical analyses are not statistical analysts and have basic statistics training. These analyses were used to provide basic information on the relationships between vegetation communities delineated in the field.
Completeness	Not a constraint	In the opinion of Botanica, the survey area was covered sufficiently in order to identify vegetation assemblages. Survey work was conducted during optimal flowering period for majority of taxa (Spring) and following above average rainfall with numerous plants in flower and annual taxa present during the field survey. The vegetation associations were based on visual descriptions of locations in the field. The distribution of these vegetation associations

Variable	Potential Impact on Survey	Details
		outside the survey area is not known, however vegetation associations identified were categorised via comparison to vegetation distributions throughout WA given on NVIS (DotEE, 2017).

5 RESULTS

5.1 Desktop Assessment

5.1.1 Flora/ Vegetation

According to the results of the NatureMap search (DBCA, 2021), a total of 206 flora taxa have been recorded within a 40 km radius of the survey area. Dominant genera include *Acacia* and *Eremophila.* Combined results of database searches (DBCA, 2021 and DCCEEW, 2022) identified five introduced taxa as potentially occurring within 40km of the survey area (Table 5-1). According to the Department of Primary Industries and Regional Development Western Australian Organism List (DPIRD, 2020), none of these taxa are listed as a Declared Pest under the *Biosecurity and Agriculture Management* (BAM) *Act 2007.* No taxa are listed as a Weed of National Significance (WoNS).

Table 5-1: Introduced flora within 40km radius of the survey area

Taxon	Common Name
Carrichtera annua	Wards weed
Cenchrus ciliaris	Buffel Grass
Cynodon dactylon	Couch
Polypogon monspeliensis	Annual Beard grass
Tribulus terrestris	Caltrop

The results of the literature review, combined search of the DBCA's Flora of Conservation Significance databases (DBCA, 2012a) and DCCEEW protected matters search (DCCEEW, 2023) recorded no Threatened Flora or Priority Flora within the survey area. No Threatened Flora and a total of nine Priority Flora taxa were listed on the databases as occurring within a 40km radius of the survey area (map of flora locations provided in Appendix B). A description of the known habitat for each taxon is provided in Table 5-2.

Table 5-2: Flora of Conservation Significance identified as possible to occur within the survey area

Taxon	Conservation Code			Description (DBCA, 2022a; WAHERB, 2023)	Likelihood of Occurrence
	EPBC Act	BC Act	Priority Listing		
Aristida jerichoensis var. *subspinulifera*			P3	Hardpan plains.	Possible
Eremophila arguta			P1	Loamy soils, floodplains.	Unlikely
Eremophila congesta			P1	Lateritic outcrops in greenstone hills, stony quartzite slopes.	Possible
Eremophila pungens			P4	Sandy loam, clayey sand over laterite. Plains, ridges, breakaways.	Possible
Hemigenia exilis			P4	Rocky lower slopes of hill sides, drainage lines.	Unlikely
Ptilotus luteolus			P3	Rocky slopes, screes, and ridges	Unlikely
Sida picklesiana			P3	Breakaways and outcrops, banded ironstone.	Unlikely
Stackhousia clementii			P3	Skeletal soils. Sandstone hills.	Unlikely
Tribulus adelacanthus			P3	Lower slopes. Gravelly loam soils.	Unlikely

5.1.2 Fauna

According to the results of the NatureMap search (DBCA, 2021), a total of 152 vertebrate fauna taxa have been recorded within a 40 km radius of the survey area including 87 bird species, 5 amphibians, 16 mammals and 44 reptiles. Combined results of database searches identified nine introduced taxa as potentially occurring within the survey area, these being:

1. *Camelus dromedaries* (Camel)
2. *Canis lupus familiaris* (Dog)
3. *Capra hircus* (Goat)
4. *Columba livia* (Rock Pigeon)
5. *Equus asinus* (Donkey)
6. *Felis catus* (Cat)
7. *Mus musculus* (House Mouse)
8. *Oryctolagus cuniculus* (Rabbit)
9. *Vulpes vulpes* (Red Fox)

Vertebrate fauna of conservation significance identified during the literature review as previously being recorded in the general area were assessed and ranked for their likelihood of occurrence within the survey area itself (Table 5-3).

Table 5-3: Likelihood of Occurrence – Fauna Species of Conservation Significance

Species	Conservation Status			Habitat Description	Likelihood of Occurrence
	EPBC Act	BC Act	DBCA Priority		
Grey Falcon *Falco hypoleucos*	VU	VU	-	Occurs in arid and semi-arid Australia. The species is mainly found where annual rainfall is less than 500 mm, except when wet years are followed by drought, when the species might become marginally more widespread, although it is essentially confined to the arid and semi-arid zones at all times. The species frequents timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses.	Possibly Occurs aerially over survey area on very rare occasions. No suitable breeding habitat.
Malleefowl *Leipoa ocellata*	VU	VU	-	Occurs in unburned mallee and woodland with abundant litter and low scrub.	Unlikely to Occur. No recent records nearby and habitat unsuitable/very marginal
Night Parrot *Pezoporus occidentalis*	EN	CR	-	Broad habitat requirements include areas of old-growth spinifex (*Triodia*) for roosting and nesting, together with foraging habitats that are likely to include various native grasses and herbs, and may or may not contain shrubs or low trees. (DPaW, 2017).	Unlikely to Occur. No recent records nearby and no suitable habitat.
Peregrine Falcon *Falco peregrinus*	-	OS	-	Diverse from rainforest to arid shrublands, from coastal heath to alpine Mainly about cliffs along coasts, rivers and ranges and about wooded watercourses and lakes. The species utilises the ledges, cliff faces and large hollows/broken spouts of trees for nesting. It will also occasionally use the abandoned nests of other birds of prey.	Possibly occurs aerially over survey area on very rare occasions. No suitable breeding habitat.
Princess Parrot *Polytelis alexandrae*	VU	-	P4	Inhabits sand dunes and sand flats in the arid zone of western and central Australia. It occurs in open savanna woodlands and shrublands that usually consist of scattered stands of *Eucalyptus* (including *E. gongylocarpa*, *E. chippendalei* and mallee species), *Casuarina* or *Allocasuarina* trees; an understorey of shrubs such as *Acacia* (especially *A. aneura*), *Cassia*, *Eremophila*, *Grevillea*, *Hakea* and *Senna*; and a ground cover dominated by *Triodia* species (DCCEEW, 2023)	Unlikely to Occur. Rarely recorded this far south and no recent records nearby.
Grey Wagtail *Motacilla cinerea*	MI	IA	-	Running water in disused quarries, sandy, rocky streams in escarpments and rainforest, sewerage ponds, ploughed fields and airfields (Morecombe 2004).	Would Not Occur. No documented records in the region.
Yellow Wagtail *Motacilla flava*	MI	IA	-	Occurs in a variety of damp or wet habitats with low vegetation, from rushy pastures, meadows, hay fields and marshes to damp steppe and grassy tundra (Morecombe 2004).	Would Not Occur. No documented records in the region.
Migratory shorebirds (various species)	MI	MI	P4	Migratory shorebirds generally prefer muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline salt lakes inland.	Would not occur. No suitable habitat.
Brush-tailed Mulgara *Dasycercus blythi*	-	-	P4	Occurs on sand dunes with sparse cover of sandhill cain grass or areas around salt lakes (DCCEEW, 2023).	Unlikely to Occur. No recent records nearby and habitat unsuitable/very marginal.

Species	Conservation Status			Habitat Description	Likelihood of Occurrence
	EPBC Act	BC Act	DBCA Priority		
Greater Bilby *Macrotis lagotis*	VU	VU		Suitable habitat includes; open tussock grassland (both grasses and forbs) growing on uplands and hills, mulga woodland/shrubland (both pure mulga and mixed stands of mulga/witchetty bush) growing on ridges and rises, and hummock grassland growing on sand plains and dunes, drainage systems, salt lake systems and other alluvial areas Pavey, C., 2006).	Unlikely to Occur. No recent records nearby and habitat unsuitable/very marginal.
Great Desert Skink *Liopholis kintorei*	VU	VU		The Great Desert Skink generally occurs on red sandplains and sand ridges (DCCEEW, 2023).	Would not occur. No suitable habitat.

5.2 Field Assessment

5.2.1 Vegetation Types

Two vegetation types were identified within the survey area which was represented by a total of 18 families and 70 taxa. The total species list is provided in Appendix C. A map showing the vegetation types present in the survey area is provided in Figure 4-1 and a summary of the vegetation types are presented in Table 5-4.

Table 5-4: Summary of vegetation types within the survey area

Landform	NVIS Major Vegetation Group	Vegetation Type	Vegetation Code	Image
Clay-Loam Plain	Acacia Forests and Woodland (MVG 6)	Low woodland of *Acacia incurvaneura/ Acacia pruinocarpa* over mid shrubland of *Eremophila forrestii/ E. galeata* and low open shrubland of *Ptilotus obovatus* on clay-loam plain	CLP-AFW1 134 ha (40.6%)	
Sand-Loam Plain	Acacia Forests and Woodland (MVG 6)	Low woodland of *Acacia incurvaneura* over mid shrubland of *Eremophila forrestii/ Eremophila latrobei* and low hummock grassland of *Triodia basedowii* on sand-loam plain	SLP-AFW1 135 ha (40.9%)	
N/A	N/A	Cleared Vegetation	CV 61 ha (18.5%)	N/A



Figure 5-1: Vegetation types within the survey area

5.2.2 Floristic Composition

Statistical analysis was conducted on quadrat data obtained from the survey to determine the similarities or differences in floristic composition between the flora quadrats. Appendix H provides the dendrogram, two-way table and ordination graph generated from the PATN statistical analysis. The PATN analysis produced a stress value of 0.1663.

Table 5-5: Vegetation types and associated flora quadrats

Vegetation Type	Vegetation Code	Associated Quadrats
Low woodland of *Acacia incurvaneura/ Acacia pruinocarpa* over mid shrubland of *Eremophila forrestii/ E. galeata* and low open shrubland of *Ptilotus obovatus* on clay-loam plain	CLP-AFW1	Q1, Q2, Q3, Q10, Q11, Q12, Q15, Q19, Q20
Low woodland of *Acacia incurvaneura* over mid shrubland of *Eremophila forrestii/ Eremophila latrobei* and low hummock grassland of *Triodia basedowii* on sand-loam plain	SLP-AFW1	Q4, Q5, Q6, Q7, Q8, Q9, Q13, Q14, Q16, Q17, Q18

Two species groups were identified in the analysis (species group A to B) as shown in the two-way table (Appendix H). The first floristic group comprised of majority of the CLP-AFW1 quadrats and one SLP-AFW1 quadrat (Q8). This floristic group was mostly characterised by species group B (see two-way table provided in Appendix H) with an average species richness of 14 taxa per quadrat (ranged from 10 to 17 species per quadrat).

The second floristic group comprised of majority of the SLP-AFW1 quadrats and two CLP-AFW1 quadrats (Q15 and Q19). This floristic group was mostly characterised by species group B (see two-way table provided in Appendix H) with an average species richness of 11 taxa per quadrat (ranged from 7 to 18 species per quadrat).

Species Richness and Accumulation Estimates

The Chao 2 richness estimator provided an estimated species richness of 84 species in 30 sample sites (quadrats). Species richness recorded for the 20 quadrats surveyed was 73 species. A species accumulation curve was created to display the rate of species accumulation. The R^2 value (0.99) suggests that the data "fits" the species accumulation curve shown in Figure 5-2. Species accumulation ranged from nine to two species per quadrat from 1-18 sample sites and reduced to one species per quadrat beyond 19 sample sites. Botanica has determined that according to this data a sufficient number of quadrats were established in the survey area to adequately assess the floristic composition of the area.

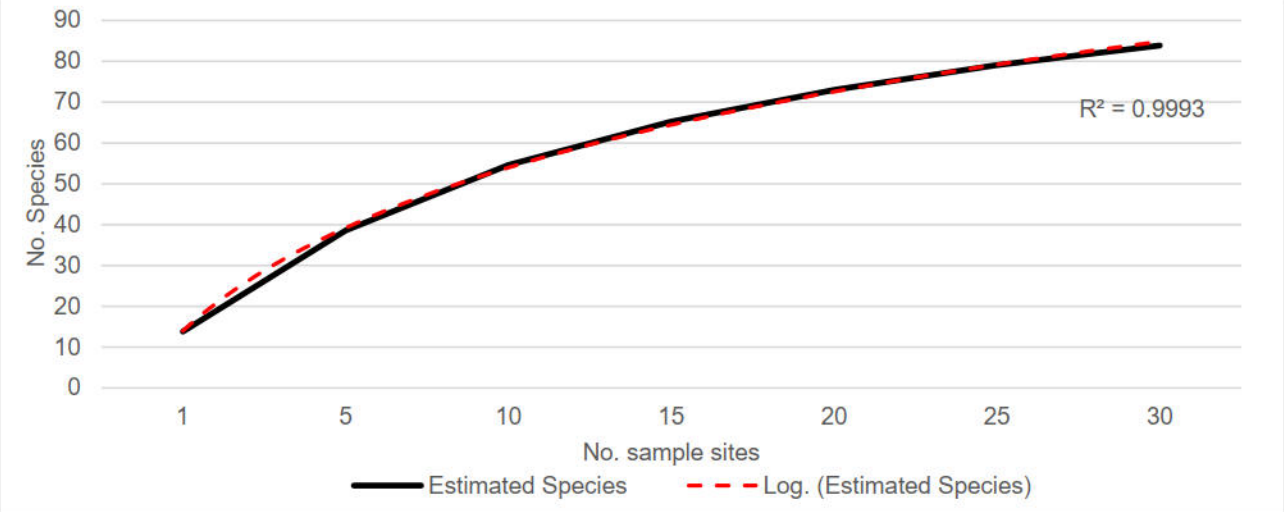


Figure 5-2: Species accumulation curve

5.2.3 Significant Flora

According to the EPA *Environmental Factor Guideline for Flora and Vegetation* (EPA, 2016b) significant flora includes:

- flora being identified as Threatened or Priority species;
- locally endemic flora or flora associated with a restricted habitat type (e.g. surface water or groundwater dependent ecosystems);
- new species or anomalous features that indicate a potential new species;
- flora 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; and
- flora with relictual status, being representative of taxonomic groups that no longer occur widely in the broader landscape.

No Threatened Flora taxa listed under Commonwealth or State legislation were identified within the survey area. No Priority Flora taxa as listed by DBCA was identified in the survey area. No other significant flora (as described above) were identified within the survey area.

5.2.4 Significant Vegetation

According to the EPA *Environmental Factor Guideline for Flora and Vegetation* (EPA, 2016b) significant vegetation includes:

- vegetation being identified as Threatened or Priority Ecological Communities;
- vegetation with restricted distribution;
- vegetation subject to a high degree of historical impact from threatening processes;
- vegetation which provides a role as a refuge; and
- vegetation providing an important function required to maintain ecological integrity of a significant ecosystem.

No Threatened Ecological Communities listed under Commonwealth or State legislation were identified within the survey area. No Priority Ecological Communities as listed by DBCA was identified in the survey area. No other significant vegetation (as described above) were identified within the survey area.

5.2.5 Vegetation Condition

Based on the vegetation condition rating scale obtained from the EPA (2016) provided in Appendix D, vegetation was rated as 'good' to 'very good' condition (Table 5-6 and Figure 5-3). Disturbance within the survey area was a result of existing mining, pastoral land use, exploration and non-aggressive weeds. Approximately 61 ha (18.5% of the total survey area) comprised of cleared vegetation.

Table 5-6: Vegetation condition within the survey area

Vegetation Condition Rating	Description (EPA, 2016)	Extent within survey area
Very Good	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.	229 ha (69.4%)
Good	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.	40 ha (12.1%)



Figure 5-3: Vegetation condition within the survey area

5.2.6 Introduced Flora

One introduced species was identified within the survey area; *Eragrostis cilianensis* (Stinkgrass). This taxon is not listed as a Declared Pest under the *Biosecurity and Agriculture Management* (BAM) *Act 2007* or as a Weed of National Significance (WoNS). The recorded locations of this taxon are provided in Figure 5-4.

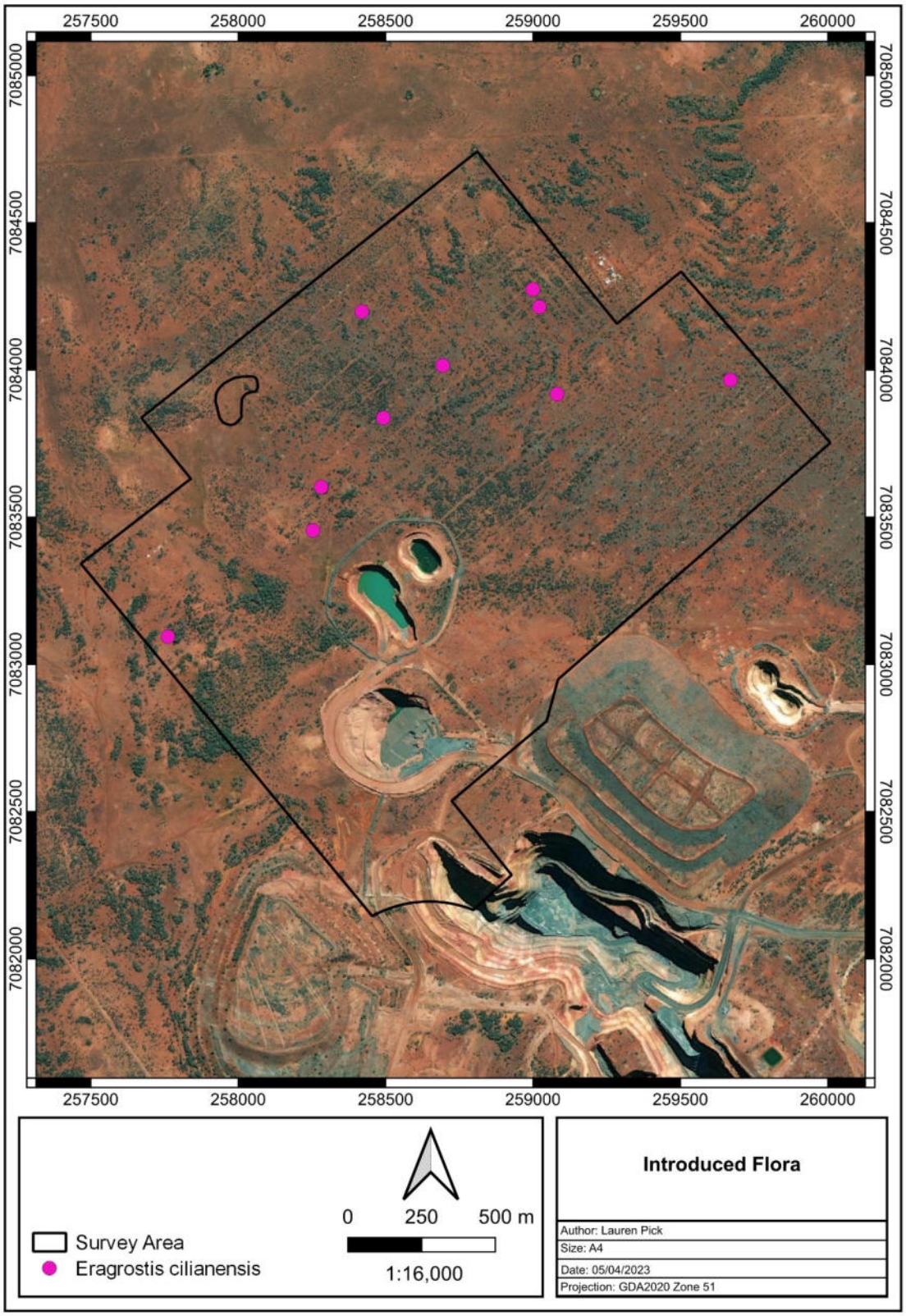


Figure 5-4: Introduced flora recorded within the survey area

5.2.7 Fauna Habitat

Two broad scale terrestrial fauna habitats were identified within the survey area as described in Table 5-8 below and shown in Figure 5-5.

During the field survey opportunistic observations of fauna species were made with a total of 13 fauna species observed (including two introduced fauna).

Table 5-7: Fauna species observed during the field survey

Taxon	Common Name
Artamus cinereus	Black-faced Woodswallow
Barnardius zonarius semitorquatus	Twenty Eights
Cinclosoma clarum	Western Chestnut Quail-thrush
Geophaps plumifera	Spinifex Pigeon
Lalage tricolor	White-winged Triller
Melopsittacus undulatus	Budgerigar
Oreoica gutturalis	Crested Bellbird
Pomatostomus superciliosus	White-browed Babbler
Rhipidura leucophrys	Willie Wagtail
Varanus gouldii	Bungarra
Bos primigenius taurus	European Cattle
Oryctolagus cuniculus	Rabbit
Osphranter rufus	Red Kangaroo

Table 5-8: Main terrestrial fauna habitats within the survey area

Fauna Habitat	Description	Representative Fauna Attributes	Example Image
Clay-Loam Plain: Acacia Woodland 134 ha (40.6%)	Clay-loam plain comprising of Mulga woodland over mixed low shrubs	• Substrate moderately suited to a variety of burrowing small mammals and reptiles. • Diverse vegetation strata supporting diverse avifauna assemblage. • Limited leaf litter and tree logs/ hollows for fauna refuge.	
Sand-Loam Plain: Acacia Woodland 135 ha (40.9%)	Sand-loam plain comprising of Mulga woodland over mixed low shrubs and spinifex grassland	• Substrate very well suited to a variety of burrowing small mammals and reptiles. • Less diverse vegetation strata supporting a less diverse avifauna assemblage. • Limited leaf litter and tree logs/ hollows for fauna refuge.	



Figure 5-5: Fauna habitats within the survey area

5.2.8 Significant Fauna

According to the EPA *Environmental Factor Guideline for Terrestrial Fauna* (EPA, 2016c) significant fauna includes:

- Fauna being identified as a Threatened or Priority species;
- Fauna species with restricted distribution;
- Fauna subject to a high degree of historical impact from threatening processes; and
- Fauna providing an important function required to maintain the ecological integrity of a significant ecosystem.

No significant fauna taxa were confirmed as occurring within the survey area. The current status of some species on site and/or in the general area is difficult to determine, however, based on the habitats present and/ or recent nearby records, the following species of significance can be regarded as possibly occurring in the wider area (but not necessarily within the survey area):

- **Greg Falcon *Falco hypoleucos* – Vulnerable (EPBC Act & BC Act)**
  The species potentially utilises some sections of the survey area as part of a much larger home range, though records in this area are rare and therefore it is only likely to be present very occasionally. No suitable breeding habitat. No significant impact likely.

- **Peregrine Falcon *Falco peregrinus* –Other Specially Protected Species (BC Act)**
  This species potentially occurs aerially over the survey area as part of a much larger home range, though records in this area are rare and therefore it is likely to be present occasionally. No suitable breeding habitat. No significant impact likely.

It should be noted that while habitats onsite for the species listed above are considered possibly suitable, some or all may be marginal in extent/quality and therefore the fauna species considered as possibly occurring may in fact only visit the area for short periods as infrequent vagrants. The result of the literature review and observations made during the field survey suggest that the probability of any of the above-mentioned fauna species actually occurring with the survey area would be low.

5.3 Matters of National Environmental Significance

5.3.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act protects matters of national environmental significance, and is used by the Commonwealth DAWE to list threatened taxa and ecological communities into categories based on the criteria set out in the Act (www.environment.gov.au/epbc/index.html). The Act provides a national environmental assessment and approval system for proposed developments and enforces strict penalties for unauthorised actions that may affect matters of national environmental significance. Matters of national environmental significance as defined by the Commonwealth EPBC Act include:

- Nationally threatened flora species;
- World heritage properties;
- National heritage places;
- Wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under which such wetlands are listed);
- Nationally threatened ecological communities;
- Commonwealth marine area;
- The Great Barrier Reef Marine Park; and
- Nuclear actions (including uranium mining) a water resource, in relation to coal seam gas development and large coal mining development.

No matters of national environmental significance as defined by the Commonwealth EPBC Act were identified within the survey area.

5.4 Matters of State Environmental Significance

5.4.1 *Environmental Protection Act WA 1986*

The EP Act provides for the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment. The Act is administered by The Department of Water and Environment Regulation (DWER), which is the State Government's environmental regulatory agency.

Under Section 51C of the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations (Regulations) WA 2004* any clearing of native vegetation in Western Australia that is not eligible for exemption under Schedule 6 of the *EP Act 1986* or under the Regulations 2004 requires a clearing permit from the DWER or DMIRS. Under Section 51A of the *EP Act 1986* native vegetation includes aquatic and terrestrial vegetation indigenous to Western Australia, and intentionally planted vegetation declared by regulation to be native vegetation, but not vegetation planted in a plantation or planted with commercial intent. Section 51A of the *EP Act 1986* defines clearing as "the killing or destruction of; the removal of; the severing or ringbarking of trunks or stems of; or the doing of substantial damage to some or all of the native vegetation in an area, including the flooding of land, the burning of vegetation, the grazing of stock or an act or activity that results in the above". Exemptions under Schedule 6 of the EP Act and the EP Regulations do not apply in ESAs as declared under Section 51B of the EP Act or TEC listed under State and Commonwealth legislation.

No evidence of the survey area containing any TEC or Threatened Flora or Fauna was identified during the survey. The survey area is not located within any ESA's as listed under the EP Act (as shown in Appendix B).

5.4.2 *Biodiversity Conservation Act 2016*

This Act is used by the Western Australian DBCA for the conservation and protection of biodiversity and biodiversity components in Western Australia and to promote the ecologically sustainable use of biodiversity components in the State. Taxa are classified as 'Threatened" when their populations are geographically restricted or are threatened by local processes (see following sections for Threatened definitions). Under this Act all native flora and fauna are protected throughout the State. Financial penalties are enforced under this Act if threatened species are collected without an appropriate licence.

Under Section 54(1) of the BC Act, habitat is eligible for listing as critical habitat if:

(a) it is critical to the survival of a threatened species or a threatened ecological community; and
(b) its listing is otherwise in accordance with the ministerial guidelines.

No threatened species or critical habitat listed under the BC Act were recorded within the survey area.

5.4.3 Conservation Reserves

The survey area is not located within a vested or proposed Conservation Reserve and is not located within any DBCA managed land. The closest DBCA managed land is the ex. Lorna Glenn UCL, which is located approximately 43km east of the survey area.

A map showing conservation areas in relation to the survey area is provided in Appendix B.

5.5 Native Vegetation Clearing Principles

Based on the outcomes from the survey undertaken, as presented in this report, Botanica provides the following comments regarding the native vegetation clearing principles listed under Schedule 5 of the EP Act (Table 5-9).

Table 5-9: Assessment of development within the survey area against native vegetation clearing principles

Letter	Principle	Assessment	Outcome
Native vegetation should not be cleared if it:			
(a)	comprises a high level of biological diversity.	Vegetation identified within the survey area is not considered to be of high biological diversity and is well represented in the local area.	Clearing is unlikely to be at variance to this principle
(b)	comprises the whole or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to WA.	No significant fauna were observed within the survey area. Majority of the survey area comprises of broad fauna habitats that are typical of those in the wider region. No water bodies (both perennial/ non-perennial) occur within the survey area.	Clearing may be at variance to this principle
(c)	includes, or is necessary for the continued existence of rare flora.	No Threatened Flora taxa, pursuant to the BC Act and the EPBC Act were identified within the survey area.	Clearing is unlikely to be at variance to this principle
(d)	comprises the whole or part of or is necessary for the maintenance of a threatened ecological community (TEC).	No TEC listed under the EPBC Act or by the BC Act occur within the survey area.	Clearing is unlikely to be at variance to this principle
(e)	is significant as a remnant of native vegetation in an area that has been extensively cleared	The survey area occurs within the pre-European Beard vegetation association Wiluna 18 which retains >98% of the original pre-European vegetation extent.	Clearing is unlikely to be at variance to this principle
(f)	is growing, in, or in association with, an environment associated with a watercourse or wetland	There are no inland waters (lakes/ playas) or drainage lines within the survey area. No vegetation growing in, or in association with a watercourse or wetland were identified within the survey area.	Clearing is unlikely to be at variance to this principle
(g)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	The Project area occurs within the pre-European Beard vegetation association Wiluna 18 which retains >98% of the original pre-European vegetation extent. Clearing within these vegetation associations is not likely to lead to land degradation issues such as salinity, water logging or acidic soils.	Clearing is unlikely to be at variance to this 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 survey area is not located within a conservation area. The closest conservation reserve is the ex. Lorna Glenn UCL, which is located approximately 43km south of the survey area. Given the distance from the survey area, impacts to the environmental values of this conservation reserve are unlikely.	Clearing is unlikely to be at variance to this principle
(i)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	There are no inland waters (lakes/ playas) or drainage lines within the survey area. No vegetation growing in, or in association with a watercourse or wetland were identified within the survey area. Most rainfall is lost by evaporation or surface runoff. Only a small portion infiltrates the soil and recharges the groundwater.	Clearing is unlikely to be at variance to this principle
(j)	Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding	Rainfall is unreliable and highly variable with an average rainfall of 200mm and an evaporation rate of 2461mm. The region is not prone to flooding and does not contain ephemeral water sources.	Clearing is unlikely to be at variance to this principle

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Appendix A:
Significant Species/ Communities Categories (BC Act and EPBC Act)

Definitions of Conservation Significant Species

Code	Category
State categories of Threatened and Priority species	
Threatened Species (T) 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).	
CR	**Critically Endangered** 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 2018 for critically endangered flora.
EN	**Endangered** 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** 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 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 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 Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection. Species that are listed as Threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.	
IA	**International Agreement/ Migratory** 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.

Code	Category
	Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.
CD	**Species of special conservation interest** 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 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.	
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.
Commonwealth categories of Threatened species	
EX	**Extinct** Taxa where there is no reasonable doubt that the last member of the species has died.
EW	**Extinct in the Wild** Taxa where it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or 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.

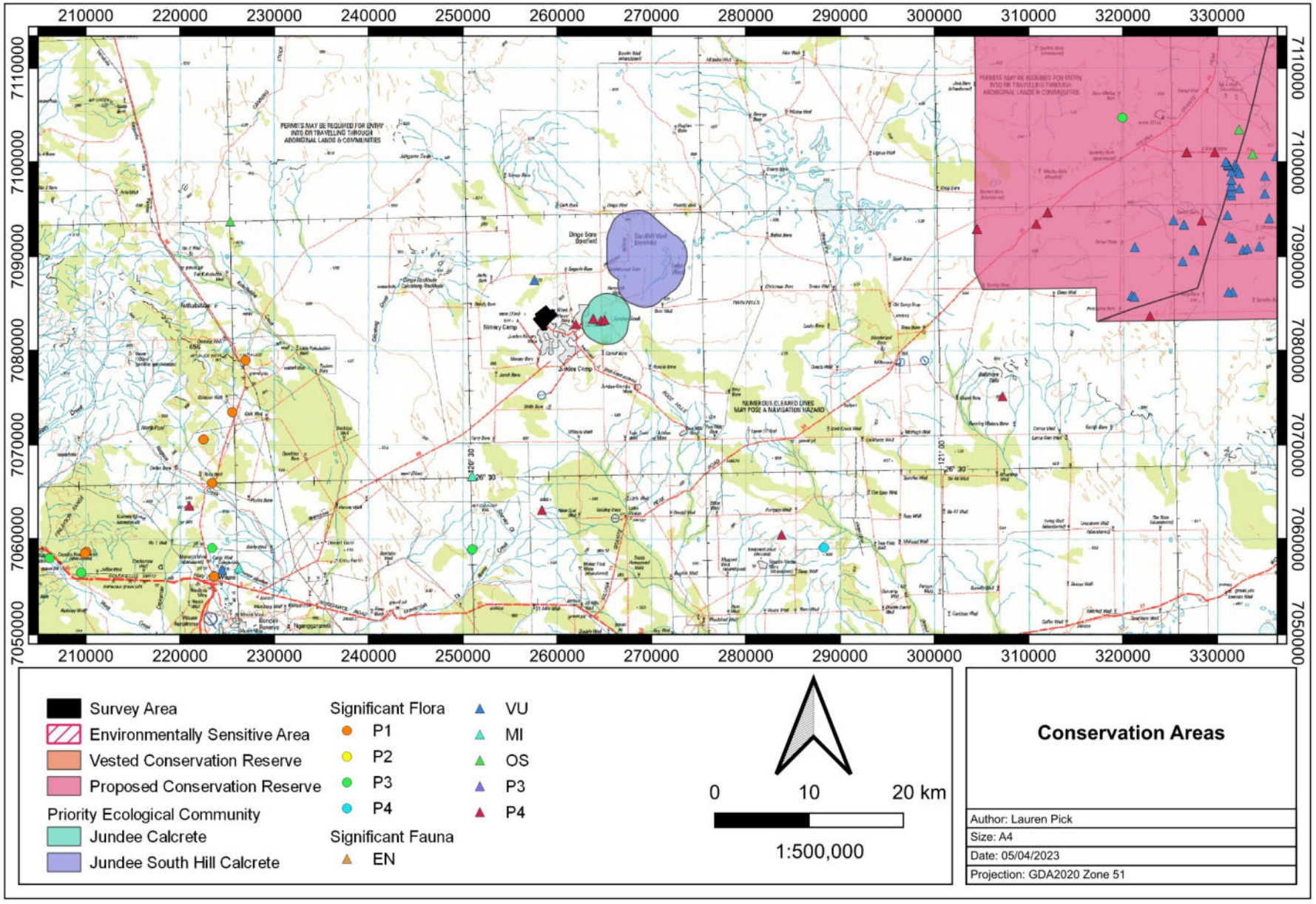
Code	Category
CR	**Critically Endangered** Taxa that are facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
EN	**Endangered** Taxa which are not critically endangered and is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
VU	**Vulnerable** Taxa which are not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
CD	**Conservation Dependent** Taxa which are 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 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.

Definitions of conservation significant communities

Category Code	Category
State categories of Threatened Ecological Communities (TEC)	
PD	**Presumed Totally Destroyed**
	An ecological community will be listed as Presumed Totally Destroyed if there are no recent records of the community being extant and either of the following applies:
	• records within the last 50 years have not been confirmed despite thorough searches or known likely habitats or;
	• all occurrences recorded within the last 50 years have since been destroyed.
CR	**Critically Endangered**
	An ecological community will be listed as Critically Endangered when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future, meeting any one of the following criteria:
	The estimated geographic range and distribution has been reduced by at least 90% and is either continuing to decline with total destruction imminent, or is unlikely to be substantially rehabilitated in the immediate future due to modification;
	The current distribution is limited i.e. highly restricted, having very few small or isolated occurrences, or covering a small area;
	The ecological community is highly modified with potential of being rehabilitated in the immediate future.
EN	**Endangered**
	An ecological community will be listed as Endangered when it has been adequately surveyed and is not Critically Endangered but is facing a very high risk of total destruction in the near future. The ecological community must meet any one of the following criteria:
	The estimated geographic range and distribution has been reduced by at least 70% and is either continuing to decline with total destruction imminent in the short-term future, or is unlikely to be substantially rehabilitated in the short-term future due to modification;
	The current distribution is limited i.e. highly restricted, having very few small or isolated occurrences, or covering a small area;
	The ecological community is highly modified with potential of being rehabilitated in the short-term future.
VU	**Vulnerable**

Category Code	Category
	An ecological community will be listed as Vulnerable when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing high risk of total destruction in the medium to long term future. The ecological community must meet any one of the following criteria:
	The ecological community exists largely as modified occurrences that are likely to be able to be substantially restored or rehabilitated;
	The ecological community may already be modified and would be vulnerable to threatening process, and restricted in range or distribution;
	The ecological community may be widespread but has potential to move to a higher threat category due to existing or impending threatening processes.
Commonwealth categories of Threatened Ecological Communities (TEC)	
CE	**Critically Endangered** If, at that time, an ecological community is facing an extremely high risk of extinction in the wild in the immediate future (indicative timeframe being the next 10 years).
EN	**Endangered** If, at that time, an ecological community is not critically endangered but is facing a very high risk of extinction in the wild in the near future (indicative timeframe being the next 20 years).
VU	**Vulnerable** If, at that time, an ecological community is not critically endangered or endangered, but is facing a high risk of extinction in the wild in the medium–term future (indicative timeframe being the next 50 years).
Priority Ecological Communities	
P1	**Poorly-known ecological communities**
	Ecological communities with apparently few, small occurrences, all or most not actively managed for conservation (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) and for which current threats exist.
P2	**Poorly-known ecological communities**
	Communities that are known from few small occurrences, all or most of which are actively managed for conservation (e.g. within national parks, conservation parks, nature reserves, State forest, un-allocated Crown land, water reserves, etc.) and not under imminent threat of destruction or degradation.
P3	**Poorly known ecological communities**
	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:
	Communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or;
	Communities made up of large, and/or widespread occurrences, that may or not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing and inappropriate fire regimes.
P4	**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.
P5	**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 B:
Regional map of the survey area in relation to areas of significance


210000
220000
230000
240000
250000
260000
270000
280000
290000
300000
310000
320000
330000
7110000
7100000
7090000
7080000
7070000
7060000
7050000
PERMITS MAY BE REQUIRED FOR ENTRY INTO OR TRAVELLING THROUGH ABORIGINAL LANDS & COMMUNITIES
NUMEROUS CLEARED LINES MAY POSE A NAVIGATION HAZARD
Survey Area
Environmentally Sensitive Area
Vested Conservation Reserve
Proposed Conservation Reserve
Priority Ecological Community
Jundee Calcrete
Jundee South Hill Calcrete
Significant Flora
P1
P2
P3
P4
Significant Fauna
EN
VU
MI
OS
P3
P4
0
10
20 km
1:500,000
Conservation Areas
Author: Lauren Pick
Size: A4
Date: 05/04/2023
Projection: GDA2020 Zone 51

Appendix C:
Flora species list

(A) blue text-denotes annual taxa; (W) green text denotes introduced taxa

Family	Taxon	CLP-AFW1	SLP-AFW1
Amaranthaceae	*Ptilotus aervoides (A)*	*	
	Ptilotus exaltatus (A)	*	
	Ptilotus obovatus	*	*
	Ptilotus schwartzii	*	
Apocynaceae	*Leichhardtia australis*	*	
Asteraceae	*Brachyscome ciliaris (A)*	*	
	Rhodanthe charsleyae (A)	*	
	Rhodanthe chlorocephala (A)	*	
	Rhodanthe floribunda (A)	*	
	Waitzia acuminata (A)		*
Chenopodiaceae	*Dysphania kalpari*	*	*
	Enchylaena tomentosa	*	
	Maireana carnosa	*	
	Maireana convexa	*	
	Maireana georgei	*	
	Maireana thesioides	*	
	Maireana tomentosa	*	
	Maireana triptera	*	
	Rhagodia eremaea	*	*
	Roepera eremaea (A)	*	
	Salsola australis (A)	*	
	Sclerolaena densiflora	*	
	Sclerolaena diacantha	*	
	Sclerolaena eurotioides	*	
Euphorbiaceae	*Euphorbia drummondii*	*	
Fabaceae	*Acacia caesaneura*	*	*
	Acacia craspedocarpa	*	
	Acacia cuthbertsonii	*	
	Acacia incurvaneura	*	*
	Acacia pruinocarpa	*	*
	Acacia pteraneura	*	
	Acacia quadrimarginea	*	*
	Acacia tetragonophylla	*	*
	Senna artemisioides subsp. filifolia	*	*
	Senna artemisioides subsp. helmsii	*	*
	Senna glutinosa		*
Goodeniaceae	*Brunonia australis*		*
	Scaevola spinescens	*	
Haloragaceae	*Haloragis odontocarpa (A)*	*	*
Malvaceae	*Abutilon cryptopetalum*	*	*
	Hibiscus burtonii	*	*
	Sida calyxhymenia	*	
	Sida ectogama	*	
	Sida sp. (sterile)	*	
	Sida sp. Excedentifolia (J.L. Egan 1925)	*	*
Montiaceae	*Calandrinia balonensis (A)*	*	
	Calandrinia papillata (A)	*	
Myrtaceae	*Corymbia deserticola*		*
Poaceae	*Aristida contorta (A)*	*	
	Eragrostis cilianensis (W)	*	*
	Eriachne helmsii	*	
	Eriachne mucronata	*	*
	Eriachne pulchella	*	
	Monachather paradoxus	*	*
	Triodia basedowii	*	*
	Triodia melvillei	*	*

Family	Taxon	CLP-AFW1	SLP-AFW1
Proteaceae	*Grevillea striata*	*	
	Hakea preissii	*	
Pteridaceae	*Cheilanthes sieberi*	*	
Rubiaceae	*Psydrax latifolia*	*	*
	Psydrax suaveolens	*	*
Santalaceae	*Anthobolus leptomerioides*	*	*
	Santalum lanceolatum	*	*
Scrophulariaceae	*Eremophila forrestii subsp. forrestii*	*	*
	Eremophila galeata	*	*
	Eremophila latrobei subsp. latrobei	*	*
	Eremophila spectabilis subsp. brevis	*	
Solanaceae	*Solanum lasiophyllum*	*	*
	Solanum orbiculatum	*	
	Solanum terraneum	*	*

Appendix D:
Vegetation Condition Rating

Vegetation Condition Rating	South West and Interzone Botanical Provinces	Eremaean and Northern Botanical Provinces
Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.	
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.	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	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.	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		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	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.	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	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 and shrubs.	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 E:
Quadrat Locations (NW Corner-GDA94)

Quadrat	Vegetation Code	Zone	Easting	Northing	Elevation
Q1	CLP-AFW1	51 J	259014	7082971	555 m
Q2	CLP-AFW1	51 J	259210	7083286	553 m
Q3	CLP-AFW1	51 J	258944	7083258	556 m
Q4	SLP-AFW1	51 J	258892	7083487	557 m
Q5	SLP-AFW1	51 J	259489	7083697	554 m
Q6	SLP-AFW1	51 J	259774	7083781	557 m
Q7	SLP-AFW1	51 J	259669	7083965	558 m
Q8	SLP-AFW1	51 J	259081	7083917	561 m
Q9	SLP-AFW1	51 J	258666	7083609	559 m
Q10	CLP-AFW1	51 J	258077	7083095	556 m
Q11	CLP-AFW1	51 J	257761	7083093	559 m
Q12	CLP-AFW1	51 J	258036	7083579	560 m
Q13	SLP-AFW1	51 J	258097	7083912	555 m
Q14	SLP-AFW1	51 J	258419	7084197	553 m
Q15	CLP-AFW1	51 J	258281	7083601	569 m
Q16	SLP-AFW1	51 J	258492	7083836	568 m
Q17	SLP-AFW1	51 J	258693	7084014	566 m
Q18	SLP-AFW1	51 J	258999	7084272	565 m
Q19	CLP-AFW1	51 J	259021	7084213	564 m
Q20	CLP-AFW1	51 J	258253	7083454	563 m

Appendix F:
Quadrat Datasheets

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 985-987
Quadrat No: Q1	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 555 m
Coordinates (GDA94): 51 J 259014 7082971		**Accuracy:** 2m
Aspect: North East	**Fire (yrs):** >20	**Condition rating:** Good
Landform: Plain/ Flat		
Coarse fragments on the surface: Very abundant (50%-90%)		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Firm		
Cover leaf litter: 10%		
Cover bare ground: 90%		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Shrub
Height: 3-6m	**Height:** 1-3m	**Height:** 0.25-0.5m
Crown cover: <10%	**Crown cover:** <10%	**Crown cover:** 10-30%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia pruinocarpa	*Eremophila galeata*	*Ptilotus obovatus*

ALL TAXA
Acacia incurvaneura
Acacia pruinocarpa
Acacia tetragonophylla
Alyogyne pinoniana
Calandrinia balonensis (A)
Dysphania kalpari
Eremophila galeata
Eriachne helmsii
Leichhardtia australis
Psydrax suaveolens
Ptilotus obovatus
Ptilotus schwartzii
Rhagodia eremaea
Roepera eremaea (A)
Salsola australis (A)
Sclerolaena densiflora
Sclerolaena eurotioides
Senna artemisioides subsp. *helmsii*
Sida sp. Excedentifolia (J.L. Egan 1925)
Sida fibulifera

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 988-990
Quadrat No: Q2	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 553 m
Coordinates (GDA94): 51 J 259210 7083286		**Accuracy:** 2m
Aspect: South West	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Valley flat		
Coarse fragments on the surface: Very abundant (50%-90%)**,** Medium gravelly: medium pebbles 6-20mm, subangular		
Rock outcrop (abundance/runoff): Nil/Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Firm		
Cover leaf litter: 10%		
Cover bare ground: 80%		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Shrub
Height: 3-6m	**Height:** 1-3m	**Height:** 0.25-0.5m
Crown cover: 10-30%	**Crown cover:** <10%	**Crown cover:** <10%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia incurvaneura	*Eremophila galeata*	*Ptilotus obovatus*

ALL TAXA
Abutilon cryptopetalum
Acacia craspedocarpa
Acacia incurvaneura
Acacia tetragonophylla
Aristida contorta (A)
Brachyscome ciliaris (A)
Calandrinia balonensis (A)
Chrysocephalum apiculatum
Eremophila forrestii subsp. *forrestii*
Eremophila galeata
Eremophila spectabilis subsp. *brevis*
Eriachne pulchella
Euphorbia drummondii
Maireana thesioides
Psydrax latifolia
Psydrax suaveolens
Ptilotus aervoides (A)
Ptilotus obovatus
Rhodanthe charsleyae (A)
Rhodanthe chlorocephala (A)
Rhodanthe floribunda (A)
Sclerolaena cuneata
Sida ectogama
Solanum lasiophyllum
Teucrium teucriiflorum
Trichanthodium skirrophorum
Vincetoxicum lineare

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 991-993
Quadrat No: Q3	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 556 m
Coordinates (GDA94): 51 J 258944 7083258		**Accuracy:** 2m
Aspect: South	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Valley Flat		
Coarse fragments on the surface: Moderately; many (20%-50%), medium pebbles 6-20mm, subangular		
Rock outcrop (abundance/runoff): Nil/Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Firm		
Cover leaf litter: 20%		
Cover bare ground: 70%		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Shrub
Height: 6-12m	**Height:** 1-3m	**Height:** 0.25-0.5m
Crown cover: 30-70%	**Crown cover:** <10%	**Crown cover:** <10%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia incurvaneura	*Eremophila galeata*	*Ptilotus obovatus*

ALL TAXA
Acacia incurvaneura
Acacia quadrimarginea
Acacia tetragonophylla
Brachyscome ciliaris (A)
Calandrinia eremaea
Cheilanthes sieberi
Chrysocephalum apiculatum
Dysphania melanocarpa
Eremophila galeata
Eremophila forrestii subsp. *forrestii*
Maireana thesioides
Psydrax latifolia
Psydrax suaveolens
Ptilotus aervoides (A)
Ptilotus obovatus
Salsola australis (A)
Sclerolaena cuneata
Sida fibulifera
Teucrium teucriiflorum
Trichanthodium skirrophorum

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 994-996
Quadrat No: Q4	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 557 m
Coordinates (GDA94): 51 J 258892 7083487		**Accuracy:** 2m
Aspect: South	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Plain		
Coarse fragments on the surface: Very abundant (50%-90%), Medium gravelly: medium pebbles 6-20mm, subangular		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Firm		
Cover leaf litter: 10%		
Cover bare ground: 80%		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form:	**Growth form:** Shrub	**Growth form:** Hummock grass
Height:	**Height:** 1-3m	**Height:** 0.25-.5m
Crown cover:	**Crown cover:** 30-70%	**Crown cover:** 10-30%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
	Acacia incurvaneura	*Triodia basedowii*

ALL TAXA
Acacia incurvaneura
Eremophila latrobei subsp. *latrobei*
Eremophila forrestii subsp. *forrestii*
Monachather paradoxus
Psydrax latifolia
Psydrax suaveolens
Ptilotus obovatus
Triodia basedowii
Triodia melvillei

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 997-999
Quadrat No: Q5	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 554 m
Coordinates (GDA94): 51 J 259489 7083697		**Accuracy:** 2m
Aspect: South	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Plain		
Coarse fragments on the surface: Very abundant (50%-90%), Medium gravelly: medium pebbles 6-20mm, subangular		
Rock outcrop (abundance/runoff): Nil/Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam		
Cover leaf litter: 15%		
Cover bare ground: 80%		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Hummock grass
Height: 6-12m	**Height:** 1-3m	**Height:** 0.25-0.5m
Crown cover: 30-70%	**Crown cover:** <10%	**Crown cover:** 30-70%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia pruinocarpa	*Eremophila latrobei* subsp. *latrobei*	*Triodia basedowii*

ALL TAXA
Acacia incurvaneura
Acacia pruinocarpa
Eremophila latrobei subsp. *latrobei*
Psydrax suaveolens
Senna artemisioides subsp. *helmsii*
Sida sp. Excedentifolia (J.L. Egan 1925)
Triodia basedowii

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 001-003
Quadrat No: Q6	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 557 m
Coordinates (GDA94): 51 J 259774 7083781		**Accuracy:** 2m
Aspect: South	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Flat		
Coarse fragments on the surface: Slightly; few (2%-10%) Fine gravelly; small pebbles 2-6mm, Subangular		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Firm/ Surface crust		
Cover leaf litter: 25%		
Cover bare ground:		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Hummock grass
Height: 6-12m	**Height:** 1-3m	**Height:** 0.25-.5m
Crown cover: <1**%**	**Crown cover:** <10%	**Crown cover:** 30-70%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Corymbia deserticola	*Eremophila latrobei* subsp. *latrobei*	*Triodia basedowii*

ALL TAXA
Acacia incurvaneura
Corymbia deserticola
Eremophila latrobei subsp. *latrobei*
Eriachne mucronata
Psydrax latifolia
Solanum lasiophyllum
Triodia basedowii

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 004-006
Quadrat No: Q7	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 558 m
Coordinates (GDA94): 51 J 259669 7083965		**Accuracy:** 2m
Aspect: North East	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Plain		
Coarse fragments on the surface: No qualifier; common (10%-20%), Fine gravelly; small pebbles 2-6mm, Subangular		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Clay-Loam/ Firm		
Cover leaf litter: 20%		
Cover bare ground: 70%		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Hummock grass
Height: 3-6m	**Height:** 1-3m	**Height:** 0.25-0.5m
Crown cover: 10-30%	**Crown cover:** <10%	**Crown cover:** 30-70%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia incurvaneura	*Eremophila latrobei* subsp. *latrobei*	*Triodia basedowii*

ALL TAXA
Acacia incurvaneura
Acacia pruinocarpa
Acacia tetragonophylla
Anthobolus leptomerioides
Eragrostis cilianensis (W)
Eremophila forrestii subsp. *forrestii*
Eremophila latrobei subsp. *latrobei*
Psydrax latifolia
Ptilotus obovatus
Santalum lanceolatum
Solanum lasiophyllum
Triodia basedowii

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 007-009
Quadrat No: Q8	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 561 m
Coordinates (GDA94): 51 J 259081 7083917		**Accuracy:** 2m
Aspect: North	**Fire (yrs):** >20	**Condition rating:** Good
Landform: Plain		
Coarse fragments on the surface: Moderately; many (20%-50%), Medium gravelly: medium pebbles 6-20mm, subangular		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam		
Cover leaf litter: 15%		
Cover bare ground: 75%		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Hummock grass
Height: 6-12m	**Height:** 1-3m	**Height:** 0.25-0.5m
Crown cover: <10%	**Crown cover:** <10%	**Crown cover:** 10-30%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia pruinocarpa	*Eremophila latrobei* subsp. *latrobei*	*Triodia basedowii*

ALL TAXA
Acacia incurvaneura
Acacia pruinocarpa
Acacia quadrimarginea
Acacia tetragonophylla
Alyogyne pinoniana
Dysphania kalpari
Eragrostis cilianensis (W)
Eremophila latrobei subsp. *latrobei*
Eremophila spectabilis subsp. *brevis*
Goodenia havilandii
Ptilotus obovatus
Rhagodia eremaea
Triodia basedowii

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 010-012
Quadrat No: Q9	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 559 m
Coordinates (GDA94): 51 J 258666 7083609		**Accuracy:** 2m
Aspect: West	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Plain		
Coarse fragments on the surface: Moderately; many (20%-50%), Medium gravelly: medium pebbles 6-20mm, subangular		
Rock outcrop (abundance/runoff): Nil/Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Firm		
Cover leaf litter: 20%		
Cover bare ground: 70%		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Hummock grass
Height: 6-12m	**Height:** 0.5-1m	**Height:** 0.25-0.5m
Crown cover: 30-70%	**Crown cover:** <10%	**Crown cover:** 30-70%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia incurvaneura	*Eremophila forrestii* subsp. *forrestii*	*Triodia basedowii*

ALL TAXA
Acacia incurvaneura
Abutilon cryptopetalum
Eremophila forrestii subsp. *forrestii*
Eremophila latrobei subsp. *latrobei*
Eremophila spectabilis subsp. *brevis*
Triodia basedowii
Triodia melvillei
Waitzia acuminata (A)

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 013-015
Quadrat No: Q10	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 556 m
Coordinates (GDA94): 51 J 258077 7083095		**Accuracy:** 2m
Aspect: North	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Plain		
Coarse fragments on the surface: Very; abundant (50-90%), Coarse gravelly; large pebbles 20-60mm, Subangular		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Firm		
Cover leaf litter: 10%		
Cover bare ground: 85%		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Shrub
Height: 3-6m	**Height:** 1-3m	**Height:** 0.25-0.5m
Crown cover: 30-70%	**Crown cover:** <10%	**Crown cover:** <10%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia incurvaneura	*Eremophila galeata*	*Ptilotus obovatus*

ALL TAXA
Acacia incurvaneura
Acacia pteraneura
Acacia tetragonophylla
Eremophila forrestii subsp. *forrestii*
Eremophila galeata
Ptilotus obovatus
Psydrax latifolia
Psydrax suaveolens
Rhagodia eremaea
Sclerolaena densiflora
Sclerolaena eurotioides
Sida calyxhymenia
Teucrium teucriiflorum

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 016-018
Quadrat No: Q11	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 559 m
Coordinates (GDA94): 51 J 257761 7083093		**Accuracy:** 2m
Aspect: East	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Valley flat		
Coarse fragments on the surface: No coarse fragments		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Firm		
Cover leaf litter: 30%		
Cover bare ground: 40%		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Shrub
Height: 6-12m	**Height:** 1-3m	**Height:** 0.25-0.5m
Crown cover: 30-70%	**Crown cover:** 30-70%	**Crown cover:** <10%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia incurvaneura	*Eremophila spectabilis* subsp. *brevis*	*Ptilotus obovatus*

ALL TAXA
Acacia incurvaneura
Acacia pruinocarpa
Acacia tetragonophylla
Alyogyne pinoniana
Anthobolus leptomerioides
Enchylaena tomentosa
Eragrostis cilianensis (W)
Eremophila forrestii subsp. *forrestii*
Eremophila galeata
Eremophila spectabilis subsp. *brevis*
Psydrax latifolia
Psydrax suaveolens
Ptilotus obovatus
Rhagodia eremaea
Santalum lanceolatum
Sclerolaena diacantha
Sida calyxhymenia
Teucrium teucriiflorum

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 019-021
Quadrat No: Q12	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 560 m
Coordinates (GDA94): 51 J 258036 7083579		**Accuracy:** 2m
Aspect: North West	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Plain		
Coarse fragments on the surface: Very; abundant (50-90%), Cobbly; or cobbles 60-200mm, Subangular		
Rock outcrop (abundance/runoff): Nil/Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Firm		
Cover leaf litter: 10%		
Cover bare ground: 90%		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Shrub
Height: 3-6m	**Height:** 1-3m	**Height:** 0.25-0.5m
Crown cover: <10%	**Crown cover:** 10-30%	**Crown cover:** <10%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia pruinocarpa	*Senna artemisioides* subsp. *helmsii*	*Ptilotus schwartzii*

ALL TAXA
Acacia cuthbertsonii
Acacia incurvaneura
Acacia pruinocarpa
Acacia tetragonophylla
Eremophila latrobei subsp. *latrobei*
Eremophila spectabilis subsp. *brevis*
Grevillea striata
Maireana thesioides
Maireana triptera
Ptilotus schwartzii
Psydrax suaveolens
Rhagodia eremaea
Scaevola spinescens
Sclerolaena eurotioides
Senna artemisioides subsp. *helmsii*
Triodia melvillei

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 022-024
Quadrat No: Q13	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 555 m
Coordinates (GDA94): 51 J 258097 7083912		**Accuracy:** 2m
Aspect: South West	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Plain		
Subangular		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Firm		
Cover leaf litter: 10%		
Cover bare ground: 80%		

Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Hummock grass
Height: 6-12m	**Height:** 1-3m	**Height:** 0.25-0.5m
Crown cover: <10%	**Crown cover:** 10-30%	**Crown cover:** 10-30%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia pruinocarpa	*Eremophila galeata*	*Triodia basedowii*

ALL TAXA
Acacia incurvaneura
Acacia pruinocarpa
Acacia tetragonophylla
Alyogyne pinoniana
Anthobolus leptomerioides
Eremophila forrestii subsp. *forrestii*
Eremophila galeata
Eremophila latrobei subsp. *latrobei*
Eriachne mucronata
Psydrax latifolia
Ptilotus obovatus
Rhagodia eremaea
Senna artemisioides subsp. *filifolia*
Senna artemisioides subsp. *helmsii*
Sida sp. Excedentifolia (J.L. Egan 1925)
Solanum lasiophyllum
Triodia basedowii

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 025-027
Quadrat No: Q14	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 553 m
Coordinates (GDA94): 51 J 258419 7084197		**Accuracy:** 2m
Aspect: North West	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Flat		
Subangular		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Firm/ Surface crust		
Cover leaf litter: 20%		
Cover bare ground: 70%		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Hummock grass
Height: 6-12m	**Height:** 0.5-1m	**Height:** 0.25-0.5m
Crown cover: 10-30%	**Crown cover:** <10%	**Crown cover:** 30-70%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia pruinocarpa	*Eremophila latrobei* subsp. *latrobei*	*Triodia basedowii*

ALL TAXA
Acacia incurvaneura
Acacia pruinocarpa
Acacia tetragonophylla
Anthobolus leptomerioides
Eragrostis cilianensis (W)
Eremophila latrobei subsp. *latrobei*
Eriachne mucronata
Psydrax latifolia
Ptilotus obovatus
Santalum lanceolatum
Senna artemisioides subsp. *helmsii*
Senna glutinosa
Solanum lasiophyllum
Triodia basedowii

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 028-030
Quadrat No: Q15	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 569 m
Coordinates (GDA94): 51 J 258281 7083601		**Accuracy:** 2m
Aspect: South	**Fire (yrs):** >20	**Condition rating:**Very Good
Landform: Plain/ Flat		
Coarse fragments on the surface: Moderately; many (20%-50%), Medium gravelly: medium pebbles 6-20mm, subangular		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Firm		
Cover leaf litter: 20%		
Cover bare ground: 70%		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Shrub
Height: 3-6m	**Height:** 1-3m	**Height:** 0.25-0.5m
Crown cover: 30-70%	**Crown cover:** <10%	**Crown cover:** <10%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia incurvaneura	*Acacia tetragonophylla*	*Ptilotus obovatus*

ALL TAXA
Acacia incurvaneura
Acacia pruinocarpa
Acacia tetragonophylla
Cheilanthes sieberi
Chrysocephalum apiculatum
Eragrostis cilianensis (W)
Eremophila galeata
Eremophila latrobei subsp. *latrobei*
Eremophila spectabilis subsp. *brevis*
Hibiscus burtonii
Psydrax latifolia
Psydrax suaveolens
Ptilotus obovatus
Sida calyxhymenia
Solanum lasiophyllum
Solanum orbiculatum
Solanum terraneum
Triodia basedowii

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 033-035
Quadrat No: Q16	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 568 m
Coordinates (GDA94): 51 J 258492 7083836		**Accuracy:** 2m
Aspect: South West	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Plain/ Flat		
Subangular		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Surface crust		
Cover leaf litter: 15%		
Cover bare ground: 70%		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Hummock grass
Height: 3-6m	**Height:** 0.5-1m	**Height:** 0.25-0.5m
Crown cover: 30-70%	**Crown cover:** <10%	**Crown cover:** 10-30%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia incurvaneura	*Eremophila forrestii* subsp. *forrestii*	*Triodia basedowii*

ALL TAXA
Acacia caesaneura
Acacia incurvaneura
Acacia pruinocarpa
Eragrostis cilianensis (W)
Eremophila forrestii subsp. *forrestii*
Eremophila latrobei subsp. *latrobei*
Goodenia havilandii
Haloragis odontocarpa (A)
Psydrax latifolia
Sida sp. Excedentifolia (J.L. Egan 1925)
Solanum terraneum
Triodia basedowii

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 036-038
Quadrat No: Q17	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 566 m
Coordinates (GDA94): 51 J 258693 7084014		**Accuracy:** 2m
Aspect: South West	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Plain/ Flat		
Coarse fragments on the surface: Moderately; many (20%-50%), Medium gravelly: medium pebbles 6-20mm, subangular		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Firm/ Surface crust		
Cover leaf litter: 25%		
Cover bare ground: 60%		
Upper stratum	**Mid-stratum**	**Lower stratum**
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Hummock grass
Height: 3-6m	**Height:** 1-3m	**Height:** 0.25-0.5m
Crown cover: <10%	**Crown cover:** <10%	**Crown cover:** 30-70%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia pruinocarpa	*Eremophila latrobei* subsp. *latrobei*	*Triodia basedowii*

ALL TAXA
Acacia incurvaneura
Acacia pruinocarpa
Brunonia australis
Eragrostis cilianensis (W)
Eremophila forrestii subsp. *forrestii*
Eremophila latrobei subsp. *latrobei*
Eriachne mucronata
Goodenia havilandii
Haloragis odontocarpa (A)
Hibiscus burtonii
Monachather paradoxus
Ptilotus obovatus
Sida sp. Excedentifolia (J.L. Egan 1925)
Solanum lasiophyllum
Triodia basedowii

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 039-041
Quadrat No: Q18	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 565 m
Coordinates (GDA94): 51 J 258999 7084272		**Accuracy:** 2m
Aspect: South West	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Plain/ Flat		
Coarse fragments on the surface: Moderately; many (20%-50%), Medium gravelly: medium pebbles 6-20mm, subangular		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Firm/ Surface crust		
Cover leaf litter: 10%		
Cover bare ground: 80%		

Upper stratum	Mid-stratum	Lower stratum
Growth form: Tree	**Growth form:** Shrub	**Growth form:** Hummock grass
Height: 3-6m	**Height:** 1-3m	**Height:** 0.25-0.5m
Crown cover: <10%	**Crown cover:** <10%	**Crown cover:** 30-70%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia pruinocarpa	*Eremophila latrobei* subsp. *latrobei*	*Triodia basedowii*

ALL TAXA
Acacia incurvaneura
Acacia pruinocarpa
Chrysocephalum apiculatum
Eragrostis cilianensis (W)
Eremophila forrestii subsp. *forrestii*
Eremophila latrobei subsp. *latrobei*
Eremophila spectabilis subsp. *brevis*
Hibiscus burtonii
Sida sp. Excedentifolia (J.L. Egan 1925)
Solanum lasiophyllum
Triodia basedowii

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 042-044
Quadrat No: Q19	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 564 m
Coordinates (GDA94): 51 J 259021 7084213		**Accuracy:** 2m
Aspect: South West	**Fire (yrs):** >20	**Condition rating:** Very Good
Landform: Plain/ Flat		
Coarse fragments on the surface: Moderately; many (20%-50%), Medium gravelly: medium pebbles 6-20mm, subangular		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Brown/ Clay-Loam/ Firm/ Surface crust		
Cover leaf litter: <10%		
Cover bare ground: 90%		

Upper stratum	Mid-stratum	Lower stratum
Growth form: Shrub	**Growth form:** Shrub	**Growth form:** Tussock grass
Height: 3-6m	**Height:** 1-3m	**Height:** 0.25-0.5m
Crown cover: <10%	**Crown cover:** <10%	**Crown cover:** <10%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia incurvaneura	*Eremophila latrobei* subsp. *latrobei*	*Eriachne mucronata*

ALL TAXA
Acacia incurvaneura
Acacia pruinocarpa
Acacia tetragonophylla
Aristida contorta (A)
Calandrinia papillata (A)
Cheilanthes sieberi
Eragrostis cilianensis (W)
Eremophila forrestii subsp. *forrestii*
Eremophila latrobei subsp. *latrobei*
Eriachne mucronata
Haloragis odontocarpa (A)
Hibiscus burtonii
Maireana convexa
Maireana triptera
Monachather paradoxus
Psydrax latifolia
Ptilotus obovatus
Ptilotus schwartzii
Santalum lanceolatum
Senna artemisioides subsp. *filifolia*
Sida calyxhymenia
Sida fibulifera
Solanum lasiophyllum

Project Name: Cook Pit		
Date: 21/10/2022	**Botanist:** JJ + JW	**Photo number (NW corner):** 045-047
Quadrat No: Q20	**Quadrat size/shape:** 50m x 50m/ Square	**Elevation (m):** 563 m
Coordinates (GDA94): 51 J 258253 7083454		**Accuracy:** 2m
Aspect: South East	**Fire (yrs):** >20	**Condition rating:** Good
Landform: Plain/ Flat		
Subangular		
Rock outcrop (abundance/runoff): Nil/ Very Slow		
Soil (profile/field texture/soil surface): Firm		
Cover leaf litter: <10%		
Cover bare ground: 90%		

Upper stratum	Mid-stratum	Lower stratum
Growth form: Shrub	**Growth form:** Shrub	**Growth form:** Shrub
Height: 3-6m	**Height:** 1-3m	**Height:** 0.25-0.5m
Crown cover: <10%	**Crown cover:** <10%	**Crown cover:** <10%
Dominant taxa:	**Dominant taxa:**	**Dominant taxa:**
Acacia incurvaneura	*Senna artemisioides* subsp. *helmsii*	*Ptilotus obovatus*

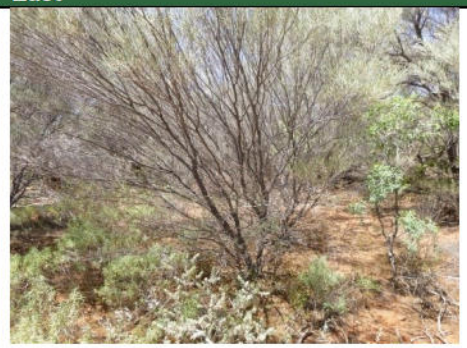
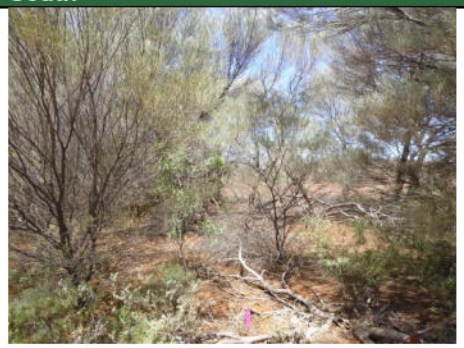
ALL TAXA
Acacia caesaneura
Acacia incurvaneura
Acacia tetragonophylla
Aristida contorta (A)
Eragrostis cilianensis (W)
Eremophila galeata
Eremophila spectabilis subsp. *brevis*
Hakea preissii
Lepidium platypetalum
Maireana carnosa
Maireana convexa
Maireana georgei
Maireana tomentosa
Maireana triptera
Ptilotus exaltatus (A)
Ptilotus obovatus
Scaevola spinescens
Sclerolaena densiflora
Sclerolaena eurotioides
Senna artemisioides subsp. *helmsii*
Solanum lasiophyllum

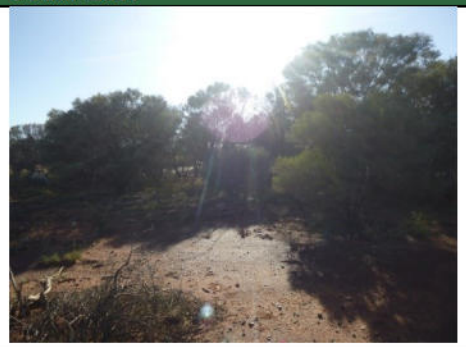
Appendix G:
Quadrat Photographs

Quadrat 1			
Direction	**East**	**South-East**	**South**
Quadrat 2			
Direction	**East**	**South-East**	**South**
Quadrat 3			
Direction	**East**	**South-East**	**South**

Quadrat 4			
Direction	**East**	**South-East**	**South**
Quadrat 5			
Direction	**East**	**South-East**	**South**
Quadrat 6			
Direction	**East**	**South-East**	**South**

Quadrat 7			
Direction	**East**	**South-East**	**South**
Quadrat 8			
Direction	**East**	**South-East**	**South**
Quadrat 9			
Direction	**East**	**South-East**	**South**

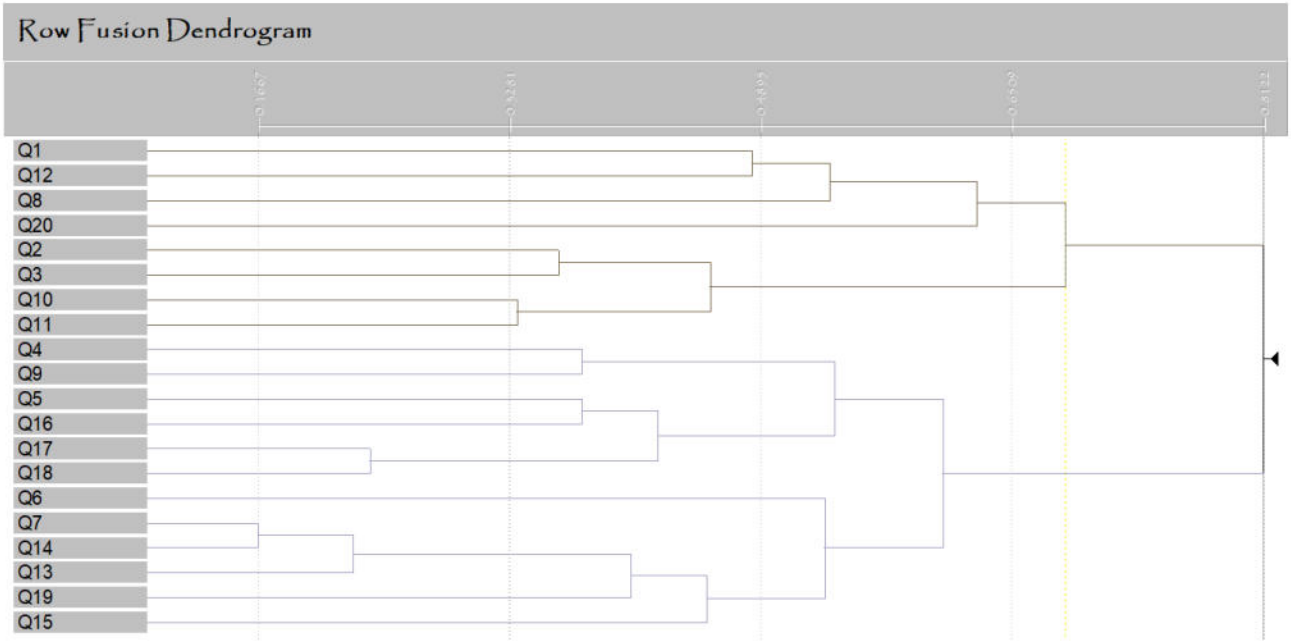
Quadrat 10			
Direction	**East**	**South-East**	**South**
Quadrat 11			
Direction	**East**	**South-East**	**South**
Quadrat 12			
Direction	**East**	**South-East**	**South**

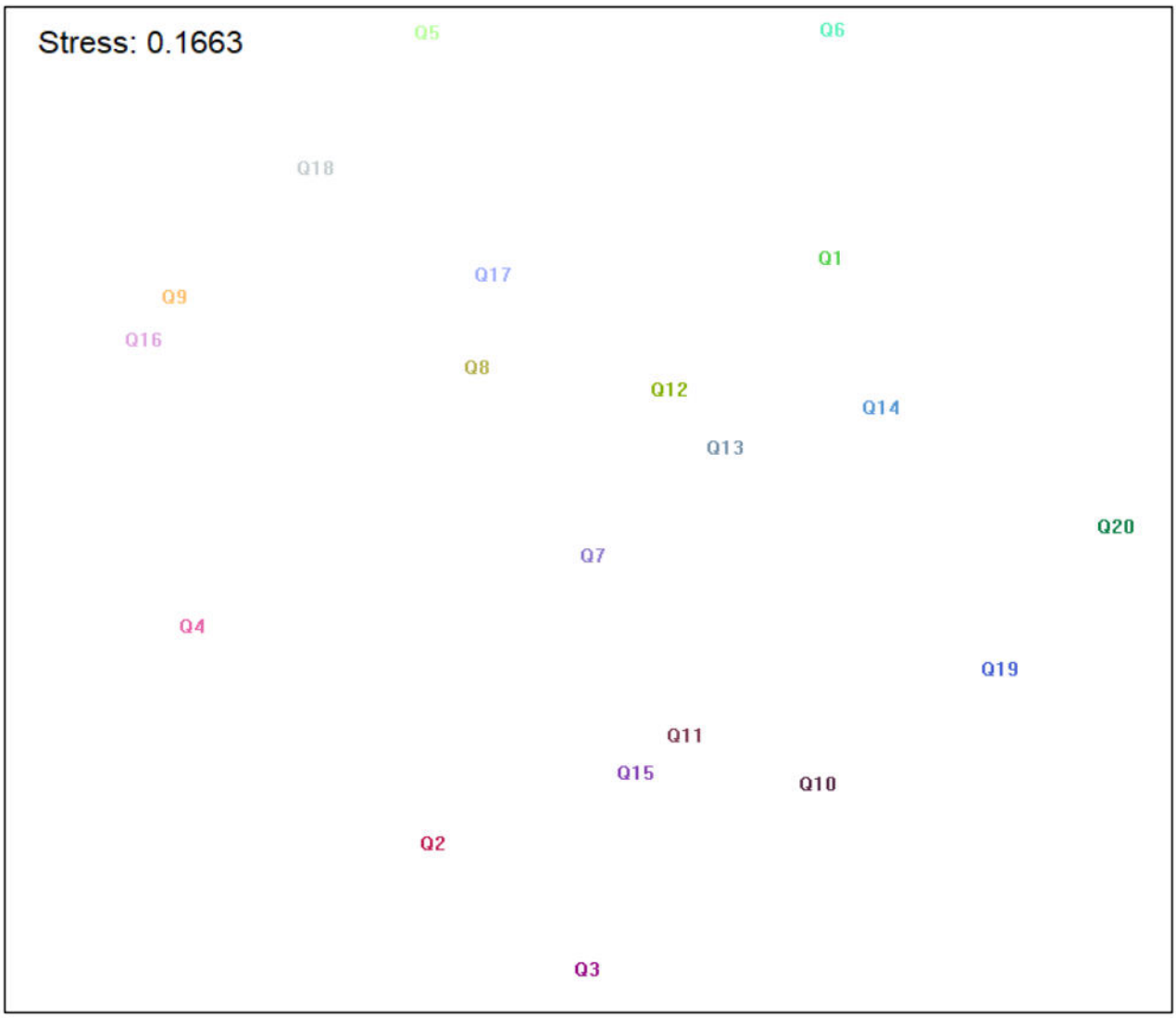
Quadrat 13			
Direction	**East**	**South-East**	**South**
Quadrat 14			
Direction	**East**	**South-East**	**South**
Quadrat 15			
Direction	**East**	**South-East**	**South**

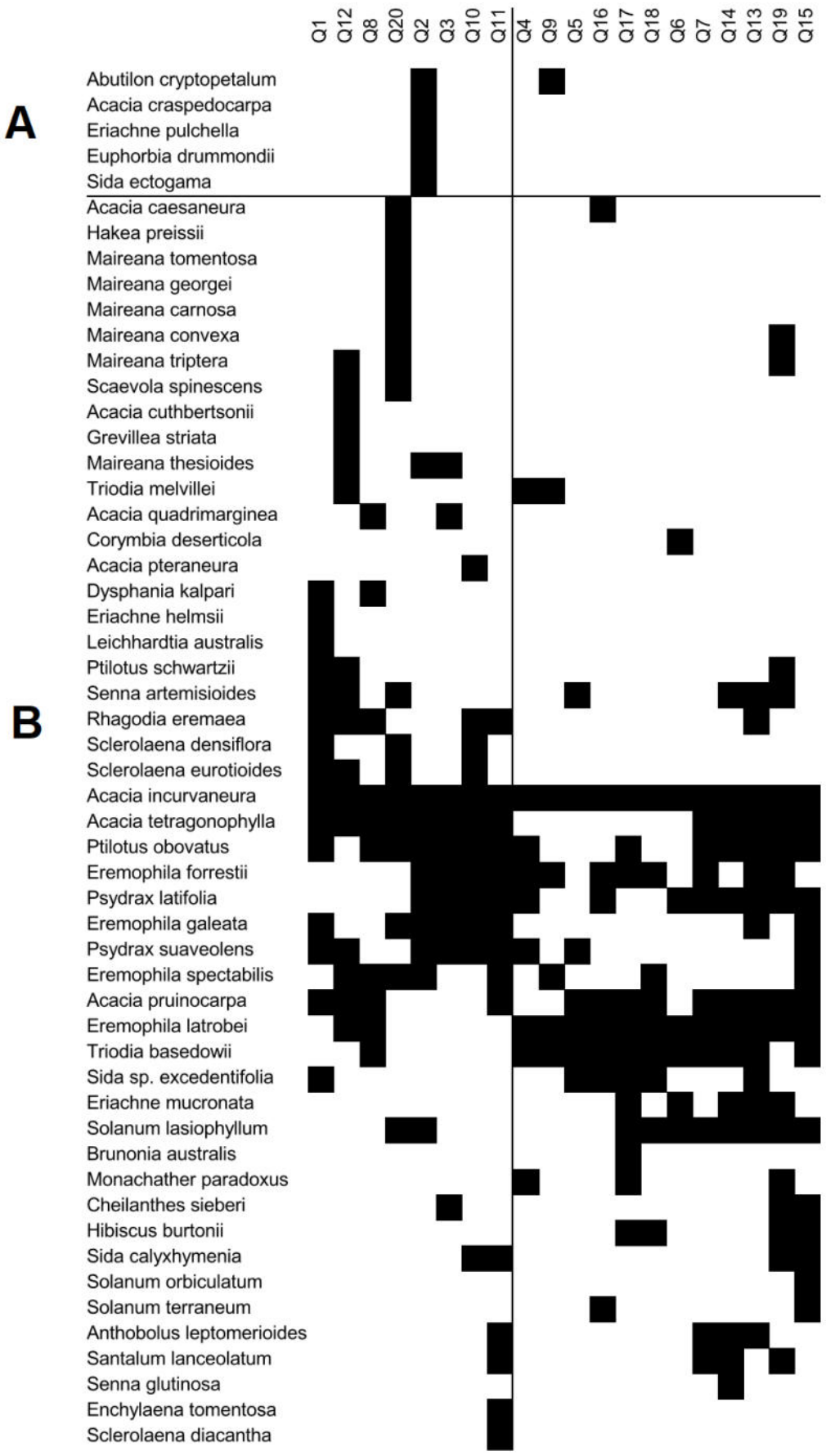
Quadrat 16			
Direction	**East**	**South-East**	**South**
Quadrat 17			
Direction	**East**	**South-East**	**South**
Quadrat 18			
Direction	**East**	**South-East**	**South**

Quadrat 19			
Direction	**East**	**South-East**	**South**
Quadrat 20			
Direction	**East**	**South-East**	**South**

Appendix H:
PATN Analysis Results


Row Fusion Dendrogram
Q1
Q12
Q8
Q20
Q2
Q3
Q10
Q11
Q4
Q9
Q5
Q16
Q17
Q18
Q6
Q7
Q14
Q13
Q19
Q15


Stress: 0.1663
Q5
Q6
Q18
Q1
Q17
Q9
Q16
Q8
Q12
Q14
Q13
Q20
Q7
Q4
Q19
Q11
Q15
Q10
Q2
Q3


Q1
Q12
Q8
Q20
Q2
Q3
Q10
Q11
Q4
Q9
Q5
Q16
Q17
Q18
Q6
Q7
Q14
Q13
Q19
Q15
A
Abutilon cryptopetalum
Acacia craspedocarpa
Eriachne pulchella
Euphorbia drummondii
Sida ectogama
B
Acacia caesaneura
Hakea preissii
Maireana tomentosa
Maireana georgei
Maireana carnosa
Maireana convexa
Maireana triptera
Scaevola spinescens
Acacia cuthbertsonii
Grevillea striata
Maireana thesioides
Triodia melvillei
Acacia quadrimarginea
Corymbia deserticola
Acacia pteraneura
Dysphania kalpari
Eriachne helmsii
Leichhardtia australis
Ptilotus schwartzii
Senna artemisioides
Rhagodia eremaea
Sclerolaena densiflora
Sclerolaena eurotioides
Acacia incurvaneura
Acacia tetragonophylla
Ptilotus obovatus
Eremophila forrestii
Psydrax latifolia
Eremophila galeata
Psydrax suaveolens
Eremophila spectabilis
Acacia pruinocarpa
Eremophila latrobei
Triodia basedowii
Sida sp. excedentifolia
Eriachne mucronata
Solanum lasiophyllum
Brunonia australis
Monachather paradoxus
Cheilanthes sieberi
Hibiscus burtonii
Sida calyxhymenia
Solanum orbiculatum
Solanum terraneum
Anthobolus leptomerioides
Santalum lanceolatum
Senna glutinosa
Enchylaena tomentosa
Sclerolaena diacantha

Appendix I:
Database Search Results

NatureMap Species Report

Created By Guest user on 02/04/2020

Current Names Only	Yes
Core Datasets Only	Yes
Method	'By Circle'
Centre	120° 35' 28" E,26° 21' 25" S
Buffer	40km
Group By	Species Group

Species Group	Species	Records
Amphibian	5	61
Bird	87	804
Dicotyledon	171	296
Gymnosperm	2	7
Invertebrate	10	17
Lichen	9	13
Mammal	16	108
Monocotyledon	32	45
Pteridophyte (Fern)	1	1
Reptile	44	179
TOTAL	**377**	**1531**

	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.	25427	*Neobatrachus sutor (Shoemaker Frog)*			
5.	25428	*Neobatrachus wilsmorei (Plonking Frog)*			
Bird					
6.	24559	*Acanthagenys rufogularis (Spiny-cheeked Honeyeater)*			
7.	24260	*Acanthiza apicalis (Broad-tailed Thornbill, Inland 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.	25544	*Aegotheles cristatus (Australian Owlet-nightjar)*			
14.	24312	*Anas gracilis (Grey Teal)*			
15.	24316	*Anas superciliosa (Pacific Black Duck)*			
16.	25670	*Anthus australis (Australian Pipit)*			
17.	25528	*Aphelocephala leucopsis (Southern Whiteface)*			
18.	24285	*Aquila audax (Wedge-tailed Eagle)*			
19.	24340	*Ardea novaehollandiae (White-faced Heron)*			
20.	24610	*Ardeotis australis (Australian Bustard)*			
21.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
22.	24356	*Artamus personatus (Masked Woodswallow)*			
23.		*Barnardius zonarius*			
24.	25715	*Cacatua roseicapilla (Galah)*			
25.	42307	*Cacomantis pallidus (Pallid Cuckoo)*			
26.	24564	*Certhionyx variegatus (Pied Honeyeater)*			
27.	47909	*Cheramoeca leucosterna (White-backed Swallow)*			
28.	24431	*Chrysococcyx basalis (Horsfield's Bronze Cuckoo)*			
29.	25601	*Chrysococcyx lucidus (Shining Bronze Cuckoo)*			
30.	24434	*Chrysococcyx osculans (Black-eared Cuckoo)*			
31.	25580	*Cinclosoma castaneothorax (Chestnut-breasted Quail-thrush)*			
32.	24289	*Circus assimilis (Spotted Harrier)*			
33.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
34.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
35.	24416	*Corvus bennetti (Little Crow)*			
36.	25593	*Corvus orru (Torresian Crow)*			
37.	24420	*Cracticus nigrogularis (Pied Butcherbird)*			

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38.	25595	*Cracticus tibicen (Australian Magpie)*			
39.	25596	*Cracticus torquatus (Grey Butcherbird)*			
40.	24322	*Cygnus atratus (Black Swan)*			
41.	25607	*Dicaeum hirundinaceum (Mistletoebird)*			
42.	24470	*Dromaius novaehollandiae (Emu)*			
43.	24290	*Elanus caeruleus subsp. axillaris (Australian Black-shouldered Kite)*			
44.	47937	*Elseyornis melanops (Black-fronted Dotterel)*			
45.		*Eolophus roseicapillus*			
46.	24570	*Epthianura tricolor (Crimson Chat)*			
47.	24368	*Eurostopodus argus (Spotted Nightjar)*			
48.	25621	*Falco berigora (Brown Falcon)*			
49.	25622	*Falco cenchroides (Australian Kestrel, Nankeen Kestrel)*			
50.	24473	*Falco hypoleucos (Grey Falcon)*		T	
51.	25623	*Falco longipennis (Australian Hobby)*			
52.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
53.	24401	*Geopelia cuneata (Diamond Dove)*			
54.	25530	*Gerygone fusca (Western Gerygone)*			
55.	24443	*Grallina cyanoleuca (Magpie-lark)*			
56.	24295	*Haliastur sphenurus (Whistling Kite)*			
57.	24491	*Hirundo neoxena (Welcome Swallow)*			
58.	24367	*Lalage tricolor (White-winged Triller)*			
59.	25661	*Lichmera indistincta (Brown Honeyeater)*			
60.	25651	*Malurus lamberti (Variegated Fairy-wren)*			
61.	25652	*Malurus leucopterus (White-winged Fairy-wren)*			
62.	25654	*Malurus splendens (Splendid Fairy-wren)*			
63.	24583	*Manorina flavigula (Yellow-throated Miner)*			
64.	47997	*Melanodryas cucullata (Hooded Robin)*			
65.	24736	*Melopsittacus undulatus (Budgerigar)*			
66.	24598	*Merops ornatus (Rainbow Bee-eater)*			
67.	24742	*Nymphicus hollandicus (Cockatiel)*			
68.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
69.	24618	*Oreoica gutturalis (Crested Bellbird)*			
70.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
71.	25682	*Pardalotus striatus (Striated Pardalote)*			
72.	24380	*Peltohyas australis (Inland Dotterel)*			
73.	48061	*Petrochelidon nigricans (Tree Martin)*			
74.	24659	*Petroica goodenovii (Red-capped Robin)*			
75.	24409	*Phaps chalcoptera (Common Bronzewing)*			
76.	24748	*Platycercus varius (Mulga Parrot)*			
77.	25721	*Platycercus zonarius (Australian Ringneck, Ring-necked Parrot)*			
78.	24751	*Platycercus zonarius subsp. zonarius (Port Lincoln Parrot)*			
79.	24681	*Poliocephalus poliocephalus (Hoary-headed Grebe)*			
80.	25706	*Pomatostomus temporalis (Grey-crowned Babbler)*			
81.		*Ptilonorhynchus guttatus*			
82.	24757	*Ptilonorhynchus maculatus subsp. guttatus (Western Bowerbird)*			
83.	42344	*Purnella albifrons (White-fronted Honeyeater)*			
84.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
85.	30948	*Smicrornis brevirostris (Weebill)*			
86.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
87.	24331	*Tadorna tadornoides (Australian Shelduck, Mountain Duck)*			
88.	30870	*Taeniopygia guttata (Zebra Finch)*			
89.	42351	*Todiramphus pyrrhopygius (Red-backed Kingfisher)*			
90.	48141	*Tribonyx ventralis (Black-tailed Native-hen)*			
91.	24851	*Turnix velox (Little Button-quail)*			
92.	24386	*Vanellus tricolor (Banded Lapwing)*			

Dicotyledon

93.	3217	*Acacia aneura (Mulga, Wanari)*			
94.	37260	*Acacia aptaneura*			
95.	3232	*Acacia ayersiana*			
96.	3248	*Acacia burkittii (Sandhill Wattle)*			
97.	36417	*Acacia caesaneura*			
98.	3264	*Acacia colletioides (Wait-a-while)*			
99.	3300	*Acacia dictyophleba (Sandhill Wattle, Ngarkalya)*			
100.	15287	*Acacia heteroneura var. prolixa*			
101.	36418	*Acacia incurvaneura*			
102.	3392	*Acacia jamesiana*			
103.	3393	*Acacia jennerae*			
104.	3399	*Acacia kempeana (Witchetty Bush, Ilykuwara)*			
105.	37240	*Acacia macraneura*			
106.	36416	*Acacia mulganeura*			

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107.	3475	*Acacia pachyacra*			
108.	3500	*Acacia pruinocarpa (Gidgee)*			
109.	3507	*Acacia quadrimarginea*			
110.	19483	*Acacia ramulosa var. linophylla*			
111.	3577	*Acacia tetragonophylla (Kurara, Wakalpuka)*			
112.	3609	*Albizia lebbeck*			
113.	2372	*Amyema fitzgeraldii (Pincushion Mistletoe)*			
114.	13265	*Amyema miraculosa subsp. boormanii*			
115.	40917	*Androcalva loxophylla*			
116.	7836	*Angianthus tomentosus (Camel-grass)*			
117.	2333	*Anthobolus leptomerioides*			
118.	6952	*Anthotroche pannosa (Felted Anthotroche)*			
119.	7413	*Brunonia australis (Native Cornflower)*			
120.	15885	*Brunonia australis var. A Kimberley Flora (K.F. Kenneally 5452)*			
121.	35056	*Calandrinia sp. Lumeah (R.W. Purdie 2168)*			
122.	7903	*Calotis hispidula (Bindy Eye)*			
123.	34358	*Calotis sp. Carnarvon Range (D.J. Edinger & K.F. Kenneally D 2708 K 12243)*			
124.	5446	*Calytrix carinata*			
125.	5451	*Calytrix desolata*			
126.	9138	*Calytrix watsonii*			
127.	7922	*Cephalipterum drummondii (Pompom Head)*			
128.	3756	*Chorizema genistoides*			
129.	12612	*Chrysocephalum apiculatum*			
130.	47153	*Chrysocephalum apiculatum subsp. glandulosum*			
131.	12613	*Chrysocephalum eremaeum*			
132.	17095	*Corymbia lenziana*			
133.	6957	*Cyphanthera miersiana*			
134.	7433	*Dampiera dentata*			
135.	6753	*Dicrastylis brunnea*			
136.	6759	*Dicrastylis flexuosa*			
137.	6774	*Dicrastylis sessilifolia*			
138.	12023	*Diplopeltis stuartii var. stuartii (Desert Pepperflower)*			
139.	4779	*Dodonaea rigida*			
140.	6966	*Duboisia hopwoodii (Pituri, Kundugu)*			
141.	12064	*Enchylaena tomentosa var. tomentosa (Barrier Saltbush)*			
142.	19846	*Enekbatus eremaeus*			
143.	7180	*Eremophila alternifolia (Poverty Bush)*			
144.	15178	*Eremophila arguta*		P1	
145.	14635	*Eremophila citrina*			
146.	15177	*Eremophila congesta*		P1	
147.	14895	*Eremophila decipiens subsp. decipiens*			
148.	12951	*Eremophila enata*			
149.	7207	*Eremophila foliosissima*			
150.	7209	*Eremophila fraseri (Burra)*			
151.	16732	*Eremophila gilesii subsp. gilesii*			
152.	14191	*Eremophila glabra subsp. tomentosa*			
153.	17172	*Eremophila hughesii subsp. hughesii*			
154.	17171	*Eremophila jucunda subsp. jucunda*			
155.	7230	*Eremophila latrobei (Warty Fuchsia Bush, Mintjingka)*			
156.	7233	*Eremophila linearis (Harlequin Fuchsia Bush)*			
157.	7234	*Eremophila longifolia (Berrigan, Tulypurpa)*			
158.	16363	*Eremophila maculata subsp. brevifolia (Native Fuchsia)*			
159.	15157	*Eremophila malacoides*			
160.	7239	*Eremophila margarethae (Sandbank Poverty Bush)*			
161.	15054	*Eremophila platythamnos subsp. exotrachys*			
162.	15055	*Eremophila platythamnos subsp. platythamnos*			
163.	7256	*Eremophila punctata*			
164.	16793	*Eremophila pungens*		P4	
165.	7269	*Eremophila serrulata (Serrate-leaved Eremophila)*			
166.	7272	*Eremophila spinescens*			
167.	15168	*Eremophila spuria*			
168.	4335	*Erodium cygnorum (Blue Heronsbill)*			
169.	35345	*Eucalyptus camaldulensis subsp. obtusa (Blunt-budded River Red Gum)*			
170.	5636	*Eucalyptus eremicola*			
171.	20300	*Eucalyptus eremicola subsp. peeneri*			
172.	5660	*Eucalyptus gongylocarpa (Marble Gum, Baarla)*			
173.	15670	*Eucalyptus kochii subsp. plenissima*			
174.	5703	*Eucalyptus lucasii (Barlee Box)*			
175.	29733	*Eucalyptus trivalva (Victoria Spring Mallee)*			
176.	5209	*Frankenia pauciflora (Seaheath)*			

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177.	3907	*Gastrolobium laytonii (Breelya, Prilya)*			
178.	7989	*Gnephosis brevifolia (Short-leaved Gnephosis)*			
179.	6151	*Gonocarpus ephemerus*			
180.	7507	*Goodenia eremophila*			
181.	12530	*Goodenia macroplectra*			
182.	7529	*Goodenia mueckeana*			
183.	1946	*Grevillea acacioides*			
184.	15845	*Grevillea juncifolia subsp. juncifolia*			
185.	2077	*Grevillea pterosperma*			
186.	2096	*Grevillea stenobotrya*			
187.	2784	*Gyrostemon ramulosus (Corkybark)*			
188.	2163	*Hakea francisiana (Emu Tree)*			
189.	2182	*Hakea minyma*			
190.	2200	*Hakea rhombales*			
191.	29840	*Halgania cyanea var. Allambi Stn (B.W. Strong 676)*			
192.	6688	*Halgania erecta*			
193.	16371	*Haloragis odontocarpa forma pterocarpa*			
194.	6180	*Haloragis trigonocarpa*			
195.	6707	*Heliotropium curassavicum (Smooth Heliotrope)*			
196.	17308	*Heliotropium moorei*			
197.	6853	*Hemigenia exilis*		P4	
198.	4043	*Kennedia prorepens*			
199.	13289	*Lawrencella davenportii*			
200.	4953	*Lawrencia densiflora*			
201.	3033	*Lepidium oxytrichum*			
202.	4055	*Leptosema chambersii*			
203.	13258	*Leucochrysum stipitatum*			
204.	7669	*Levenhookia chippendalei*			
205.	2396	*Lysiana casuarinae*			
206.	2398	*Lysiana murrayi (Mistletoe, Parka-Parka)*			
207.	4728	*Macgregoria racemigera (Snow Flower)*			
208.	2556	*Maireana planifolia (Low Bluebush)*			
209.	12949	*Marsdenia australis*			
210.	5908	*Melaleuca eleuterostachya*			
211.	20288	*Melaleuca interioris*			
212.	3053	*Menkea sphaerocarpa*			
213.	5995	*Micromyrtus flaviflora*			
214.	4098	*Mirbelia rhagodioides*			
215.	4664	*Monotaxis luteiflora*			
216.	8114	*Myriocephalus appendiculatus (White-tip Myriocephalus)*			
217.	6786	*Newcastelia cephalantha*			
218.	6789	*Newcastelia cladotricha (Lambs Tail)*			
219.	3674	*Petalostylis cassioides*			
220.	11185	*Pimelea microcephala subsp. microcephala*			
221.	5271	*Pimelea trichostachya (Spiked Riceflower)*			
222.	8167	*Pluchea dentex*			
223.	8176	*Podolepis kendallii*			
224.	8188	*Pogonolepis stricta*			
225.	15822	*Prostanthera althoferi subsp. althoferi*			
226.	18154	*Psydrax latifolia*			
227.	2691	*Ptilotus albidus*			
228.	2708	*Ptilotus chamaecladus*			
229.	2731	*Ptilotus helipteroides (Hairy Mulla Mulla)*			
230.	35576	*Ptilotus luteolus*		P3	
231.	2747	*Ptilotus obovatus (Cotton Bush)*			
232.	2755	*Ptilotus rotundifolius (Royal Mulla Mulla)*			
233.	10809	*Ptilotus sessilifolius*			
234.	13246	*Rhodanthe humboldtiana*			
235.	6484	*Samolus repens (Creeping Brookweed)*			
236.	2359	*Santalum spicatum (Sandalwood, Wilarak)*			
237.	7599	*Scaevola basedowii*			
238.	13172	*Scaevola parvifolia subsp. pilbarae*			
239.	13285	*Schoenia ayersii*			
240.	17558	*Senna artemisioides subsp. x artemisioides*			
241.	12275	*Senna artemisioides subsp. x coriacea*			
242.	12283	*Senna artemisioides subsp. x sturtii*			
243.	18444	*Senna charlesiana*			
244.	12305	*Senna glutinosa subsp. chatelainiana*			
245.	12315	*Senna pleurocarpa var. angustifolia*			
246.	14578	*Senna sp. Billabong (J.D. Alonzo 721)*			

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247.	40861	*Sida picklesiana*		P3	
248.	4986	*Sida platycalyx (Lifesaver Burr)*			
249.	7018	*Solanum lasiophyllum (Flannel Bush, Mindjulu)*			
250.	11241	*Solanum orbiculatum subsp. orbiculatum (Round-leaved Solanum)*			
251.	4729	*Stackhousia clementii*		P3	
252.	4732	*Stackhousia megaloptera*			
253.	3076	*Stenopetalum filifolium*			
254.	12355	*Swainsona affinis*			
255.	4220	*Swainsona canescens (Grey Swainsona)*			
256.	7363	*Synaptantha tillaeacea*			
257.	33318	*Tecticornia indica subsp. leiostachya (Samphire)*			
258.	13298	*Thiseltonia gracillima*			
259.	6273	*Trachymene glaucifolia (Wild Carrot)*			
260.	18065	*Tribulus adelacanthus*		P3	
261.	4383	*Tribulus terrestris (Caltrop)*	Y		
262.	7664	*Velleia rosea (Pink Velleia)*			
263.	48986	*Vincetoxicum lineare*			
Gymnosperm					
264.	96	*Callitris preissii (Rottnest Island Pine, Maro)*			
265.	8637	*Callitris verrucosa*			
Invertebrate					
266.		*Argiope protensa*			
267.		*Cormocephalus turneri*			
268.		*Hoggicosa bicolor*			
269.		*Hoggicosa storri*			
270.		*Isometroides vescus*			
271.		*Lamponina scutata*			
272.		*Missulena insignis*			
273.		*Scolopendra laeta*			
274.		*Scolopendra morsitans*			
275.		*Urodacus hoplurus*			
Lichen					
276.	27574	*Acarospora citrina*			
277.	27703	*Collema coccophorum*			
278.	48194	*Collema novozelandicum*			
279.	27734	*Endocarpon aridum*			
280.	28000	*Psora decipiens*			
281.	28105	*Xanthoparmelia antleriformis*			
282.	18000	*Xanthoparmelia nashii*		P3	
283.	28168	*Xanthoparmelia prodomokosii*			
284.	28188	*Xanthoparmelia weberiella*			
Mammal					
285.	24186	*Chalinolobus gouldii (Gould's Wattled Bat)*			
286.	30903	*Dasycercus blythi (Brush-tailed Mulgara, Ampurta)*		P4	
287.	48395	*Dasycercus sp. (mulgara)*		P4	
288.	24041	*Felis catus (Cat)*	Y		
289.	25489	*Macropus robustus (Euro, Biggada)*			
290.	24136	*Macropus rufus (Red Kangaroo, Marlu)*			
291.	24223	*Mus musculus (House Mouse)*	Y		
292.	24094	*Ningaui ridei (Wongai Ningaui)*			
293.	24194	*Nyctophilus geoffroyi (Lesser Long-eared Bat)*			
294.	24106	*Pseudantechinus woolleyae (Woolley's Pseudantechinus)*			
295.	24235	*Pseudomys desertor (Desert Mouse)*			
296.	24237	*Pseudomys hermannsburgensis (Sandy Inland Mouse)*			
297.	24199	*Scotorepens balstoni (Inland Broad-nosed Bat)*			
298.	24109	*Sminthopsis dolichura (Little long-tailed Dunnart)*			
299.	24116	*Sminthopsis macroura (Stripe-faced Dunnart)*			
300.	24117	*Sminthopsis ooldea (Ooldea Dunnart)*			
Monocotyledon					
301.	196	*Amphipogon caricinus (Long Greybeard Grass)*			
302.	212	*Aristida inaequiglumis (Feathertop Threeawn)*			
303.	17918	*Aristida jerichoensis var. subspinulifera*		P3	
304.	279	*Cymbopogon ambiguus (Scentgrass)*			
305.	281	*Cymbopogon obtectus (Silkyheads)*			
306.	283	*Cynodon dactylon (Couch)*	Y		
307.	310	*Digitaria brownii (Cotton Panic Grass)*			
308.	48378	*Diplachne fusca subsp. fusca*			
309.	357	*Enneapogon caerulescens (Limestone Grass)*			

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310.	358	*Enneapogon cylindricus (Jointed Nineawn)*			
311.	380	*Eragrostis eriopoda (Woollybutt Grass, Wangurnu)*			
312.	381	*Eragrostis falcata (Sickle Lovegrass)*			
313.	387	*Eragrostis lanipes (Creeping Wanderrie)*			
314.	392	*Eragrostis pergracilis*			
315.	393	*Eragrostis setifolia (Neverfail Grass)*			
316.	403	*Eriachne benthamii (Swamp Wanderrie)*			
317.	408	*Eriachne flaccida (Claypan Grass)*			
318.	413	*Eriachne mucronata (Mountain Wanderrie Grass)*			
319.	16486	*Eriachne pulchella subsp. pulchella*			
320.	11011	*Eulalia aurea*			
321.	14541	*Lomandra leucocephala subsp. robusta (Woolly Mat-rush)*			
322.	490	*Monachather paradoxus*			
323.	494	*Neurachne minor*			
324.	515	*Paraneurachne muelleri (Northern Mulga Grass)*			
325.	10975	*Paspalidium basicladum*			
326.	518	*Paspalidium clementii (Clements Paspalidium)*			
327.	582	*Polypogon monspeliensis (Annual Beardgrass)*	Y		
328.	675	*Thyridolepis multiculmis (Soft Wanderrie Grass)*			
329.	1338	*Thysanotus manglesianus (Fringed Lily)*			
330.	680	*Triodia basedowii (Lobed Spinifex)*			
331.	17877	*Triodia melvillei*			
332.	1392	*Wurmbea deserticola*			
Pteridophyte (Fern)					
333.	12818	*Cheilanthes sieberi subsp. sieberi*			
Reptile					
334.	30833	*Amphibolurus longirostris (Long-nosed Dragon)*			
335.	25339	*Chelodina steindachneri (Flat-shelled Turtle)*			
336.	24869	*Ctenophorus caudicinctus subsp. mensarum (Ring-tailed Dragon)*			
337.	25459	*Ctenophorus isolepis (Crested Dragon, Military Dragon)*			
338.	24875	*Ctenophorus isolepis subsp. gularis (Central Military Dragon)*			
339.	24882	*Ctenophorus nuchalis (Central Netted Dragon)*			
340.	24886	*Ctenophorus reticulatus (Western Netted Dragon)*			
341.	24889	*Ctenophorus scutulatus (Lozenge-marked Dragon)*			
342.	25025	*Ctenotus ariadnae*			
343.	25032	*Ctenotus calurus*			
344.	25041	*Ctenotus grandis subsp. grandis*			
345.	25045	*Ctenotus helenae*			
346.	25052	*Ctenotus leonhardii*			
347.	25463	*Ctenotus pantherinus (Leopard Ctenotus)*			
348.	25064	*Ctenotus pantherinus subsp. ocellifer (Leopard Ctenotus)*			
349.	25074	*Ctenotus schomburgkii*			
350.	25465	*Ctenotus uber (Spotted Ctenotus)*			
351.	24997	*Delma butleri*			
352.	25001	*Delma nasuta*			
353.	25468	*Demansia psammophis (Yellow-faced Whipsnake)*			
354.	24926	*Diplodactylus conspicillatus (Fat-tailed Gecko)*			
355.	24930	*Diplodactylus granariensis subsp. rex*			
356.	24940	*Diplodactylus pulcher*			
357.	25092	*Egernia depressa (Southern Pygmy Spiny-tailed Skink)*			
358.	25109	*Eremiascincus richardsonii (Broad-banded Sand Swimmer)*			
359.	24959	*Gehyra variegata*			
360.	24961	*Heteronotia binoei (Bynoe's Gecko)*			
361.	25125	*Lerista bipes*			
362.	25130	*Lerista desertorum*			
363.	25155	*Lerista muelleri*			
364.	42411	*Lerista timida*			
365.	25184	*Menetia greyii*			
366.	25190	*Morethia butleri*			
367.	25254	*Parasuta monachus*			
368.	25510	*Pogona minor (Dwarf Bearded Dragon)*			
369.	25263	*Pseudonaja modesta (Ringed Brown Snake)*			
370.	25009	*Pygopus nigriceps*			
371.	24982	*Rhynchoedura ornata (Western Beaked Gecko)*			
372.	25266	*Simoselaps bertholdi (Jan's Banded Snake)*			
373.	24927	*Strophurus elderi*			
374.	24949	*Strophurus wellingtonae*			
375.	25210	*Varanus brevicauda (Short-tailed Pygmy Monitor)*			
376.	25211	*Varanus caudolineatus*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
377.	25526	*Varanus tristis (Racehorse Monitor)*			

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.

Australian Government

Department of Climate Change, Energy, the Environment and Water

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: 21-Apr-2023

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:	7
Listed Migratory Species:	6

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 https://www.dcceew.gov.au/parks-heritage/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:	8
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:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	2
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	Buffer Status
BIRD			
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Polytelis alexandrae Princess Parrot, Alexandra's Parrot [758]	Vulnerable	Species or species habitat known to occur within area	In feature area
MAMMAL			
Macrotis lagotis Greater Bilby [282]	Vulnerable	Species or species habitat may occur within area	In feature area
REPTILE			
Liopholis kintorei Great Desert Skink, Tjakura, Warrarna, Mulyamiji [83160]	Vulnerable	Species or species habitat may occur within area	In feature area

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Terrestrial Species			

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Motacilla cinerea](#)			
Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
[Motacilla flava](#)			
Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
[Actitis hypoleucos](#)			
Common Sandpiper [59309]		Species or species habitat likely to occur within area	In feature area
[Calidris acuminata](#)			
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
[Calidris melanotos](#)			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
[Charadrius veredus](#)			
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
[Actitis hypoleucos](#)			
Common Sandpiper [59309]		Species or species habitat likely to occur within area	In feature area
[Calidris acuminata](#)			
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
[Calidris melanotos](#)			
Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chalcites osculans as Chrysococcyx osculans			
Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Charadrius veredus			
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area	In feature area
Merops ornatus			
Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea			
Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area

Extra Information

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Wiluna Uranium Project	2009/5174	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

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 prese nown, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person J 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 C – ADDITIONAL SEARCH - EPBC ACT PMST AND DBCA DANDJOO DATABASE

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: 12-Dec-2025

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:	8
Listed Migratory Species:	6

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.

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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:	8
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:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	2
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	Buffer Status
BIRD			
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pezoporus occidentalis Night Parrot [59350]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Polytelis alexandrae Princess Parrot, Alexandra's Parrot [758]	Vulnerable	Species or species habitat may occur within area	In buffer area only
MAMMAL			
Macrotis lagotis Greater Bilby [282]	Vulnerable	Species or species habitat may occur within area	In feature area
REPTILE			

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Liopholis kintorei](#)			
Great Desert Skink, Tjakura, Warrarna, Mulyamiji, Tjalapa, Nampu [83160]	Vulnerable	Species or species habitat may occur within area	In feature area

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Terrestrial Species			
[Motacilla cinerea](#)			
Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
[Motacilla flava](#)			
Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
[Actitis hypoleucos](#)			
Common Sandpiper [59309]		Species or species habitat likely to occur within area	In feature area
[Calidris acuminata](#)			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
[Calidris melanotos](#)			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
[Charadrius veredus](#)			
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
[Actitis hypoleucos](#)			
Common Sandpiper [59309]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area

Extra Information

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Wiluna Uranium Project	2009/5174	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

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Not controlled action				

Caveat

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Where data is 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 on the contents of this report.

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-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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GOVERNMENT OF WESTERN AUSTRALIA

Dandjoo Species List Export

Created by Guest User on 12 Dec 2025

Source	Dandjoo – Department of Biodiversity, Conservation and Attractions
Method	User defined polygon: [[[[120.33644515797066, -26.056735591088387], [120.30206596358715, -26.07933281797629], [120.24266545049436, -26.127175386511617], [120.1949546705546, -26.184623365044146], [120.1608346230086, -26.249409818428735], [120.1416772112057, -26.31897430722684], [120.13826804790249, -26.390562886583506], [120.15077133675294, -26.46133638221208], [120.17871882243645, -26.528482812254015], [120.2210239556135, -26.58932954237888], [120.2357197380803, -26.606389110410817], [120.2900303558959, -26.657959513221137], [120.35463941089333, -26.698991334263546], [120.4270330380974, -26.727881866764005], [120.50438584491643, -26.743501597212823], [120.58367337895729, -26.74523948908827], [120.66179340074797, -26.733027538919238], [120.73569061828681, -26.70734351207618], [120.80247933109528, -26.66919173607612], [120.83611499099854, -26.64548160574266], [120.89276762955794, -26.59675942490933], [120.93769649041624, -26.539103970396088], [120.96919657239303, -26.474727404871025], [120.98608453981501, -26.406095837841395], [120.98774094521083, -26.335833846754657], [120.97413002384607, -26.266623559834954], [120.94579690275997, -26.201102256104985], [120.90384296031361, -26.141762384675687], [120.89302512530023, -26.129327505755214], [120.88992674724386, -26.125765309644706], [120.83679160332156, -26.075487962239517], [120.77394935546484, -26.03527044021584], [120.70372468013345, -26.00659500120018], [120.62870784798947, -25.99051760759241], [120.55166104987335, -25.98762997785898], [120.47541918819535, -25.998038366711437], [120.40278834291325, -26.02135975778625], [120.33644515797066, -26.056735591088387], [120.33644515797066, -26.056735591088387]]]].
Date time	2025-12-12T08:32:04.878470+08:00

Conservation status summary	Count
MI	1
None	738
OS	1
P1	6
P2	1
P3	9
P4	4
Parent of conservation listed taxa	4
VU	4
Total	**768**

Kingdoms	Count
Animalia	350
Fungi	10
Plantae	408
Total unique species	**768**

#	Class	Family	Name	Establishment	Conservation
Animalia					
			Platyplectrum spenceri (Parker, 1940) *(Centralian Burrowing Frog)*		

1	Amphibia	Bufonidae		native	
2	Amphibia	Limnodynastidae	Neobatrachus aquilonius Martin, Tyler & Davies, 1980 *(Northern Burrowing Frog)*	native	
3	Amphibia	Limnodynastidae	Neobatrachus sutor Main, 1957 *(Shoemaker Frog)*	native	
4	Amphibia	Limnodynastidae	Neobatrachus wilsmorei (Parker, 1940) *(Plonking Frog)*	native	
5	Amphibia	Pelodryadidae	Litoria rubella	native	
6	Amphibia	Pelodryadidae Günther, 1858	Cyclorana maini Tyler & Martin, 1977	native	
7	Amphibia	Pelodryadidae Günther, 1858	Cyclorana platycephala (Gunther, 1873) *(Water-holding Frog)*	native	
8	Arachnida	None	Araneae Clerck, 1757		
9	Arachnida	None	Pseudoscorpiones		
10	Arachnida	Actinopodidae Simon, 1892	Missulena Walckenaer, 1805		
11	Arachnida	Actinopodidae Simon, 1892	Missulena insignis (O. Pickard-Cambridge, 1877)	uncertain	
12	Arachnida	Actinopodidae Simon, 1892	Missulena occatoria Walckenaer, 1805		
13	Arachnida	Anamidae Simon, 1889	Aname L. Koch, 1873		
14	Arachnida	Araneidae Clerck, 1757	Argiope protensa L. Koch, 1872	mixed	
15	Arachnida	Araneidae Clerck, 1757	Dolophones Walckenaer, 1837		
16	Arachnida	Atemnidae Kishida, 1929	Oratemnus Beier, 1932		
17	Arachnida	Barychelidae Simon, 1892	Barychelinae		
18	Arachnida	Buthidae C.L. Koch, 1837	Isometroides Keyserling, 1885		
19	Arachnida	Buthidae C.L. Koch, 1837	Lychas C.L. Koch, 1845		
20	Arachnida	Buthidae C.L. Koch, 1837	Lychas jonesae Glauert, 1925		
21	Arachnida	Cheiracanthiidae Wagner, 1887	Cheiracanthium C.L. Koch, 1839		
22	Arachnida	Chernetidae Menge, 1855	Nesidiochernes Beier, 1957		
23	Arachnida	Clubionidae Simon, 1878	Clubiona Latreille, 1804		
24	Arachnida	Corinnidae	Battalus Karsch, 1878		
25	Arachnida	Corinnidae	Nyssus coloripes Walckenaer, 1805		
26	Arachnida	Desidae Pocock, 1895	Desidae Pocock, 1895		
27	Arachnida	Gnaphosidae Banks, 1892	Eilica Keyserling, 1891		
28	Arachnida	Gnaphosidae Banks, 1892	Encoptarthria Main, 1954		
29	Arachnida	Gnaphosidae Banks, 1892	Gnaphosidae Banks, 1892		
30	Arachnida	Gnaphosidae Banks, 1892	Molycriinae		
31	Arachnida	Gnaphosidae Banks, 1892	Wesmaldra nixaut Platnick & Baehr, 2006		
32	Arachnida	Hersiliidae Thorell, 1869	Tamopsis B. Baehr & M. Baehr, 1987		
33	Arachnida	Idiopidae Simon, 1889	Gaius Rainbow, 1914		
34	Arachnida	Idiopidae Simon, 1889	Gaius tealei Rix, Raven & Harvey, 2018		
35	Arachnida	Idiopidae Simon, 1889	Idiosoma Ausserer, 1871		Parent of conservation listed taxa

36	Arachnida	Lamponidae Simon, 1893	Asadipus banjiwarn Platnick, 2000		
37	Arachnida	Lamponidae Simon, 1893	Lamponina scutata (Strand, 1913)		
38	Arachnida	Lycosidae	Hoggicosa bicolor (Hogg, 1905)		
39	Arachnida	Lycosidae	Hoggicosa castanea (Hogg, 1905)		
40	Arachnida	Lycosidae	Hoggicosa storri (McKay, 1973)		
41	Arachnida	Lycosidae	Lycosa australicola (Strand, 1913)		
42	Arachnida	Miturgidae Simon, 1889	Argoctenus L. Koch, 1878		
43	Arachnida	Miturgidae Simon, 1889	Miturga Thorell, 1870		
44	Arachnida	Miturgidae Simon, 1889	Miturgidae Simon, 1889		
45	Arachnida	Olpiidae Banks, 1895	Beierolpium Heurtault, 1976		
46	Arachnida	Olpiidae Banks, 1895	Indolpium Hoff, 1945		
47	Arachnida	Olpiidae Banks, 1895	Xenolpium Chamberlin, 1930		
48	Arachnida	Pholcidae C.L. Koch, 1851	Pholcitrichocyclus Ceccolini & Cianferoni, 2022		
49	Arachnida	Prodidomidae Simon, 1884	Prodidomidae Simon, 1884		
50	Arachnida	Sparassidae Bertkau, 1872	Neosparassus Hogg, 1903		
51	Arachnida	Theraphosidae Thorell, 1869	Selenotholus foelschei Hogg, 1902		
52	Arachnida	Thomisidae Sundevall, 1833	Stephanopis O. Pickard-Cambridge, 1869		
53	Arachnida	Thomisidae Sundevall, 1833	Tharpyna L. Koch, 1874		
54	Arachnida	Thomisidae Sundevall, 1833	Thomisidae Sundevall, 1833		
55	Arachnida	Trachycosmidae Platnick, 2002	Desognanops humphreysi Platnick, 2008	native	
56	Arachnida	Trochanteriidae Karsch, 1879	Trochanteriidae Karsch, 1879		
57	Arachnida	Trombiculidae	Trombiculidae	uncertain	
58	Arachnida	Urodacidae	Urodacus Peters, 1861		
59	Arachnida	Urodacidae	Urodacus hoplurus Pocock, 1898		
60	Arachnida	Zodariidae Thorell, 1881	Cavasteron crassicalcar Baehr & Jocqué, 2000		
61	Arachnida	Zodariidae Thorell, 1881	Neostorena Rainbow, 1914		
62	Arachnida	Zodariidae Thorell, 1881	Pentasteron Baehr & Jocqué, 2001		
63	Arachnida	Zodariidae Thorell, 1881	Zodariidae Thorell, 1881		
64	Aves	Acanthizidae	Acanthiza apicalis Gould, 1847	native	
65	Aves	Acanthizidae	Acanthiza apicalis apicalis Gould, 1847 *(Broad-tailed Thornbill)*	native	
66	Aves	Acanthizidae	Acanthiza chrysorrhoa (Quoy & Gaimard, 1830) *(Yellow-rumped Thornbill)*	native	
67	Aves	Acanthizidae	Acanthiza robustirostris Milligan, 1903 *(Slaty-backed Thornbill)*	native	
68	Aves	Acanthizidae	Acanthiza uropygialis Gould, 1838 *(Chestnut-rumped Thornbill)*	native	
69	Aves	Acanthizidae	Aphelocephala leucopsis (Gould, 1841)	native	VU
70	Aves	Acanthizidae	Calamanthus campestris (Gould, 1841) *(Rufous Fieldwren)*	native	
71	Aves	Acanthizidae	Gerygone fusca (Gould, 1838) *(Western Gerygone)*	native	
72	Aves	Acanthizidae	Pyrrholaemus brunneus Gould, 1841 *(Redthroat)*	native	
73	Aves	Acanthizidae	Smicrornis brevirostris (Gould, 1838) *(Weebill)*	native	
74	Aves	Accipitridae	Aquila audax (Latham, 1802)	native	

75	Aves	Accipitridae	Circus assimilis Jardine & Selby, 1828	native	
76	Aves	Accipitridae	Elanus axillaris (Latham, 1802) *(Black-shouldered Kite)*		
77	Aves	Accipitridae	Haliastur sphenurus (Vieillot, 1818)	native	
78	Aves	Accipitridae	Hamirostra melanosternon (Gould, 1841)	native	
79	Aves	Accipitridae	Hieraaetus morphnoides (Gould, 1841)	native	
80	Aves	Accipitridae	Milvus migrans (Boddaert, 1783) *(Black Kite)*	native	
81	Aves	Accipitridae	Tachyspiza cirrocephala (Vieillot, 1817)	native	
82	Aves	Accipitridae	Tachyspiza fasciata Vigors & Horsfield, 1827	native	
83	Aves	Aegothelidae	Aegotheles cristatus (Shaw, 1790)	native	
84	Aves	Alcedinidae	Todiramphus pyrrhopygius (Gould, 1840) *(Red-backed Kingfisher)*	native	
85	Aves	Alcedinidae	Todiramphus sanctus (Vigors & Horsfield, 1827) *(Sacred Kingfisher)*	native	
86	Aves	Anatidae	Anas gracilis Buller, 1869 *(Grey Teal)*	native	
87	Aves	Anatidae	Anas superciliosa Gmelin, 1789	native	
88	Aves	Anatidae	Anser anser (Linnaeus, 1758)		
89	Aves	Anatidae	Cairina moschata (Linnaeus, 1758)		
90	Aves	Anatidae	Spatula rhynchotis (Latham, 1802)		
91	Aves	Anatidae	Tadorna tadornoides (Jardine & Selby, 1828)	native	
92	Aves	Ardeidae	Ardea pacifica Latham, 1802	native	
93	Aves	Ardeidae	Egretta novaehollandiae (Latham, 1790) *(White-faced Heron)*		
94	Aves	Artamidae	Artamus cinereus Vieillot, 1817 *(Black-faced Woodswallow)*	native	
95	Aves	Artamidae	Artamus minor Vieillot, 1817 *(Little Woodswallow)*	native	
96	Aves	Artamidae	Artamus personatus (Gould, 1841)	native	
97	Aves	Artamidae	Cracticus nigrogularis (Gould, 1837) *(Pied Butcherbird)*	native	
98	Aves	Artamidae	Cracticus torquatus (Latham, 1802) *(Grey Butcherbird)*	native	
99	Aves	Artamidae	Gymnorhina tibicen (Latham, 1802)		
100	Aves	Burhinidae	Burhinus grallarius (Latham, 1802)	native	
101	Aves	Cacatuidae	Cacatua sanguinea Gould, 1843 *(Little Corella)*	native	
102	Aves	Cacatuidae	Eolophus roseicapilla (Vieillot, 1817) *(Galah)*		
103	Aves	Cacatuidae	Nymphicus hollandicus (Kerr, 1792) *(Cockatiel)*	native	
104	Aves	Campephagidae	Coracina novaehollandiae (Gmelin, 1789) *(Black-faced Cuckoo-shrike)*	native	
105	Aves	Campephagidae	Lalage sueurii (Vieillot, 1818)		
106	Aves	Campephagidae	Lalage tricolor (Swainson, 1825)	native	
107	Aves	Caprimulgidae	Eurostopodus argus Hartert, 1892	native	
108	Aves	Casuariidae	Dromaius novaehollandiae (Latham, 1790) *(Emu)*	native	
109	Aves	Charadriidae	Charadrius melanops Vieillot, 1818 *(Black-fronted Dotterel)*	native	
110	Aves	Charadriidae	Erythrogonys cinctus Gould, 1838 *(Red-kneed Dotterel)*	native	
111	Aves	Charadriidae	Peltohyas australis (Gould, 1841)	native	
112	Aves	Charadriidae	Vanellus tricolor (Vieillot, 1818)	native	
113	Aves	Cinclosomatidae	Cinclosoma castaneothorax Gould, 1848 *(Chestnut-breasted Quail-thrush)*	native	
114	Aves	Cinclosomatidae	Cinclosoma clarum Morgan, 1926	native	
115	Aves	Cinclosomatidae	Cinclosoma marginatum Sharpe, 1883	native	
116	Aves	Climacteridae	Climacteris affinis Blyth, 1864 *(White-browed Treecreeper)*	native	
117	Aves	Columbidae	Geopelia cuneata (Latham, 1802) *(Diamond Dove)*	native	
118	Aves	Columbidae	Ocyphaps lophotes (Temminck, 1822) *(Crested Pigeon)*	native	
119	Aves	Columbidae	Phaps chalcoptera (Latham, 1790) *(Common Bronzewing)*	native	
120	Aves	Corvidae	Corvus bennetti North, 1901 *(Little Crow)*	native	
121	Aves	Corvidae	Corvus orru Bonaparte, 1850	native	
122	Aves	Corvidae	Corvus orru orru Bonaparte, 1850	native	
123	Aves	Cuculidae	Chalcites basalis (Horsfield, 1821)		
124	Aves	Cuculidae	Chalcites lucidus (Gmelin & JF, 1788)		
125	Aves	Cuculidae	Chalcites osculans Gould, 1847		
126	Aves	Cuculidae	Heteroscenes pallidus (Latham, 1802)		
127	Aves	Dicaeidae	Dicaeum hirundinaceum (Shaw, 1792) *(Mistletoebird)*	native	

128	Aves	Estrildidae	Taeniopygia castanotis (Gould, 1837)		
129	Aves	Estrildidae	Taeniopygia guttata (Vieillot, 1817) *(Zebra Finch)*	native	
130	Aves	Falconidae	Falco berigora Vigors & Horsfield, 1827	native	
131	Aves	Falconidae	Falco berigora berigora Vigors & Horsfield, 1827 *(Brown Falcon)*	native	
132	Aves	Falconidae	Falco cenchroides Vigors & Horsfield, 1827	native	
133	Aves	Falconidae	Falco hypoleucos Gould, 1841	native	VU
134	Aves	Falconidae	Falco longipennis Swainson, 1837	native	
135	Aves	Falconidae	Falco longipennis longipennis Swainson, 1837 *(Australian Hobby)*	native	
136	Aves	Falconidae	Falco peregrinus Tunstall, 1771	native	OS
137	Aves	Hirundinidae	Cheramoeca leucosterna (Gould, 1841)	native	
138	Aves	Hirundinidae	Hirundo neoxena	native	
139	Aves	Hirundinidae	Petrochelidon ariel (Gould, 1842)	native	
140	Aves	Hirundinidae	Petrochelidon nigricans (Vieillot, 1817) *(Tree Martin)*	native	
141	Aves	Locustellidae Bonaparte, 1854	Cincloramphus cruralis (Vigors & Horsfield, 1827) *(Brown Songlark)*	native	
142	Aves	Locustellidae Bonaparte, 1854	Cincloramphus mathewsi Iredale, 1911	native	
143	Aves	Maluridae	Malurus lamberti Vigors & Horsfield, 1827 *(Variegated Fairy-wren)*	mixed	Parent of conservation listed taxa
144	Aves	Maluridae	Malurus leucopterus Dumont, 1824	native	
145	Aves	Maluridae	Malurus leucopterus leucopterus Dumont, 1824 *(Dirk Hartog black and white fairy-wren)*	native	VU
146	Aves	Maluridae	Malurus splendens (Quoy & Gaimard, 1830)	native	
147	Aves	Meliphagidae	Acanthagenys rufogularis Gould, 1838 *(Spiny-cheeked Honeyeater)*	native	
148	Aves	Meliphagidae	Certhionyx variegatus Lesson, 1830 *(Pied Honeyeater)*	native	
149	Aves	Meliphagidae	Epthianura tricolor Gould, 1841 *(Crimson Chat)*	native	
150	Aves	Meliphagidae	Gavicalis virescens (Vieillot, 1817) *(Singing Honeyeater)*	native	
151	Aves	Meliphagidae	Lacustroica whitei North, 1910 *(Grey Honeyeater)*	native	
152	Aves	Meliphagidae	Lichmera indistincta	native	
153	Aves	Meliphagidae	Manorina flavigula (Gould, 1840) *(Yellow-throated Miner)*	native	
154	Aves	Meliphagidae	Ptilotula penicillata (Gould, 1837) *(White-plumed Honeyeater)*	native	
155	Aves	Meliphagidae	Ptilotula plumula (Gould, 1841)	native	
156	Aves	Meliphagidae	Purnella albifrons Gould, 1841 *(White-fronted Honeyeater)*	native	
157	Aves	Meliphagidae	Sugomel niger (Gould, 1838)	native	
158	Aves	Meropidae	Merops ornatus Latham, 1802 *(Rainbow Bee-eater)*	native	
159	Aves	Monarchidae Bonaparte, 1854	Grallina cyanoleuca	native	
160	Aves	Motacillidae	Anthus australis Vieillot, 1818	native	
161	Aves	Motacillidae	Anthus novaeseelandiae (J.F.Gmelin, 1789)	alien	
162	Aves	Neosittidae	Daphoenositta chrysoptera (Latham, 1802) *(Varied Sittella)*	native	
163	Aves	Numididae	Numida meleagris (Linnaeus, 1758)		
164	Aves	Oreoicidae	Oreoica gutturalis (Vigors & Horsfield, 1827) *(Crested Bellbird)*	native	
165	Aves	Otididae	Ardeotis australis (J.E. Gray, 1829) *(Australian Bustard)*	native	
166	Aves	Pachycephalidae	Colluricincla harmonica (Latham, 1802) *(Grey Shrike-thrush)*	native	
167	Aves	Pachycephalidae	Pachycephala rufiventris (Latham, 1802) *(Rufous Whistler)*	native	
168	Aves	Pardalotidae	Pardalotus striatus (Gmelin, 1789)	native	
169	Aves	Petroicidae Mathews, 1920	Melanodryas cucullata (Latham, 1802) *(Hooded Robin)*	native	
170	Aves	Petroicidae Mathews, 1920	Petroica goodenovii (Vigors & Horsfield, 1827) *(Red-capped Robin)*	native	
171	Aves	Podargidae	Podargus strigoides (Latham, 1802) *(Tawny Frogmouth)*	native	
172	Aves	Podicipedidae	Poliocephalus poliocephalus (Jardine & Selby, 1827)	native	
173	Aves	Podicipedidae	Tachybaptus novaehollandiae (Stephens, 1826)	native	
174	Aves	Pomatostomidae	Pomatostomus superciliosus (Vigors & Horsfield, 1827) *(White-browed Babbler)*	native	
			Pomatostomus temporalis (Vigors & Horsfield, 1827) *(Grey-*		

175	Aves	Pomatostomidae	*crowned Babbler)*	native	
176	Aves	Psittacidae	Psephotellus varius (Clark & AH, 1910) *(Mulga Parrot)*		
177	Aves	Psittaculidae	Barnardius zonarius (Shaw, 1805)		
178	Aves	Psittaculidae	Barnardius zonarius zonarius (Gray & Shaw, 1805)		
179	Aves	Psittaculidae	Melopsittacus undulatus (Shaw, 1805) *(Budgerigar)*	native	
180	Aves	Psittaculidae	Neopsephotus bourkii (Gould, 1841)		
181	Aves	Ptilonorhynchidae	Chlamydera guttata Gould, 1862		
182	Aves	Ptilonorhynchidae	Ptilonorhynchus maculatus guttatus (Gould, 1862)	native	
183	Aves	Rallidae	Tribonyx ventralis (Gould, 1837) *(Black-tailed Native-hen)*	native	
184	Aves	Recurvirostridae	Recurvirostra novaehollandiae Vieillot, 1816 *(Red-necked Avocet)*	native	
185	Aves	Rhipiduridae	Rhipidura albiscapa	native	
186	Aves	Rhipiduridae	Rhipidura leucophrys (Latham, 1802) *(Willie Wagtail)*	native	
187	Aves	Scolopacidae	Actitis hypoleucos (Linnaeus, 1758) *(Common Sandpiper)*	native	MI
188	Aves	Strigidae	Ninox boobook (Latham, 1801)	native	
189	Aves	Turnicidae	Turnix velox (Gould, 1841)	native	
190	Chilopoda Latreille, 1817	Scolopendridae	Cormocephalus turneri Pocock, 1901		
191	Chilopoda Latreille, 1817	Scolopendridae	Ethmostigmus pachysoma L. E. Koch, 1983		
192	Chilopoda Latreille, 1817	Scolopendridae	Scolopendra laeta Haase, 1887		
193	Chilopoda Latreille, 1817	Scolopendridae	Scolopendra morsitans Linnaeus, 1758		
194	Clitellata	None	Oligochaeta Grube, 1850		
195	Clitellata	Enchytraeidae Vejdovsky, 1879	Enchytraeidae Vejdovsky, 1879		
196	Copepoda H. Milne Edwards, 1840	Ameiridae Monard, 1927	Nitokra Boeck, 1865		
197	Copepoda H. Milne Edwards, 1840	Ameiridae Monard, 1927	Parapseudoleptomesochra Lang, 1965		
198	Copepoda H. Milne Edwards, 1840	Ameiridae Monard, 1927	Parapseudoleptomesochra karamani Karanovic, 2004		
199	Copepoda H. Milne Edwards, 1840	Cyclopidae Rafinesque, 1815	Halicyclops kieferi Karanovic, 2004		
200	Copepoda H. Milne Edwards, 1840	Miraciidae Dana, 1846	Schizopera uramurdahi Karanovic, 2004		
201	Diplopoda de Blainville, 1844	Lophoproctidae Silvestri, 1897	Lophoturus madecassus (Marquet & Condé, 1950)		
202	Gastropoda	Gastrocoptidae Pilsbry, 1918	Gastrocopta larapinta (Tate, 1896)		
203	Gastropoda	Pupillidae Turton, 1831	Pupoides Pfeiffer, 1854		
204	Gastropoda	Pupillidae Turton, 1831	Pupoides beltianus (Tate, 1894)		
205	Gastropoda	Tomichiidae Wenz, 1938	Coxiella gilesi (Angas, 1877)		
206	Insecta	Blattidae	Anamesia Tepper, 1893		
207	Insecta	Blattidae	Melanozosteria zonata (Princis, 1954)		
208	Insecta	Bolboceratidae	Bolboceratidae		
209	Insecta	Buprestidae Leach, 1815	Bubastes sphaenoida Laporte & Gory, 1836		
210	Insecta	Buprestidae Leach, 1815	Buprestidae Leach, 1815		
211	Insecta	Buprestidae Leach, 1815	Castiarina quadrifasciata (Saunders, 1868)		
212	Insecta	Buprestidae Leach, 1815	Merimna atrata (Gory & Laporte, 1837)		
213	Insecta	Carabidae Latreille, 1802	Clivina (Clivina) frenchi Sloane, 1896		
214	Insecta	Carabidae Latreille, 1802	Clivina (Clivina) wiluna Darlington, 1953		

215	Insecta	Carabidae Latreille, 1802	Pogonus cardiotrachelus Chaudoir, 1871		
216	Insecta	Cicadidae	Cicadidae		
217	Insecta	Cicadidae	Macrotristria Stål, 1870		
218	Insecta	Coenagrionidae	Xanthagrion erythroneurum (Selys, 1876)		
219	Insecta	Corduliidae	Hemicordulia tau (Selys, 1871)		
220	Insecta	Coreidae	Mictis profana (Fabricius, 1803)		
221	Insecta	Crabronidae	Pison		
222	Insecta	Dytiscidae	Eretes australis (Erichson, 1842)		
223	Insecta	Dytiscidae	Limbodessus jundeeensis (Watts & Humphreys, 2003)		
224	Insecta	Dytiscidae	Limbodessus morgani (Watts & Humphreys, 2000)		
225	Insecta	Dytiscidae	Necterosoma undecimlineatum (Babington, 1841)		
226	Insecta	Formicidae Latreille, 1809	Formicidae Latreille, 1809		
227	Insecta	Formicidae Latreille, 1809	Iridomyrmex brunneus Forel, 1902		
228	Insecta	Formicidae Latreille, 1809	Iridomyrmex chasei Forel, 1902		
229	Insecta	Hepialidae	Hepialidae		
230	Insecta	Hydrophilidae Latreille, 1802	Berosus (Berosus) nutans (W. J. Macleay, 1871)		
231	Insecta	Kerriidae	Austrotachardia acaciae (Maskell, 1892)		
232	Insecta	Libellulidae	Diplacodes bipunctata (Brauer, 1865)		
233	Insecta	Lycaenidae	Ogyris amaryllis meridionalis Bethune-Baker, 1905		
234	Insecta	Morabidae	Nanihospita acaudata Key, 1976		
235	Insecta	Noctuidae Latreille, 1809	Helicoverpa punctigera (Wallengren, 1860)		
236	Insecta	Nymphalidae Rafinesque, 1815	Danaus chrysippus petilia (Stoll, 1790)		
237	Insecta	Papilionidae	Papilio (Princeps) demoleus sthenelus Macleay, 1826		
238	Insecta	Pentatomidae	Cephaloplatus (Cephaloplatus) reticulatus Bergroth, 1895		
239	Insecta	Pentatomidae	Neagenor Bergroth, 1891		
240	Insecta	Pentatomidae	Oechalia schellenbergii (Guérin, 1831)		
241	Insecta	Pentatomidae	Poecilometis fuscescens (Stål, 1876)		
242	Insecta	Pentatomidae	Poecilometis nigriventris (Dallas, 1851)		
243	Insecta	Pentatomidae	Poecilometis nigriventris nigriventris (Dallas, 1851)		
244	Insecta	Psyllidae	Acizzia Heslop-Harrison, 1961		
245	Insecta	Rhinotermitidae	Schedorhinotermes derosus (Hill, 1933)		
246	Insecta	Ripiphoridae	Ripiphoridae		
247	Insecta	Tenebrionidae	Helea Latreille, 1804		
248	Insecta	Tenebrionidae	Metistete Pascoe, 1866		
249	Insecta	Termitidae	Amitermes falcatus Gay, 1968		
250	Insecta	Termitidae	Amitermes neogermanus (Hill, 1922)		
251	Insecta	Termitidae	Amitermes pavidus (Hill, 1942)		
252	Insecta	Termitidae	Amitermes perarmatus (Silvestri, 1909)		
253	Insecta	Termitidae	Drepanotermes barretti Watson & Perry, 1981		
254	Insecta	Termitidae	Drepanotermes clarki (Hill, 1935)		
255	Insecta	Termitidae	Drepanotermes columellaris Watson & Perry, 1981		
256	Insecta	Termitidae	Drepanotermes gayi Watson & Perry, 1981		
257	Insecta	Termitidae	Drepanotermes hamulus Watson & Perry, 1981		
258	Insecta	Termitidae	Drepanotermes hilli Watson & Perry, 1981		
259	Insecta	Termitidae	Drepanotermes perniger (Froggatt, 1898)		
260	Insecta	Termitidae	Drepanotermes rubriceps (Froggatt, 1898)		
261	Insecta	Termitidae	Occultitermes aridus Gay, 1977		
262	Malacostraca	Armadillidae Brandt, 1831	Buddelundia Michaelsen, 1912		
263	Malacostraca	Philosciidae	Haloniscus longiantennatus Taiti & Humphreys, 2001		

264	Mammalia	Dasyuridae	Antechinomys laniger (Gould, 1856)	native	
265	Mammalia	Dasyuridae	Antechinomys longicaudatus (Spencer, 1909)		P4
266	Mammalia	Dasyuridae	Dasycercus Peters, 1875		Parent of conservation listed taxa
267	Mammalia	Dasyuridae	Dasycercus blythi (Waite, 1904) *(Brush-tailed Mulgara, Spinifex Mulgara)*	native	P4
268	Mammalia	Dasyuridae	Ningaui ridei Archer, 1975 *(Wongai Ningaui)*	native	
269	Mammalia	Dasyuridae	Pseudantechinus woolleyae Kitchener & Caputi, 1988	native	
270	Mammalia	Dasyuridae	Sminthopsis dolichura Kitchener, Stoddart & Henry, 1984 *(Little long-tailed Dunnart)*	native	
271	Mammalia	Dasyuridae	Sminthopsis macroura (Gould, 1845)	native	
272	Mammalia	Dasyuridae	Sminthopsis ooldea Troughton, 1965 *(Ooldea Dunnart)*	native	
273	Mammalia	Felidae	Felis catus Linnaeus, 1758	alien	
274	Mammalia	Macropodidae	Osphranter robustus (Gould, 1841)	native	
275	Mammalia	Macropodidae	Osphranter rufus (Desmarest, 1822)	native	
276	Mammalia	Molossidae	Austronomus australis Gray, 1838 *(White-striped Free-tailed Bat)*	native	
277	Mammalia	Molossidae	Ozimops lumsdenae Reardon, McKenzie & Adams, 2014		
278	Mammalia	Muridae	Mus musculus *(House Mouse)*	alien	
279	Mammalia	Muridae	Pseudomys desertor Troughton, 1932 *(Desert Mouse)*	native	
280	Mammalia	Muridae	Pseudomys hermannsburgensis (Waite, 1896) *(Sandy Inland Mouse)*	native	
281	Mammalia	Thylacomyidae	Macrotis lagotis (Reid, 1837) *(Bilby)*	native	VU
282	Mammalia	Vespertilionidae	Chalinolobus gouldii (Gray, 1841) *(Gould's Wattled Bat)*	native	
283	Mammalia	Vespertilionidae	Nyctophilus geoffroyi Leach, 1821 *(Lesser Long-eared Bat)*	native	
284	Mammalia	Vespertilionidae	Scotorepens balstoni (Thomas, 1906) *(Inland Broad-nosed Bat)*	native	
285	Mammalia	Vespertilionidae	Vespadelus finlaysoni (Kitchener, Jones & Caputi, 1987) *(Finlayson's Cave Bat)*	native	
286	Ostracoda	Limnocytheridae Sars, 1925	Gomphodella glomerosa Karanovic, 2006		
287	Reptilia	Agamidae	Ctenophorus caudicinctus (Günther, 1875) *(Western Ring-tailed Dragon)*	native	
288	Reptilia	Agamidae	Ctenophorus isolepis (Fischer, 1881) *(Crested Dragon)*	native	
289	Reptilia	Agamidae	Ctenophorus isolepis gularis (Sternfeld, 1924) *(Central Military Dragon)*	native	
290	Reptilia	Agamidae	Ctenophorus nuchalis (De Vis, 1884) *(Central Netted Dragon)*	native	
291	Reptilia	Agamidae	Ctenophorus reticulatus (Gray, 1845) *(Western Netted Dragon)*	native	
292	Reptilia	Agamidae	Ctenophorus scutulatus (Stirling & Zietz, 1893) *(Lozenge-marked Dragon)*	native	
293	Reptilia	Agamidae	Diporiphora amphiboluroides (Lucas & Frost, 1902) *(Mulga Dragon)*	native	
294	Reptilia	Agamidae	Gowidon longirostris (Boulenger, 1883) *(Long-nosed Dragon)*	native	
295	Reptilia	Agamidae	Moloch horridus Gray, 1841 *(Thorny Devil)*	native	
296	Reptilia	Agamidae	Pogona minor (Sternfeld, 1919) *(Dwarf Bearded Dragon)*	native	
297	Reptilia	Agamidae	Tympanocryptis cephalus Günther, 1867	native	
298	Reptilia	Agamidae	Tympanocryptis pseudopsephos Doughty, Kealley, Shoo & Melville, 2015 *(Goldfields Pebble-mimic Dragon)*	native	
299	Reptilia	Carphodactylidae	Nephrurus laevissimus Mertens, 1958 *(Pale Knob-tailed Gecko)*	native	
300	Reptilia	Chelidae	Chelodina steindachneri Siebenrock, 1901 *(Flat-shelled Turtle)*	native	
301	Reptilia	Diplodactylidae	Diplodactylus conspicillatus Lucas & Frost, 1897 *(Variable Fat-tailed Gecko)*	native	
302	Reptilia	Diplodactylidae	Diplodactylus granariensis granariensis Storr, 1979 *(Western stone gecko)*	native	
303	Reptilia	Diplodactylidae	Diplodactylus granariensis rex Storr, 1988 *(Western stone gecko)*	native	
304	Reptilia	Diplodactylidae	Diplodactylus pulcher Steindachner, 1870 *(Pretty Gecko)*	native	
305	Reptilia	Diplodactylidae	Lucasium squarrosum (Kluge, 1962) *(Mottled Ground Gecko)*	native	
306	Reptilia	Diplodactylidae	Rhynchoedura ornata Günther, 1867 *(Western Beaked Gecko)*	native	
307	Reptilia	Diplodactylidae	Strophurus ciliaris ciliaris (Boulenger, 1885) *(Northern Spiny-tailed Gecko)*	native	

308	Reptilia	Diplodactylidae	Strophurus elderi (Stirling & Zietz, 1893) *(Jewelled Gecko)*	native	
309	Reptilia	Diplodactylidae	Strophurus wellingtonae (Storr, 1988) *(Western Shield spiny-tailed gecko)*	native	
310	Reptilia	Elapidae	Brachyurophis approximans (Glauert, 1954) *(North-western Shovel-nosed Snake)*	native	
311	Reptilia	Elapidae	Demansia psammophis (Schlegel, 1837) *(Yellow-faced Whipsnake)*	native	
312	Reptilia	Elapidae	Pseudechis australis (Gray, 1842) *(Mulga Snake)*	native	
313	Reptilia	Elapidae	Pseudonaja modesta (Günther, 1872) *(Ringed Brown Snake)*	native	
314	Reptilia	Elapidae	Pseudonaja nuchalis *(Northern Brown Snake)*	native	
315	Reptilia	Elapidae	Simoselaps bertholdi (Jan, 1859)	native	
316	Reptilia	Elapidae	Suta monachus (Storr, 1964)		
317	Reptilia	Gekkonidae	Gehyra montium Storr, 1982 *(Central Rock Dtella)*	native	
318	Reptilia	Gekkonidae	Gehyra variegata (Duméril & Bibron, 1836) *(Variegated Gehyra)*	native	
319	Reptilia	Gekkonidae	Heteronotia binoei (Gray, 1845) *(Bynoe's Gecko)*	native	
320	Reptilia	Pygopodidae	Delma butleri Storr, 1987 *(Unbanded Delma)*	native	
321	Reptilia	Pygopodidae	Delma nasuta Kluge, 1974 *(Sharp-snouted Delma)*	native	
322	Reptilia	Pygopodidae	Pygopus nigriceps (Fischer, 1882)	native	
323	Reptilia	Pythonidae	Antaresia perthensis (Stull, 1932) *(Pygmy Python)*	native	
324	Reptilia	Scincidae	Ctenotus ariadnae Storr, 1969 *(Pin-striped Ctenotus)*	native	
325	Reptilia	Scincidae	Ctenotus calurus Storr, 1969	native	
326	Reptilia	Scincidae	Ctenotus grandis grandis Storr, 1969 *(Giant Desert Ctenotus)*	native	
327	Reptilia	Scincidae	Ctenotus helenae Storr, 1969 *(Dusky Ctenotus)*	native	
328	Reptilia	Scincidae	Ctenotus leonhardii (Sternfeld, 1919) *(Common Desert Ctenotus)*	native	
329	Reptilia	Scincidae	Ctenotus pantherinus (Peters, 1866) *(Leopard Ctenotus)*	native	
330	Reptilia	Scincidae	Ctenotus quattuordecimlineatus (Sternfeld, 1919) *(Fourteen-lined Ctenotus)*	native	
331	Reptilia	Scincidae	Ctenotus schomburgkii (Peters, 1863) *(Sandplain Ctenotus)*	native	
332	Reptilia	Scincidae	Ctenotus uber Storr, 1969	native	
333	Reptilia	Scincidae	Egernia depressa (Günther, 1875) *(Southern Pygmy Spiny-tailed Skink)*	native	
334	Reptilia	Scincidae	Eremiascincus richardsonii (Gray, 1845) *(Broad-banded Sand Swimmer)*	native	
335	Reptilia	Scincidae	Lerista bipes (Fischer, 1882) *(Western Two-toed Slider)*	native	
336	Reptilia	Scincidae	Lerista desertorum (Sternfeld, 1919) *(Great Desert Slider)*	native	
337	Reptilia	Scincidae	Lerista muelleri (Fischer, 1881) *(Wood Mulch-slider)*	native	
338	Reptilia	Scincidae	Lerista timida (de Vis, 1888) *(Dwarf Three-toed Slider)*	native	
339	Reptilia	Scincidae	Menetia greyii Gray, 1845 *(Common Dwarf Skink)*	native	
340	Reptilia	Scincidae	Morethia butleri (Storr, 1963) *(Butler's Snake-eye)*	native	
341	Reptilia	Scincidae	Tiliqua multifasciata Sternfeld, 1919 *(Central Blue-tongue Skink)*	native	
342	Reptilia	Scincidae	Tiliqua occipitalis (Peters, 1863) *(Western Blue-tongue Skink)*	native	
343	Reptilia	Typhlopidae Merrem, 1820	Anilios bituberculatus (Peters, 1863) *(Rough-nosed Blind Snake)*	native	
344	Reptilia	Typhlopidae Merrem, 1820	Anilios hamatus (Storr, 1981) *(Northern Hook-snouted Blind Snake)*	native	
345	Reptilia	Typhlopidae Merrem, 1820	Anilios waitii (Boulenger, 1895) *(Beaked Blind Snake)*	native	
346	Reptilia	Varanidae	Varanus brevicauda Boulenger, 1898	native	
347	Reptilia	Varanidae	Varanus caudolineatus Boulenger, 1885 *(Stripe-tailed Goanna)*	native	
348	Reptilia	Varanidae	Varanus eremius Lucas & Frost, 1895 *(Pygmy Desert Goanna, Pygmy Desert Monitor)*	native	
349	Reptilia	Varanidae	Varanus giganteus (Gray, 1845) *(Perentie)*	native	
350	Reptilia	Varanidae	Varanus tristis (Schlegel, 1839) *(Black-headed Monitor)*	native	

Fungi

351	Basidiomycetes	Diplocystaceae	Astraeus hygrometricus (Pers.) Morgan	uncertain	
352	Eurotiomycetes O.E.Erikss. & Winka	Verrucariaceae Zenker	Endocarpon aridum P.M.McCarthy	native	
		Acarosporaceae			

353	Lecanoromycetes	Zahlbr.	Acarospora citrina (Taylor) Rech.	native	
354	Lecanoromycetes	Collemataceae Zenker	Enchylium coccophorum (Tuck.) Otálora, P.M.Jørg. & Wedin	native	
355	Lecanoromycetes	Parmeliaceae Zenker	Xanthoparmelia antleriformis (Elix) Elix & J.Johnst.	native	
356	Lecanoromycetes	Parmeliaceae Zenker	Xanthoparmelia nashii Elix & J.Johnst.	native	P3
357	Lecanoromycetes	Parmeliaceae Zenker	Xanthoparmelia prodomokosii Hale, Elix & J.Johnst.	native	
358	Lecanoromycetes	Parmeliaceae Zenker	Xanthoparmelia weberiella Elix	native	
359	Lecanoromycetes	Psoraceae Zahlbr.	Psora decipiens (Hedw.) Hoffm.	native	
360	Sordariomycetes	Nectriaceae	Fusarium chlamydosporum Wollenw. & Reinking		

Plantae

361	Liliopsida	Asparagaceae Juss.	Lomandra leucocephala subsp. robusta A.T.Lee *(Woolly Mat-rush)*	native	
362	Liliopsida	Asparagaceae Juss.	Thysanotus manglesianus Kunth *(Fringed Lily, Mangles' Fringed Lily)*	native	
363	Liliopsida	Colchicaceae DC.	Wurmbea deserticola T.Macfarlane	native	
364	Liliopsida	Cyperaceae Juss.	Bulbostylis barbata (Rottb.) C.B.Clarke	native	
365	Liliopsida	Cyperaceae Juss.	Cyperus betchei (Kük.) S.T.Blake	native	
366	Liliopsida	Cyperaceae Juss.	Cyperus betchei subsp. commiscens K.L.Wilson	native	
367	Liliopsida	Cyperaceae Juss.	Cyperus dactylotes Benth.	native	
368	Liliopsida	Cyperaceae Juss.	Cyperus iria L.	native	
369	Liliopsida	Cyperaceae Juss.	Cyperus leptocarpus (F.Muell.) Bauters	native	
370	Liliopsida	Cyperaceae Juss.	Cyperus rotundus L.	alien	
371	Liliopsida	Poaceae Barnhart	Amphipogon caricinus F.Muell. *(Long Greybeard Grass)*	native	
372	Liliopsida	Poaceae Barnhart	Aristida contorta F.Muell.	native	
373	Liliopsida	Poaceae Barnhart	Aristida holathera Domin var. holathera	native	
374	Liliopsida	Poaceae Barnhart	Aristida inaequiglumis Domin *(Feathertop Threeawn)*	native	
375	Liliopsida	Poaceae Barnhart	Aristida jerichoensis var. subspinulifera Henrard	native	P3
376	Liliopsida	Poaceae Barnhart	Aristida obscura Henrard	native	
377	Liliopsida	Poaceae Barnhart	Cymbopogon ambiguus (Hack.) A.Camus *(Scentgrass)*	native	
378	Liliopsida	Poaceae Barnhart	Cymbopogon obtectus S.T.Blake *(Silkyheads)*	native	
379	Liliopsida	Poaceae Barnhart	Cynodon dactylon (L.) Pers. *(Couch)*	alien	
380	Liliopsida	Poaceae Barnhart	Dactyloctenium radulans (R.Br.) P.Beauv.	native	
381	Liliopsida	Poaceae Barnhart	Dichanthium sericeum subsp. humilius (J.M.Black) B.K.Simon	native	
382	Liliopsida	Poaceae Barnhart	Digitaria brownii (Roem. & Schult.) Hughes	native	
383	Liliopsida	Poaceae Barnhart	Diplachne fusca (L.) Roem. & Schult. subsp. fusca	native	
384	Liliopsida	Poaceae Barnhart	Diplachne fusca subsp. muelleri (Benth.) P.M.Peterson & N.Snow	native	
385	Liliopsida	Poaceae Barnhart	Diplachne fusca subsp. uninervia (J.Presl) P.M.Peterson & N.Snow	alien	
386	Liliopsida	Poaceae Barnhart	Enneapogon caerulescens (Gaudich.) N.T.Burb. *(Limestone Grass)*	native	
387	Liliopsida	Poaceae Barnhart	Enneapogon polyphyllus (Domin) N.T.Burb.	native	
388	Liliopsida	Poaceae Barnhart	Enteropogon ramosus B.K.Simon *(Curly Windmill Grass, Windmill Grass)*	native	
389	Liliopsida	Poaceae Barnhart	Eragrostis cumingii Steud. *(Cuming's Love Grass)*	native	
390	Liliopsida	Poaceae Barnhart	Eragrostis dielsii Pilg. *(Mallee Lovegrass)*	native	
391	Liliopsida	Poaceae Barnhart	Eragrostis elongata (Willd.) J.Jacq. *(Clustered Lovegrass)*	native	
392	Liliopsida	Poaceae Barnhart	Eragrostis eriopoda Benth. *(Woollybutt Grass)*	native	
393	Liliopsida	Poaceae Barnhart	Eragrostis lacunaria Benth. *(Purple Lovegrass)*	native	
394	Liliopsida	Poaceae Barnhart	Eragrostis laniflora Benth. *(Hairy-flowered Woollybutt)*	native	
395	Liliopsida	Poaceae Barnhart	Eragrostis lanipes C.E.Hubb.	native	
396	Liliopsida	Poaceae Barnhart	Eragrostis leptocarpa Benth. *(Drooping Lovegrass)*	native	
397	Liliopsida	Poaceae Barnhart	Eragrostis parviflora (R.Br.) Trin. *(Weeping Lovegrass)*	native	
398	Liliopsida	Poaceae Barnhart	Eragrostis setifolia Nees *(Neverfail Grass)*	native	
399	Liliopsida	Poaceae Barnhart	Eragrostis xerophila Domin *(Knotty-butt Neverfail)*	native	

400	Liliopsida	Poaceae Barnhart	Eriachne benthamii Hartley *(Swamp Wanderrie)*	native	
401	Liliopsida	Poaceae Barnhart	Eriachne flaccida Hartley *(Claypan Grass)*	native	
402	Liliopsida	Poaceae Barnhart	Eriachne helmsii Hartley *(Buck Wanderrie Grass)*	native	
403	Liliopsida	Poaceae Barnhart	Eriachne mucronata R.Br. *(Mountain Wanderrie Grass)*	native	
404	Liliopsida	Poaceae Barnhart	Eriachne pulchella Domin subsp. pulchella	native	
405	Liliopsida	Poaceae Barnhart	Eulalia aurea (Bory) Kunth	native	
406	Liliopsida	Poaceae Barnhart	Iseilema membranaceum (Lindl.) Domin	native	
407	Liliopsida	Poaceae Barnhart	Monachather paradoxus Steud.	native	
408	Liliopsida	Poaceae Barnhart	Neurachne lanigera S.T.Blake	native	P1
409	Liliopsida	Poaceae Barnhart	Neurachne minor S.T.Blake	native	
410	Liliopsida	Poaceae Barnhart	Neurachne muelleri Hack. *(Northern Mulga Grass)*	native	
411	Liliopsida	Poaceae Barnhart	Neurachne munroi (F.Muell.) F.Muell.	native	
412	Liliopsida	Poaceae Barnhart	Panicum australiense Domin var. australiense	native	
413	Liliopsida	Poaceae Barnhart	Panicum effusum R.Br. *(Hairy Panic Grass)*	native	
414	Liliopsida	Poaceae Barnhart	Paspalidium basicladum Hughes	native	
415	Liliopsida	Poaceae Barnhart	Paspalidium clementii (Domin) C.E.Hubb. *(Clements Paspalidium)*	native	
416	Liliopsida	Poaceae Barnhart	Paspalidium rarum (R.Br.) Hughes *(Rare Paspalidium)*	native	
417	Liliopsida	Poaceae Barnhart	Polypogon monspeliensis (L.) Desf. *(Annual Beardgrass)*	alien	
418	Liliopsida	Poaceae Barnhart	Setaria dielsii R.A.W.Herrm. *(Diels' Pigeon Grass)*	native	
419	Liliopsida	Poaceae Barnhart	Themeda avenacea (F.Muell.) Maiden & Betche *(Native Oatgrass)*	native	
420	Liliopsida	Poaceae Barnhart	Themeda triandra Forssk.	native	
421	Liliopsida	Poaceae Barnhart	Thyridolepis S.T.Blake		
422	Liliopsida	Poaceae Barnhart	Thyridolepis multiculmis (Pilg.) S.T.Blake *(Soft Wanderrie Grass)*	native	
423	Liliopsida	Poaceae Barnhart	Triodia basedowii E.Pritz. *(Lobed Spinifex)*	native	
424	Liliopsida	Poaceae Barnhart	Triodia melvillei (C.E.Hubb.) Lazarides	native	
425	Liliopsida	Ruppiaceae Horan.	Ruppia maritima L. *(Sea Tassel)*	native	
426	Magnoliopsida	Acanthaceae Juss.	Harnieria kempeana subsp. muelleri (R.M.Barker) R.M.Barker	native	
427	Magnoliopsida	Aizoaceae Martinov	Gunniopsis rodwayi (Ewart) C.A.Gardner	native	
428	Magnoliopsida	Amaranthaceae Juss.	Amaranthus mitchellii Benth.	native	
429	Magnoliopsida	Amaranthaceae Juss.	Ptilotus albidus (C.A.Gardner) Benl	native	
430	Magnoliopsida	Amaranthaceae Juss.	Ptilotus divaricatus (Gaudich.) F.Muell.	native	
431	Magnoliopsida	Amaranthaceae Juss.	Ptilotus drummondii (Moq.) F.Muell. *(Narrowleaf Mulla Mulla)*	native	
432	Magnoliopsida	Amaranthaceae Juss.	Ptilotus drummondii (Moq.) F.Muell. var. drummondii *(Pussytail)*	native	
433	Magnoliopsida	Amaranthaceae Juss.	Ptilotus exaltatus Nees *(Tall Mulla Mulla)*	native	
434	Magnoliopsida	Amaranthaceae Juss.	Ptilotus gaudichaudii (Steud.) J.M.Black	native	
435	Magnoliopsida	Amaranthaceae Juss.	Ptilotus helipteroides (F.Muell.) F.Muell. *(Hairy Mulla Mulla)*	native	
436	Magnoliopsida	Amaranthaceae Juss.	Ptilotus luteolus (Benl & H.Eichler) R.W.Davis	native	P3
437	Magnoliopsida	Amaranthaceae Juss.	Ptilotus macrocephalus (R.Br.) Poir. *(Featherheads)*	native	
438	Magnoliopsida	Amaranthaceae Juss.	Ptilotus nobilis (Lindl.) F.Muell. *(Tall Mulla Mulla)*	native	
439	Magnoliopsida	Amaranthaceae Juss.	Ptilotus obovatus (Gaudich.) F.Muell. *(Cotton Bush)*	native	
440	Magnoliopsida	Amaranthaceae Juss.	Ptilotus polystachyus (Gaudich.) F.Muell. *(Prince of Wales Feather)*	native	
441	Magnoliopsida	Amaranthaceae Juss.	Ptilotus pseudohelipteroides Benl	native	
442	Magnoliopsida	Amaranthaceae Juss.	Ptilotus rotundifolius (F.Muell.) F.Muell.	native	
443	Magnoliopsida	Amaranthaceae Juss.	Ptilotus schwartzii (F.Muell.) Tate	native	

444	Magnoliopsida	Amaranthaceae Juss.	Ptilotus sericostachyus (Nees) F.Muell.	native	
445	Magnoliopsida	Amaranthaceae Juss.	Ptilotus sessilifolius (Lindl.) Benl	native	
446	Magnoliopsida	Amaranthaceae Juss.	Ptilotus xerophilus T.Hammer & R.W.Davis	native	
447	Magnoliopsida	Amaranthaceae Juss.	Surreya R.Masson & G.Kadereit		
448	Magnoliopsida	Apocynaceae Juss.	Leichhardtia australis R.Br. *(Cogola Bush)*	native	
449	Magnoliopsida	Apocynaceae Juss.	Vincetoxicum lineare (Decne.) Meve & Liede *(Bush Bean)*	native	
450	Magnoliopsida	Araliaceae Juss.	Trachymene glaucifolia (F.Muell.) Benth. *(Wild Carrot)*	native	
451	Magnoliopsida	Asteraceae Bercht. & J.Presl	Angianthus tomentosus J.C.Wendl. *(Camel-grass)*	native	
452	Magnoliopsida	Asteraceae Bercht. & J.Presl	Brachyscome ciliaris (Labill.) Less.	native	
453	Magnoliopsida	Asteraceae Bercht. & J.Presl	Calocephalus beardii P.S.Short	native	
454	Magnoliopsida	Asteraceae Bercht. & J.Presl	Calotis hispidula (F.Muell.) F.Muell.	native	
455	Magnoliopsida	Asteraceae Bercht. & J.Presl	Calotis sp. Carnarvon Range (D.J. Edinger & K.F. Kenneally D 2708 K 12243)	native	
456	Magnoliopsida	Asteraceae Bercht. & J.Presl	Cephalipterum drummondii A.Gray	native	
457	Magnoliopsida	Asteraceae Bercht. & J.Presl	Chrysocephalum apiculatum (Labill.) Steetz *(Yellow Buttons)*	native	
458	Magnoliopsida	Asteraceae Bercht. & J.Presl	Chrysocephalum apiculatum subsp. glandulosum Paul G.Wilson	native	
459	Magnoliopsida	Asteraceae Bercht. & J.Presl	Chrysocephalum eremaeum (Haegi) Anderb.	native	
460	Magnoliopsida	Asteraceae Bercht. & J.Presl	Chthonocephalus viscosus P.S.Short	native	
461	Magnoliopsida	Asteraceae Bercht. & J.Presl	Flaveria trinervia (Spreng.) C.Mohr	alien	
462	Magnoliopsida	Asteraceae Bercht. & J.Presl	Gnephosis brevifolia (A.Gray) Benth.	native	
463	Magnoliopsida	Asteraceae Bercht. & J.Presl	Hyalosperma glutinosum subsp. venustum (S.Moore) Paul G.Wilson	native	
464	Magnoliopsida	Asteraceae Bercht. & J.Presl	Lawrencella davenportii (F.Muell.) Paul G.Wilson *(Sticky Everlasting)*	native	
465	Magnoliopsida	Asteraceae Bercht. & J.Presl	Leucochrysum stipitatum (F.Muell.) Paul G.Wilson	native	
466	Magnoliopsida	Asteraceae Bercht. & J.Presl	Minuria leptophylla DC. *(Minnie Daisy)*	native	
467	Magnoliopsida	Asteraceae Bercht. & J.Presl	Myriocephalus Benth.		
468	Magnoliopsida	Asteraceae Bercht. & J.Presl	Olearia stuartii (F.Muell.) Benth.	native	
469	Magnoliopsida	Asteraceae Bercht. & J.Presl	Pluchea dentex Benth.	native	
470	Magnoliopsida	Asteraceae Bercht. & J.Presl	Podolepis aristata subsp. affinis (Sond.) Jeanes	native	
471	Magnoliopsida	Asteraceae Bercht. & J.Presl	Pogonolepis stricta Steetz	native	
472	Magnoliopsida	Asteraceae Bercht. & J.Presl	Rhodanthe charsleyae (F.Muell.) Paul G.Wilson	native	
473	Magnoliopsida	Asteraceae Bercht. & J.Presl	Rhodanthe chlorocephala (Turcz.) Paul G.Wilson subsp. chlorocephala	native	P1
474	Magnoliopsida	Asteraceae Bercht. & J.Presl	Rhodanthe chlorocephala subsp. rosea (Hook.) Paul G.Wilson	native	
475	Magnoliopsida	Asteraceae Bercht. & J.Presl	Rhodanthe chlorocephala subsp. splendida (Hemsl.) Paul G.Wilson	native	
476	Magnoliopsida	Asteraceae Bercht. & J.Presl	Rhodanthe humboldtiana (Gaudich.) Paul G.Wilson	native	

477	Magnoliopsida	Asteraceae Bercht. & J.Presl	Rhodanthe maryonii (S.Moore) Paul G.Wilson	native	
478	Magnoliopsida	Asteraceae Bercht. & J.Presl	Rhodanthe propinqua (W.Fitzg.) Paul G.Wilson	native	
479	Magnoliopsida	Asteraceae Bercht. & J.Presl	Rhodanthe sterilescens (F.Muell.) Paul G.Wilson	native	
480	Magnoliopsida	Asteraceae Bercht. & J.Presl	Rhodanthe stricta (Lindl.) Paul G.Wilson	native	
481	Magnoliopsida	Asteraceae Bercht. & J.Presl	Roebuckiella ciliocarpa (W.Fitzg.) P.S.Short	native	
482	Magnoliopsida	Asteraceae Bercht. & J.Presl	Roebuckiella similis (P.S.Short) P.S.Short	native	
483	Magnoliopsida	Asteraceae Bercht. & J.Presl	Schoenia ayersii (F.Muell.) J.M.Black	native	
484	Magnoliopsida	Asteraceae Bercht. & J.Presl	Schoenia cassiniana (Gaudich.) Steetz *(Schoenia)*	native	
485	Magnoliopsida	Asteraceae Bercht. & J.Presl	Streptoglossa cylindriceps (J.M.Black) Dunlop	native	
486	Magnoliopsida	Asteraceae Bercht. & J.Presl	Thiseltonia gracillima (F.Muell. & Tate) Paul G.Wilson	native	
487	Magnoliopsida	Asteraceae Bercht. & J.Presl	Tietkensia corrickiae P.S.Short	native	
488	Magnoliopsida	Asteraceae Bercht. & J.Presl	Vittadinia pustulata N.T.Burb.	native	P3
489	Magnoliopsida	Asteraceae Bercht. & J.Presl	Walshia kendallii (F.Muell.) Jeanes	native	
490	Magnoliopsida	Boraginaceae Juss.	Euploca heterantha (F.Muell.) M.W.Frohl. & M.W.Chase	native	
491	Magnoliopsida	Boraginaceae Juss.	Euploca moorei (Craven) M.W.Frohl. & M.W.Chase	native	
492	Magnoliopsida	Boraginaceae Juss.	Halgania cyanea var. Allambi Stn (B.W. Strong 676)	native	
493	Magnoliopsida	Boraginaceae Juss.	Halgania erecta Ewart & B.Rees	native	
494	Magnoliopsida	Boraginaceae Juss.	Trichodesma zeylanicum (Burm.f.) R.Br. *(Camel Bush)*	native	
495	Magnoliopsida	Brassicaceae Burnett	Lepidium echinatum Hewson	native	
496	Magnoliopsida	Brassicaceae Burnett	Lepidium oxytrichum Sprague	native	
497	Magnoliopsida	Brassicaceae Burnett	Lepidium platypetalum Hewson	native	
498	Magnoliopsida	Brassicaceae Burnett	Menkea sphaerocarpa F.Muell.	native	
499	Magnoliopsida	Brassicaceae Burnett	Stenopetalum filifolium Benth.	native	
500	Magnoliopsida	Casuarinaceae R.Br.	Casuarina pauper L.A.S.Johnson *(Black Oak)*	native	
501	Magnoliopsida	Celastraceae R.Br.	Macgregoria racemigera F.Muell. *(Snow Flower)*	native	
502	Magnoliopsida	Celastraceae R.Br.	Stackhousia clementii Domin	native	P3
503	Magnoliopsida	Celastraceae R.Br.	Stackhousia megaloptera F.Muell.	native	
504	Magnoliopsida	Chenopodiaceae Vent.	Atriplex semilunaris Aellen	native	
505	Magnoliopsida	Chenopodiaceae Vent.	Dissocarpus paradoxus (R.Br.) Ulbr.	native	
506	Magnoliopsida	Chenopodiaceae Vent.	Enchylaena tomentosa R.Br. *(Barrier Saltbush)*	native	
507	Magnoliopsida	Chenopodiaceae Vent.	Enchylaena tomentosa R.Br. var. tomentosa	native	
508	Magnoliopsida	Chenopodiaceae Vent.	Maireana Moq.		
509	Magnoliopsida	Chenopodiaceae Vent.	Maireana carnosa (Moq.) Paul G.Wilson	native	
510	Magnoliopsida	Chenopodiaceae Vent.	Maireana convexa Paul G.Wilson	native	
511	Magnoliopsida	Chenopodiaceae Vent.	Maireana georgei (Diels) Paul G.Wilson *(Satiny Bluebush)*	native	
512	Magnoliopsida	Chenopodiaceae	Maireana planifolia (F.Muell.) Paul G.Wilson	native	

		Vent.			
513	Magnoliopsida	Chenopodiaceae Vent.	Maireana platycarpa Paul G.Wilson *(Shy Bluebush)*	native	
514	Magnoliopsida	Chenopodiaceae Vent.	Maireana prosthecochaeta (F.Muell.) Paul G.Wilson	native	P3
515	Magnoliopsida	Chenopodiaceae Vent.	Maireana pyramidata (Benth.) Paul G.Wilson	native	
516	Magnoliopsida	Chenopodiaceae Vent.	Maireana suaedifolia (Paul G.Wilson) Paul G.Wilson	native	
517	Magnoliopsida	Chenopodiaceae Vent.	Maireana villosa (Lindl.) Paul G.Wilson	native	
518	Magnoliopsida	Chenopodiaceae Vent.	Rhagodia R.Br.		
519	Magnoliopsida	Chenopodiaceae Vent.	Sclerolaena alata Paul G.Wilson	native	
520	Magnoliopsida	Chenopodiaceae Vent.	Sclerolaena convexula (R.H.Anderson) A.J.Scott	native	
521	Magnoliopsida	Chenopodiaceae Vent.	Sclerolaena deserticola Paul G.Wilson	native	
522	Magnoliopsida	Chenopodiaceae Vent.	Sclerolaena eriacantha (F.Muell.) Ulbr. *(Tall Bindii)*	native	
523	Magnoliopsida	Chenopodiaceae Vent.	Sclerolaena gardneri (Ising) A.J.Scott	native	
524	Magnoliopsida	Chenopodiaceae Vent.	Tecticornia indica subsp. leiostachya (Benth.) K.A.Sheph. & Paul G.Wilson *(Samphire)*	native	
525	Magnoliopsida	Cleomaceae Bercht. & J.Presl	Areocleome oxalidea (F.Muell.) R.L.Barrett & Roalson	native	
526	Magnoliopsida	Convolvulaceae Juss.	Bonamia erecta R.W.Johnson	native	
527	Magnoliopsida	Convolvulaceae Juss.	Bonamia rosea (F.Muell.) Hallier f. *(Felty Bellflower)*	native	
528	Magnoliopsida	Convolvulaceae Juss.	Convolvulus remotus R.Br.	native	
529	Magnoliopsida	Euphorbiaceae Juss.	Monotaxis luteiflora F.Muell.	native	
530	Magnoliopsida	Fabaceae Lindl.	Acacia Mill.		
531	Magnoliopsida	Fabaceae Lindl.	Acacia abrupta Maiden & Blakely	native	
532	Magnoliopsida	Fabaceae Lindl.	Acacia aciphylla Benth.	native	
533	Magnoliopsida	Fabaceae Lindl.	Acacia aneura Benth. *(Mulga, Wanari)*	native	
534	Magnoliopsida	Fabaceae Lindl.	Acacia aptaneura Maslin & J.E.Reid	native	
535	Magnoliopsida	Fabaceae Lindl.	Acacia ayersiana Maconochie	native	
536	Magnoliopsida	Fabaceae Lindl.	Acacia burkittii Benth. *(Sandhill Wattle)*	native	
537	Magnoliopsida	Fabaceae Lindl.	Acacia caesaneura Maslin & J.E.Reid	native	
538	Magnoliopsida	Fabaceae Lindl.	Acacia colletioides Benth. *(Wait-a-while)*	native	
539	Magnoliopsida	Fabaceae Lindl.	Acacia dictyophleba F.Muell. *(Sandhill Wattle)*	native	
540	Magnoliopsida	Fabaceae Lindl.	Acacia effusifolia Maslin & Buscumb	native	
541	Magnoliopsida	Fabaceae Lindl.	Acacia heteroneura var. prolixa R.S.Cowan & Maslin	native	
542	Magnoliopsida	Fabaceae Lindl.	Acacia incurvaneura Maslin & J.E.Reid	native	
543	Magnoliopsida	Fabaceae Lindl.	Acacia jamesiana Maslin	native	
544	Magnoliopsida	Fabaceae Lindl.	Acacia jennerae Maiden	native	
545	Magnoliopsida	Fabaceae Lindl.	Acacia kalgoorliensis R.S.Cowan & Maslin	native	
546	Magnoliopsida	Fabaceae Lindl.	Acacia kempeana F.Muell.	native	
547	Magnoliopsida	Fabaceae Lindl.	Acacia ligulata Benth. *(Umbrella Bush, Watarka)*	native	
548	Magnoliopsida	Fabaceae Lindl.	Acacia macraneura Maslin & J.E.Reid	native	
549	Magnoliopsida	Fabaceae Lindl.	Acacia mulganeura Maslin & J.E.Reid	native	
550	Magnoliopsida	Fabaceae Lindl.	Acacia oswaldii F.Muell. *(Miljee)*	native	
551	Magnoliopsida	Fabaceae Lindl.	Acacia pachyacra Maiden & Blakely	native	
552	Magnoliopsida	Fabaceae Lindl.	Acacia prainii Maiden	native	
553	Magnoliopsida	Fabaceae Lindl.	Acacia pruinocarpa Tindale *(Gidgee)*	native	
554	Magnoliopsida	Fabaceae Lindl.	Acacia quadrimarginea F.Muell.	native	

555	Magnoliopsida	Fabaceae Lindl.	Acacia ramulosa W.Fitzg. *(Horse Mulga)*	native	
556	Magnoliopsida	Fabaceae Lindl.	Acacia ramulosa var. linophylla (W.Fitzg.) Pedley	native	
557	Magnoliopsida	Fabaceae Lindl.	Acacia sibirica S.Moore	native	
558	Magnoliopsida	Fabaceae Lindl.	Acacia tetragonophylla F.Muell.	native	
559	Magnoliopsida	Fabaceae Lindl.	Acacia xanthocarpa R.S.Cowan & Maslin	native	
560	Magnoliopsida	Fabaceae Lindl.	Albizia lebbeck (L.) Benth.	mixed	
561	Magnoliopsida	Fabaceae Lindl.	Chorizema genistoides (Meisn.) C.A.Gardner	native	
562	Magnoliopsida	Fabaceae Lindl.	Gastrolobium laytonii Jean White	native	
563	Magnoliopsida	Fabaceae Lindl.	Glycine canescens F.J.Herm. *(Silky Glycine)*	native	
564	Magnoliopsida	Fabaceae Lindl.	Indigofera georgei E.Pritz.	native	
565	Magnoliopsida	Fabaceae Lindl.	Isotropis atropurpurea F.Muell.	native	
566	Magnoliopsida	Fabaceae Lindl.	Isotropis iophyta Wege & R.W.Davis	native	
567	Magnoliopsida	Fabaceae Lindl.	Jacksonia lanicarpa Chappill	native	P1
568	Magnoliopsida	Fabaceae Lindl.	Kennedia prorepens (F.Muell.) F.Muell.	native	
569	Magnoliopsida	Fabaceae Lindl.	Leptosema chambersii F.Muell.	native	
570	Magnoliopsida	Fabaceae Lindl.	Lotus cruentus Court	native	
571	Magnoliopsida	Fabaceae Lindl.	Medicago sativa L. *(Alfalfa)*	alien	
572	Magnoliopsida	Fabaceae Lindl.	Mirbelia microphylla (Turcz.) Benth.	native	
573	Magnoliopsida	Fabaceae Lindl.	Mirbelia rhagodioides Crisp & J.M.Taylor	native	
574	Magnoliopsida	Fabaceae Lindl.	Petalostylis cassioides (F.Muell.) Symon	native	
575	Magnoliopsida	Fabaceae Lindl.	Rhynchosia minima (L.) DC. *(Rhynchosia)*	native	
576	Magnoliopsida	Fabaceae Lindl.	Senna artemisioides (DC.) Randell	native	
577	Magnoliopsida	Fabaceae Lindl.	Senna artemisioides subsp. filifolia Randell	native	
578	Magnoliopsida	Fabaceae Lindl.	Senna artemisioides subsp. x sturtii (R.Br.) Randell	native	
579	Magnoliopsida	Fabaceae Lindl.	Senna charlesiana (Symon) Randell	native	
580	Magnoliopsida	Fabaceae Lindl.	Senna glutinosa subsp. chatelainiana (Gaudich.) Randell	native	
581	Magnoliopsida	Fabaceae Lindl.	Senna glutinosa subsp. pruinosa (F.Muell.) Randell	native	
582	Magnoliopsida	Fabaceae Lindl.	Senna pleurocarpa var. angustifolia (Symon) Randell	native	
583	Magnoliopsida	Fabaceae Lindl.	Senna sp. Billabong (J.D. Alonzo 721)	native	
584	Magnoliopsida	Fabaceae Lindl.	Senna venusta (F.Muell.) Randell	native	
585	Magnoliopsida	Fabaceae Lindl.	Swainsona affinis (A.T.Lee) Joy Thomps.	native	
586	Magnoliopsida	Fabaceae Lindl.	Swainsona canescens (Lindl.) F.Muell.	native	
587	Magnoliopsida	Fabaceae Lindl.	Swainsona kingii F.Muell.	native	
588	Magnoliopsida	Fabaceae Lindl.	Swainsona microphylla A.Gray	native	
589	Magnoliopsida	Fabaceae Lindl.	Swainsona paradoxa W.Fitzg.	native	
590	Magnoliopsida	Fabaceae Lindl.	Swainsona tenuis E.Pritz.	native	
591	Magnoliopsida	Fabaceae Lindl.	Templetonia egena (F.Muell.) Benth.	native	
592	Magnoliopsida	Geraniaceae Juss.	Erodium aureum Carolin	alien	
593	Magnoliopsida	Geraniaceae Juss.	Erodium cygnorum Nees	native	
594	Magnoliopsida	Goodeniaceae R.Br.	Brunonia australis R.Br. *(Native Cornflower)*	native	
595	Magnoliopsida	Goodeniaceae R.Br.	Brunonia australis var. A Kimberley Flora (K.F. Kenneally 5452)	native	
596	Magnoliopsida	Goodeniaceae R.Br.	Dampiera dentata Rajput	native	
597	Magnoliopsida	Goodeniaceae R.Br.	Goodenia collaris (F.Muell.) K.A.Sheph.	native	
598	Magnoliopsida	Goodeniaceae R.Br.	Goodenia connata (F.Muell.) K.A.Sheph. *(Cup Velleia)*	native	
599	Magnoliopsida	Goodeniaceae R.Br.	Goodenia eremophila E.Pritz.	native	
600	Magnoliopsida	Goodeniaceae R.Br.	Goodenia glabrata (Carolin) K.A.Sheph. *(Pee the Bed)*	native	
601	Magnoliopsida	Goodeniaceae R.Br.	Goodenia macroplectra (F.Muell.) Carolin	native	
602	Magnoliopsida	Goodeniaceae R.Br.	Goodenia mueckeana F.Muell.	native	

603	Magnoliopsida	Goodeniaceae R.Br.	Goodenia prostrata Carolin	native	
604	Magnoliopsida	Goodeniaceae R.Br.	Goodenia rosea (S.Moore) K.A.Sheph.	native	
605	Magnoliopsida	Goodeniaceae R.Br.	Goodenia stellata Carolin	native	
606	Magnoliopsida	Goodeniaceae R.Br.	Goodenia tenuiloba F.Muell.	native	
607	Magnoliopsida	Goodeniaceae R.Br.	Goodenia triodiophila Carolin	native	
608	Magnoliopsida	Goodeniaceae R.Br.	Goodenia wilunensis Carolin	native	
609	Magnoliopsida	Goodeniaceae R.Br.	Scaevola basedowii Carolin	native	
610	Magnoliopsida	Goodeniaceae R.Br.	Scaevola parvifolia Benth. *(Camel Weed)*	native	
611	Magnoliopsida	Goodeniaceae R.Br.	Scaevola parvifolia subsp. pilbarae Carolin	native	
612	Magnoliopsida	Gyrostemonaceae A.Juss.	Codonocarpus cotinifolius (Desf.) F.Muell.	native	
613	Magnoliopsida	Gyrostemonaceae A.Juss.	Gyrostemon ramulosus Desf.	native	
614	Magnoliopsida	Haloragaceae R.Br.	Glischrocaryon angustifolium (Nees) M.L.Moody & Les	native	
615	Magnoliopsida	Haloragaceae R.Br.	Glischrocaryon aureum (Lindl.) Orchard *(Common Popflower)*	native	
616	Magnoliopsida	Haloragaceae R.Br.	Glischrocaryon flavescens (Hook.) Orchard	native	
617	Magnoliopsida	Haloragaceae R.Br.	Gonocarpus ephemerus Orchard	native	
618	Magnoliopsida	Haloragaceae R.Br.	Haloragis odontocarpa forma pterocarpa Orchard	native	
619	Magnoliopsida	Haloragaceae R.Br.	Haloragis odontocarpa forma rugosa Orchard	native	
620	Magnoliopsida	Haloragaceae R.Br.	Haloragis trigonocarpa F.Muell.	native	
621	Magnoliopsida	Lamiaceae Martinov	Dicrastylis brunnea Munir	native	
622	Magnoliopsida	Lamiaceae Martinov	Dicrastylis exsuccosa (F.Muell.) Druce	native	
623	Magnoliopsida	Lamiaceae Martinov	Dicrastylis flexuosa (W.R.Price) C.A.Gardner	native	
624	Magnoliopsida	Lamiaceae Martinov	Hemigenia exilis S.Moore	native	P4
625	Magnoliopsida	Lamiaceae Martinov	Newcastelia cephalantha F.Muell.	native	
626	Magnoliopsida	Lamiaceae Martinov	Newcastelia cladotricha F.Muell.	native	
627	Magnoliopsida	Lamiaceae Martinov	Newcastelia hexarrhena F.Muell. *(Lambs' Tails)*	native	
628	Magnoliopsida	Lamiaceae Martinov	Newcastelia spodiotricha F.Muell.	native	
629	Magnoliopsida	Lamiaceae Martinov	Prostanthera althoferi B.J.Conn subsp. althoferi	native	
630	Magnoliopsida	Lamiaceae Martinov	Prostanthera wilkieana F.Muell.	native	
631	Magnoliopsida	Lamiaceae Martinov	Teucrium teucriiflorum (F.Muell.) Kattari & Salmaki	native	
632	Magnoliopsida	Loranthaceae Juss.	Amyema fitzgeraldii (Blakely) Danser *(Pincushion Mistletoe)*	native	
633	Magnoliopsida	Loranthaceae Juss.	Amyema miraculosa subsp. boormanii (Blakely) Barlow	native	
634	Magnoliopsida	Loranthaceae Juss.	Lysiana casuarinae (Miq.) Tiegh.	native	
635	Magnoliopsida	Loranthaceae Juss.	Lysiana murrayi (F.Muell. & Tate) Tiegh. *(Mistletoe)*	native	
636	Magnoliopsida	Malvaceae Juss.	Abutilon otocarpum F.Muell. *(Desert Chinese Lantern)*	native	
637	Magnoliopsida	Malvaceae Juss.	Alyogyne pinoniana (Gaudich.) Fryxell	native	
638	Magnoliopsida	Malvaceae Juss.	Androcalva loxophylla (F.Muell.) C.F.Wilkins & Whitlock	native	
639	Magnoliopsida	Malvaceae Juss.	Lawrencia densiflora (Baker f.) Melville	native	
640	Magnoliopsida	Malvaceae Juss.	Malvastrum americanum (L.) Torr.	alien	
641	Magnoliopsida	Malvaceae Juss.	Seringia exastia (C.F.Wilkins) C.F.Wilkins & Whitlock	native	

642	Magnoliopsida	Malvaceae Juss.	Sida ectogama W.R.Barker & R.M.Barker	native	
643	Magnoliopsida	Malvaceae Juss.	Sida platycalyx Benth.	native	
644	Magnoliopsida	Montiaceae Raf.	Calandrinia creethae Morrison	native	
645	Magnoliopsida	Montiaceae Raf.	Calandrinia papillata Syeda	native	
646	Magnoliopsida	Montiaceae Raf.	Calandrinia polyandra Benth. *(Parakeelya)*	native	
647	Magnoliopsida	Montiaceae Raf.	Calandrinia schistorhiza Morrison	native	
648	Magnoliopsida	Myrtaceae Juss.	Aluta maisonneuvei (F.Muell.) Rye & Trudgen	native	
649	Magnoliopsida	Myrtaceae Juss.	Aluta maisonneuvei subsp. auriculata (F.Muell.) Rye & Trudgen	native	
650	Magnoliopsida	Myrtaceae Juss.	Calothamnus aridus Hawkeswood	native	
651	Magnoliopsida	Myrtaceae Juss.	Calytrix amethystina Craven	native	
652	Magnoliopsida	Myrtaceae Juss.	Calytrix carinata Craven	native	
653	Magnoliopsida	Myrtaceae Juss.	Calytrix desolata S.Moore	native	
654	Magnoliopsida	Myrtaceae Juss.	Calytrix strigosa A.Cunn.	native	
655	Magnoliopsida	Myrtaceae Juss.	Calytrix watsonii (F.Muell. & Tate) C.A.Gardner	native	
656	Magnoliopsida	Myrtaceae Juss.	Corymbia eremaea (D.J.Carr & S.G.M.Carr) K.D.Hill & L.A.S.Johnson	native	
657	Magnoliopsida	Myrtaceae Juss.	Corymbia lenziana (D.J.Carr & S.G.M.Carr) K.D.Hill & L.A.S.Johnson	native	
658	Magnoliopsida	Myrtaceae Juss.	Enekbatus eremaeus Trudgen & Rye	native	
659	Magnoliopsida	Myrtaceae Juss.	Eucalyptus L'Her.		
660	Magnoliopsida	Myrtaceae Juss.	Eucalyptus camaldulensis subsp. arida Brooker & M.W.McDonald *(River Red Gum)*	native	
661	Magnoliopsida	Myrtaceae Juss.	Eucalyptus camaldulensis subsp. obtusa (Blakely) Brooker & M.W.McDonald	mixed	
662	Magnoliopsida	Myrtaceae Juss.	Eucalyptus eremicola Boomsma	native	
663	Magnoliopsida	Myrtaceae Juss.	Eucalyptus eremicola subsp. peeneri (Blakely) D.Nicolle	native	
664	Magnoliopsida	Myrtaceae Juss.	Eucalyptus gongylocarpa Blakely *(Marble Gum)*	native	
665	Magnoliopsida	Myrtaceae Juss.	Eucalyptus horistes L.A.S.Johnson & K.D.Hill *(Pointed-Bud Mallee, Wongamine Mallee)*	native	
666	Magnoliopsida	Myrtaceae Juss.	Eucalyptus kingsmillii (Maiden) Maiden & Blakely *(Kingsmill's Mallee)*	native	
667	Magnoliopsida	Myrtaceae Juss.	Eucalyptus kochii subsp. plenissima (C.A.Gardner) Brooker	native	
668	Magnoliopsida	Myrtaceae Juss.	Eucalyptus leptopoda subsp. elevata L.A.S.Johnson & K.D.Hill	native	
669	Magnoliopsida	Myrtaceae Juss.	Eucalyptus lucasii Blakely	native	
670	Magnoliopsida	Myrtaceae Juss.	Eucalyptus striaticalyx W.Fitzg. *(Cue York Gum)*	native	
671	Magnoliopsida	Myrtaceae Juss.	Eucalyptus trivalva Blakely	native	
672	Magnoliopsida	Myrtaceae Juss.	Euryomyrtus inflata Trudgen	native	P3
673	Magnoliopsida	Myrtaceae Juss.	Melaleuca eleuterostachya F.Muell.	native	
674	Magnoliopsida	Myrtaceae Juss.	Melaleuca interioris Craven & Lepschi	native	
675	Magnoliopsida	Myrtaceae Juss.	Melaleuca microphylla Sm.	native	
676	Magnoliopsida	Myrtaceae Juss.	Melaleuca xerophila Barlow	native	
677	Magnoliopsida	Myrtaceae Juss.	Micromyrtus flaviflora (F.Muell.) J.M.Black	native	
678	Magnoliopsida	Pittosporaceae R.Br.	Pittosporum angustifolium Lodd., G.Lodd. & W.Lodd.	mixed	
679	Magnoliopsida	Plumbaginaceae Juss.	Limonium sinuatum (L.) Mill. *(Perennial Sea Lavender)*	alien	
680	Magnoliopsida	Polygonaceae Juss.	Rumex vesicarius L. *(Ruby Dock)*	alien	
681	Magnoliopsida	Portulacaceae Juss.	Portulaca oleracea L. *(Purslane)*	mixed	
682	Magnoliopsida	Primulaceae Borkh.	Samolus repens (J.R.Forst. & G.Forst.) Pers. *(Creeping Brookweed)*	native	
683	Magnoliopsida	Proteaceae Juss.	Grevillea acacioides McGill.	native	
684	Magnoliopsida	Proteaceae Juss.	Grevillea berryana Ewart & Jean White	native	
685	Magnoliopsida	Proteaceae Juss.	Grevillea juncifolia Hook. subsp. juncifolia	native	
686	Magnoliopsida	Proteaceae Juss.	Grevillea pterosperma F.Muell.	native	
687	Magnoliopsida	Proteaceae Juss.	Grevillea sarissa subsp. succincta McGill.	native	
688	Magnoliopsida	Proteaceae Juss.	Grevillea stenobotrya F.Muell.	native	
689	Magnoliopsida	Proteaceae Juss.	Grevillea striata R.Br.	native	
690	Magnoliopsida	Proteaceae Juss.	Hakea francisiana F.Muell. *(Emu Tree)*	native	
691	Magnoliopsida	Proteaceae Juss.	Hakea lorea (R.Br.) R.Br. subsp. lorea	native	
692	Magnoliopsida	Proteaceae Juss.	Hakea minyma Maconochie	native	

693	Magnoliopsida	Proteaceae Juss.	Hakea recurva Meisn. subsp. recurva	mixed	
694	Magnoliopsida	Proteaceae Juss.	Hakea rhombales F.Muell.	native	
695	Magnoliopsida	Rubiaceae Juss.	Psydrax latifolia (Benth.) S.T.Reynolds & R.J.F.Hend. *(Native Plum)*	native	
696	Magnoliopsida	Rubiaceae Juss.	Psydrax rigidula S.T.Reynolds & R.J.F.Hend.	native	
697	Magnoliopsida	Rubiaceae Juss.	Synaptantha tillaeacea (F.Muell.) Hook.f. var. tillaeacea	native	
698	Magnoliopsida	Rutaceae Juss.	Philotheca brucei (F.Muell.) Paul G.Wilson subsp. brucei	native	
699	Magnoliopsida	Santalaceae R.Br.	Anthobolus leptomerioides F.Muell.	native	
700	Magnoliopsida	Santalaceae R.Br.	Exocarpos aphyllus R.Br. *(Leafless Ballart)*	native	
701	Magnoliopsida	Santalaceae R.Br.	Santalum acuminatum (R.Br.) A.DC. *(Quandong)*	native	
702	Magnoliopsida	Santalaceae R.Br.	Santalum spicatum (R.Br.) A.DC. *(Sandalwood)*	native	
703	Magnoliopsida	Sapindaceae Juss.	Diplopeltis stuartii F.Muell. var. stuartii *(Desert Pepperflower)*	native	
704	Magnoliopsida	Sapindaceae Juss.	Dodonaea microzyga var. acrolobata J.G.West	native	
705	Magnoliopsida	Sapindaceae Juss.	Dodonaea petiolaris F.Muell.	native	
706	Magnoliopsida	Sapindaceae Juss.	Dodonaea rigida J.G.West	native	
707	Magnoliopsida	Sapindaceae Juss.	Dodonaea viscosa subsp. mucronata J.G.West	native	
708	Magnoliopsida	Scrophulariaceae Juss.	Eremophila R.Br.		
709	Magnoliopsida	Scrophulariaceae Juss.	Eremophila alternifolia R.Br. *(Poverty Bush)*	native	
710	Magnoliopsida	Scrophulariaceae Juss.	Eremophila arachnoides Chinnock subsp. arachnoides *(Spider Web Eremophila)*	native	P3
711	Magnoliopsida	Scrophulariaceae Juss.	Eremophila arguta Chinnock	native	P1
712	Magnoliopsida	Scrophulariaceae Juss.	Eremophila battii F.Muell.	native	
713	Magnoliopsida	Scrophulariaceae Juss.	Eremophila citrina Chinnock	native	
714	Magnoliopsida	Scrophulariaceae Juss.	Eremophila clarkei A.F.Oldfield & F.Muell. *(Turpentine Bush)*	native	
715	Magnoliopsida	Scrophulariaceae Juss.	Eremophila congesta Chinnock	native	P1
716	Magnoliopsida	Scrophulariaceae Juss.	Eremophila decipiens Ostenf. subsp. decipiens *(Slender Fuschia Bush)*	native	
717	Magnoliopsida	Scrophulariaceae Juss.	Eremophila enata Chinnock	native	
718	Magnoliopsida	Scrophulariaceae Juss.	Eremophila foliosissima Kraenzl. *(Poverty Bush)*	native	
719	Magnoliopsida	Scrophulariaceae Juss.	Eremophila forrestii F.Muell. subsp. forrestii	native	
720	Magnoliopsida	Scrophulariaceae Juss.	Eremophila fraseri F.Muell. *(Burra)*	native	
721	Magnoliopsida	Scrophulariaceae Juss.	Eremophila galeata Chinnock	native	
722	Magnoliopsida	Scrophulariaceae Juss.	Eremophila georgei Diels	native	
723	Magnoliopsida	Scrophulariaceae Juss.	Eremophila gilesii F.Muell. subsp. gilesii	native	
724	Magnoliopsida	Scrophulariaceae Juss.	Eremophila gilesii subsp. variabilis Chinnock	native	
725	Magnoliopsida	Scrophulariaceae Juss.	Eremophila glabra subsp. tomentosa Chinnock	native	
726	Magnoliopsida	Scrophulariaceae Juss.	Eremophila hughesii F.Muell.	native	
727	Magnoliopsida	Scrophulariaceae Juss.	Eremophila hygrophana Chinnock	native	
728	Magnoliopsida	Scrophulariaceae Juss.	Eremophila jamesiorum Buirchell & A.P.Br.	native	P2
729	Magnoliopsida	Scrophulariaceae Juss.	Eremophila jucunda Chinnock subsp. jucunda	native	
730	Magnoliopsida	Scrophulariaceae Juss.	Eremophila latrobei F.Muell. *(Warty Fuchsia Bush)*	native	

731	Magnoliopsida	Scrophulariaceae Juss.	Eremophila latrobei F.Muell. subsp. latrobei *(Native Fuschia)*	native	
732	Magnoliopsida	Scrophulariaceae Juss.	Eremophila linearis Chinnock	native	
733	Magnoliopsida	Scrophulariaceae Juss.	Eremophila longifolia (R.Br.) F.Muell. *(Berrigan)*	native	
734	Magnoliopsida	Scrophulariaceae Juss.	Eremophila maculata subsp. brevifolia (Benth.) Chinnock	native	
735	Magnoliopsida	Scrophulariaceae Juss.	Eremophila malacoides Chinnock	native	
736	Magnoliopsida	Scrophulariaceae Juss.	Eremophila margarethae S.Moore	native	Parent of conservation listed taxa
737	Magnoliopsida	Scrophulariaceae Juss.	Eremophila pantonii F.Muell.	native	
738	Magnoliopsida	Scrophulariaceae Juss.	Eremophila platythamnos Diels subsp. platythamnos	native	
739	Magnoliopsida	Scrophulariaceae Juss.	Eremophila platythamnos subsp. exotrachys (Kraenzl.) Chinnock	native	
740	Magnoliopsida	Scrophulariaceae Juss.	Eremophila punctata Chinnock	native	
741	Magnoliopsida	Scrophulariaceae Juss.	Eremophila pungens Chinnock	native	P4
742	Magnoliopsida	Scrophulariaceae Juss.	Eremophila regia Buirchell & A.P.Br.	native	P1
743	Magnoliopsida	Scrophulariaceae Juss.	Eremophila serrulata (A.DC.) Druce *(Serrate-leaved Eremophila)*	native	
744	Magnoliopsida	Scrophulariaceae Juss.	Eremophila spectabilis subsp. brevis Chinnock	native	
745	Magnoliopsida	Scrophulariaceae Juss.	Eremophila spinescens Chinnock	native	
746	Magnoliopsida	Scrophulariaceae Juss.	Eremophila spuria Chinnock	native	
747	Magnoliopsida	Solanaceae Juss.	Anthotroche pannosa Endl. *(Felted Anthotroche)*	native	
748	Magnoliopsida	Solanaceae Juss.	Cyphanthera miersiana Haegi	native	
749	Magnoliopsida	Solanaceae Juss.	Duboisia hopwoodii (F.Muell.) F.Muell.	native	
750	Magnoliopsida	Solanaceae Juss.	Lycium australe F.Muell.	native	
751	Magnoliopsida	Solanaceae Juss.	Nicotiana pila M.W.Chase & Christenh.	native	
752	Magnoliopsida	Solanaceae Juss.	Nicotiana simulans N.T.Burb.	native	
753	Magnoliopsida	Solanaceae Juss.	Solanum centrale J.M.Black *(Desert Raisin)*	native	
754	Magnoliopsida	Solanaceae Juss.	Solanum ferocissimum Lindl.	native	
755	Magnoliopsida	Solanaceae Juss.	Solanum lachnophyllum Symon	native	
756	Magnoliopsida	Solanaceae Juss.	Solanum lasiophyllum Poir.	mixed	
757	Magnoliopsida	Solanaceae Juss.	Solanum nummularium S.Moore	native	
758	Magnoliopsida	Solanaceae Juss.	Solanum orbiculatum Poir. subsp. orbiculatum *(Round-leaved Solanum)*	native	
759	Magnoliopsida	Stylidiaceae R.Br.	Levenhookia chippendalei F.L.Erickson & J.H.Willis	native	
760	Magnoliopsida	Thymelaeaceae Juss.	Pimelea microcephala R.Br. subsp. microcephala	native	
761	Magnoliopsida	Thymelaeaceae Juss.	Pimelea trichostachya Lindl. *(Spiked Riceflower)*	native	
762	Magnoliopsida	Zygophyllaceae R.Br.	Tribulus adelacanthus R.M.Barker	native	P3
763	Pinopsida	Cupressaceae Gray	Callitris columellaris F.Muell.	mixed	
764	Pinopsida	Cupressaceae Gray	Callitris preissii Miq. *(Maro, Rottnest Island Pine)*	mixed	
765	Pinopsida	Cupressaceae Gray	Callitris verrucosa (Endl.) F.Muell.	mixed	
766	Pteridopsida	Marsileaceae Mirb.	Marsilea hirsuta R.Br.	native	
767	Pteridopsida	Pteridaceae E.D.M.Kirchn.	Cheilanthes brownii (Kuhn) Domin	native	
768	Pteridopsida	Pteridaceae E.D.M.Kirchn.	Cheilanthes sieberi Kunze subsp. sieberi	native	

Conservation status definitions

Threatened species

- CR – Critically Endangered
- EN – Endangered
- VU – Vulnerable
- EX – Extinct
- EW – Extinct in the Wild
- CD – Species of special conservation interest (conservation dependent)
- OS – Species otherwise in need of special protection (other specially protected)
- MI – Migratory
- SP – Specially protected species

Priority species

- P1 – Priority 1: Poorly-known species – known from few locations, none on conservation lands
- P2 – Priority 2: Poorly-known species – known from few locations, some on conservation lands
- P3 – Priority 3: Poorly-known species – known from several locations
- P4 – Priority 4: Rare, Near Threatened and other species in need of monitoring

Dandjoo specific codes

- Parent of conservation listed taxa
- Cons code inherited from parent, X

Read full definitions at https://bio.wa.gov.au/guide/conservation-status-definitions

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Further note, precise locations of conservation listed species are considered sensitive. To protect this information, obfuscation has been applied to conservation-listed species records. For these species, the true location is ±10km from the search area used to generate this species list.