

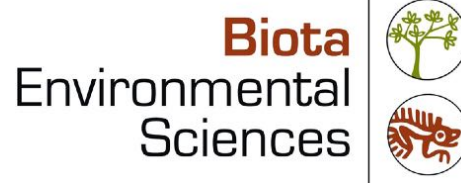


Pilbara Green Link Project Link 1 Biological Survey



Prepared for GHD | Horizon Power

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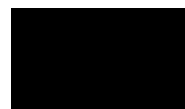
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PGL Link 1 Biological Survey

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1.0 Executive Summary

Horizon Power is proposing to construct the Pilbara Green Link project (PGL); two 330kV transmission lines, interconnecting with Horizon Power's existing network at Port Hedland: one extending approximately 275 km east towards the Australian Renewable Energy Hub (AREH) site (hereafter 'Link 1'), and a second extending approximately 330 km south from Port Hedland to a Central Pilbara Terminal (near BHP Iron Ore's Mining Area C operations) ('Link 2').

The corridors identified for Link 1 and Link 2 are approximately 2 km wide and will accommodate the proposed transmission lines with a 60 m wide (approximate) easement. Horizon Power engaged GHD to assist with statutory approval planning for Link 1 and Link 2, and GHD engaged Biota Environmental Sciences (Biota) to undertake the required biological surveys necessary to inform and support those approvals.

Scope and Methods

The biological survey reported here addressed the Link 1 corridor as provided by Horizon Power on 23 April 2024 ('the survey area'; 50,119.4 ha in extent).

The scope comprised a reconnaissance and targeted flora and vegetation survey (EPA 2016a). This consisted of an optimally-timed field survey using a combination of vegetation mapping and floristic sampling using relevés (unbounded flora sampling sites) within individual vegetation types, and targeted and opportunistic searches for significant flora species (listed as being of elevated conservation significance at State and/or Commonwealth level), along with vegetation condition mapping. Reference data from previous surveys was also consolidated in a desktop study to inform the survey, particularly in regard to significant species, using a 40 km buffer on the survey area ('the study area').

Similarly, the scope for terrestrial fauna comprised a basic and targeted fauna survey, with short-range endemic (SRE) fauna sampling (EPA 2016b, 2020). This consisted of an optimally-timed field survey using a range of methods to characterise the range of fauna habitats present and the likely faunal assemblage, target significant fauna species, sample for SREs, and map and describe the habitats. Reference data from previous surveys was again consolidated from the study area to inform the survey findings.

Survey Timing and Effort

The biological survey was completed over a 12-day period from the 2nd – 13th May 2024. A team of 13 completed the survey, consisting of six botanists and seven zoologists, all with experience in the Pilbara bioregion. The survey was conducted at a time of year optimal for the bioregion based on technical guidance (EPA 2016a, 2016b, 2020), but followed a period of lower than average rainfall in the locality.

A total of 161 unbounded relevés; unbounded flora sampling sites with a similar search area to a quadrat, were established in the survey area. The relevés were thoroughly surveyed for flora and representatively sampled all of the vegetation types present. A total of 58 mapping notes describing the vegetation types were collected during the survey to inform the vegetation mapping. Targeted, systematic searches were conducted over the entirety of the survey area focussing on significant (i.e. Threatened and Priority) species identified in the desktop study, totalling 53.3 km of foot-traversed search effort.

Fauna habitat assessments were completed at 59 sites across the survey area, representatively sampling the range of habitats present and representing over 250 person-hours of targeted searches for significant fauna species. Other fauna sampling effort completed within the survey area included 38 avifauna searches (149 person-hours of effort), deployment of 16 motion cameras (91 camera-nights), four acoustic recording units (20 sampling-nights), eight ultrasonic bat call detectors (27 sampling-nights) and 38 SRE search sites (150 person-hours).

Vegetation

24 vegetation types were mapped in the survey area over six broad landforms.

None of the vegetation types in the survey area represented any significant ecological communities, however the riparian vegetation types D1 and D2 (the De Grey River and its tributaries) are considered as having a high potential to be Groundwater Dependent Ecosystems (GDEs) or Groundwater Dependent Vegetation (GDV) due to the phreatophytic species *Eucalyptus camaldulensis*, *Eucalyptus victrix* and *Melaleuca argentea* being dominant.

The vegetation of the survey area was primarily in Very Good to Excellent or Excellent condition (72%). Only 4.5% of the survey area was considered to be in Poor to Good condition and these areas were mainly associated with drainage lines and floodplains.

Flora

A total of 420 native flora species from 148 genera and 51 families were recorded in the survey area, as well as 15 introduced species (including two weeds of national significance (WoNS)).

No Threatened flora were recorded from the survey area but 11 Priority species were recorded, representing new populations of these species in the locality.

The Priority species recorded comprised:

1. *Goodenia hartiana* (P2) – recorded at one location;
2. *Abutilon* sp. *Pritzelianum* (S. van Leeuwen 5095) (P3) – recorded at two locations;
3. *Bonamia oblongifolia* (P3) – recorded at two locations;
4. *Croton aridus* (P3) – recorded at 12 locations;
5. *Euphorbia clementii* (P3) – recorded at one location;
6. *Euphorbia inappendiculata* var. *inappendiculata* (P3) – recorded at one location;
7. *Euphorbia inappendiculata* var. *queenslandica* (P3) – recorded at one location;
8. *Indigofera ammobia* (P3) – recorded at one location;
9. *Polymeria* sp. Broome (K.F. Kenneally 9759) – recorded at one location;
10. *Tribulopsis marliesiae* (P3) – recorded at one location; and
11. *Bulbostylis burbridgeae* (P3) – recorded at one location.

Two WoNS were recorded in the survey area:

12. **Calotropis procerus* (Declared Pest) – recorded from eight locations; and
13. **Parkinsonia aculeata* (WoNS and Declared Pest) – recorded from one location on the banks of the De Grey River.

Fauna

Ten fauna habitats were identified within the survey area:

1. Acacia shrubland on spinifex sandplain;
2. Granite boulders;
3. Gorges and gullies;
4. Claypan;
5. Minor/moderate drainage line;
6. Rocky outcrops;
7. Low stony rises;
8. Major drainage line;
9. Cleared areas; and
10. Sand dunes.

Acacia shrubland on spinifex sandplain was the dominant fauna habitat in the survey area, occupying more than half of the total area (65.3%), followed by granite boulders (7.7%) and gorges and gullies (5.5%). None of the fauna habitats are significant and all are typical of the wider bioregion.

A total of 121 vertebrate fauna species were recorded in the survey area during the field survey, comprising 24 mammals (including 11 bat species), 73 birds, 23 reptiles and one amphibian. Seven taxonomic groups with the potential to include SRE species were recorded within the survey area (11 mygalomorph spiders, 17 camaenid snail, two buthid scorpions, two pseudoscorpions, 12 isopods, three centipedes, and one selenopid spider). Within the ten mapped fauna habitat types, eight contained microhabitats that may support SREs.

The survey confirmed the occurrence of five significant fauna species:

1. Northern Quoll (*Dasyurus hallucatus*) (Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act) and the *Biodiversity Conservation Act 2016* (WA) (BC Act));
2. Bilby (*Macrotis lagotis*) (Vulnerable under the EPBC Act and the BC Act);
3. Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia* Pilbara form) (Vulnerable under the EPBC Act and the BC Act);
4. Brush-tailed Mulgara (*Dasycercus blythi*) (State Department of Biodiversity, Conservation and Attractions (DBCA) Priority 4); and
5. Western Pebble-mound Mouse (*Pseudomys chapmani*) (DBCA Priority 4).

Likelihood of occurrence assessments based on the desktop study and an assessment of habitats undertaken during the field survey indicated that a further eight significant vertebrate species are likely to occur in the survey area. Six of these are migratory bird species that would only be periodically present, with the remaining two species being Ghost Bat (*Macroderma gigas*) and Pilbara Olive Python (*Liasis olivaceus barroni*).

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2.0 Introduction

2.1 Project Background

Horizon Power anticipates significant transmission developments in the Pilbara region of Western Australia (WA) as industry prepares to further electrify and decarbonise its operations. The electricity requirements for current and planned projects are substantial, and the need for all parties to transition to renewable energy solutions provides unique challenges for the State. The Australian Renewable Energy Hub (AREH) project (NW Interconnected Power 2019) is one of many private developments that the State can support to assist with this transition.

Horizon Power is proposing to construct the Pilbara Green Link project (PGL); two important 330kV transmission lines, interconnecting with Horizon Power's existing network at Port Hedland: one extending approximately 275 km east towards the AREH site (hereafter 'Link 1'), and a second extending approximately 330 km south from Port Hedland to a Central Pilbara Terminal (near BHP Iron Ore's Mining Area C operations) ('Link 2') (see Figure 2.1).

The corridors identified for Link 1 and Link 2 are approximately 2 km wide and will accommodate the proposed transmission lines with a 60 m wide (approximate) easement.

The corridors were developed by a multi criteria analysis (MCA) taking into consideration numerous factors, including but not limited to sensitive environmental areas, cultural heritage, land zoning and tenure. By collectively considering these factors, an indicative transmission line route was generated that avoided and minimised disturbance. A nominal buffer of approximately 2 km was then applied to define an area that various assessments, including biological surveys, could be undertaken to allow any adjustments to the transmission line route to further avoid and minimise disturbance to identified constraints.

Horizon Power engaged GHD to assist with statutory approval planning for Link 1 and Link 2, and GHD engaged Biota Environmental Sciences (Biota) to undertake the required biological surveys necessary to inform and support those approvals. This report considers Link1 only.

2.2 Survey Scope

The biological survey reported here addressed the Link 1 corridor as provided by Horizon Power on 23 April 2024 (hereafter 'the survey area'; 50,119.4 ha in extent; Figure 2.1).

The scope of work required by Horizon Power comprised a reconnaissance and targeted flora and vegetation survey as detailed in Environmental Protection Authority (EPA) technical guidance (EPA 2016a). This therefore comprised an optimally-timed field survey using a combination of vegetation mapping and floristic sampling using relevés (unbounded flora sampling sites) within individual vegetation types, and targeted and opportunistic searches for significant flora species (Section 2.3), along with vegetation condition mapping. Reference data from previous surveys was also consolidated in a desktop study to inform the survey, particularly in regard to significant species, using a 40 km buffer on the survey area (hereafter 'the study area'; Figure 2.1).

Similarly, the scope of work required for terrestrial fauna comprised a basic and targeted fauna survey, with short-range endemic (SRE) fauna sampling, as detailed in EPA guidance (EPA 2016b, 2020). This therefore comprised an optimally-timed field survey using a range of methods to characterise the likely faunal assemblage, target significant fauna species (Section 2.3), sample for SREs, and map and describe fauna habitats. Reference data from previous surveys was again consolidated from the study area (Figure 2.1) to inform the survey findings.

Survey data arising from both flora and vegetation and fauna sampling was also required, in EPA's Index of Biodiversity Assessments (IBSA) format, which has been digitally supplied under separate cover with this report.

2.3 Significance Framework

The focus of the survey was to identify features of significance within the survey area, including flora and fauna species, fauna habitats and ecological communities. The framework for formal listing of species and communities of significance in WA is summarised in Section 2.3.1 and 2.3.2.

2.3.1 Significant Species

Native flora and fauna species that are rare, threatened with extinction, or have high conservation value, are specially protected by law as threatened species under the *Biodiversity Conservation Act 2016* (WA) (BC Act) and/or the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act). Migratory and Marine fauna species are also protected under the EPBC Act as Matters of National Environmental Significance (MNES).

In addition, the Department of Biodiversity, Conservation and Attractions (DBCA) maintains a list of species that are deemed a priority for conservation, which have not been assigned statutory protection under the BC Act but are still considered to be of conservation priority, or are rare but not threatened and are in need of monitoring. Appendix 1 details categories of significance recognised under the above frameworks.

2.3.2 Significant Communities

Threatened Ecological Communities (TECs) are described by the DBCA as biological assemblages occurring in a particular habitat, which are under threat of modification or destruction from various processes. TECs are significant at State-level, being protected under the BC Act, as well as having protection as Environmentally Sensitive Areas (ESAs) under the *Environmental Protection Act 1986* (EP Act). Some TECs are also protected at Commonwealth level under the EPBC Act. Further information regarding the classification of TECs is provided in Appendix 1.

Priority Ecological Communities (PECs) are ecological communities that are recognised at a State-level by DBCA to be of significance, but do not meet the criteria for listing as a TEC. There are five categories of PECs, none of which are currently protected under legislation (see Appendix 1).

Groundwater dependent ecosystems (GDEs) are also generally considered to be of significance. Some are listed as TECs or PECs, particularly organic mound springs and particular riparian systems with high water permanence.

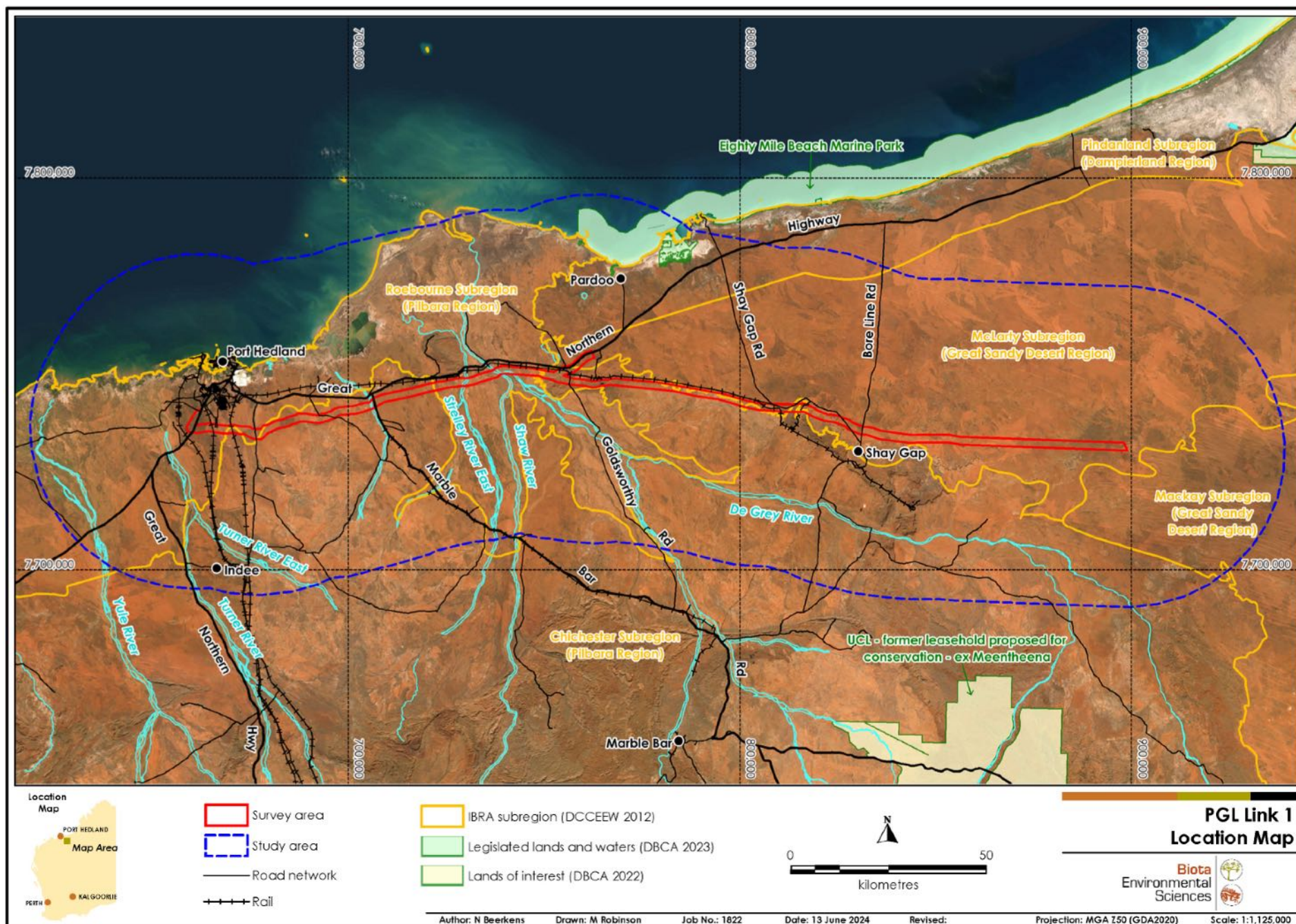


Figure 2.1: Location of the survey area and study area.

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3.0 Methodology

3.1 Policy Framework

Our approach and methodology were prepared with reference to relevant policy documents and technical guidelines including, but not limited to:

- Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016a);
- Technical Guidance – Sampling of Short-range Endemic Invertebrate Fauna (EPA 2016b);
- Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA 2020);
- Survey guidelines for Australia's threatened mammals: Guidelines for detecting mammals listed as threatened under the EPBC Act (DSEWPaC 2011a);
- Survey guidelines for Australia's threatened birds: Guidelines for detecting birds listed as threatened under the EPBC Act (DEWHA 2010a);
- Survey guidelines for Australia's threatened reptiles: Guidelines for detecting reptiles listed as threatened under the EPBC Act (DSEWPaC 2011b);
- Survey guidelines for Australia's threatened bats: Guidelines for detecting bats listed as threatened under the EPBC Act (DEWHA 2010b);
- A review of ghost bat ecology, threats and survey requirements (Bat Call WA 2021a); and
- A review of Pilbara leaf-nosed bat ecology, threats and survey requirements (Bat Call WA 2021b).

3.2 Desktop Study

An updated desktop study was conducted within the study area to identify key biological features. This was used to review past records of significant species and produce a potential species list for the locality and identify flora and fauna species of significance, significant ecological communities, and their habitats potentially occurring in the survey area. For significant species or communities identified as potentially occurring, an assessment of the likelihood of occurrence was undertaken. The desktop study incorporated regional information, previous biological surveys in the survey area, and the results of database searches.

3.2.1 Database Searches

To inform the review of the potential species assemblage of the survey area, the following databases were queried for flora and fauna records from the study area:

- The Atlas of Living Australia (ALA) database was searched for flora and fauna records from the study area. This database is hosted by the Commonwealth Scientific and Industrial Research Organisation (CSIRO).
- The NatureMap database was a joint project of the DBCA and the WA Museum, which was taken offline in 2021. As the database is no longer accessible online, a manual database search was completed for the study area on behalf of Biota by DBCA staff (Appendix 2).
- The EPBC Act Protected Matters Search Tool was searched to request the return of records of MNES within the study area (Appendix 2).
- The Department of Water and Environmental Regulation's (DWER) IBSA database was searched for previous surveys conducted within the study area.
- The Western Australian Museum (WAM) invertebrate fauna database was searched for records of arachnids, myriapods (millipedes) and molluscs from the study area.
- The DBCA's Species and Communities Branch databases were searched for records of Threatened and Priority flora, fauna, and TECs and PECs from the study area.

3.2.2 Literature and Spatial Data Review

The literature review comprised a review of:

- bioregion and subregion descriptions from the Interim Bioregionalisation for Australia (IBRA) (DCCEEW 2024) (Section 4.1); and
- published and unpublished reports from relevant biological surveys previously completed within the study area (Section 4.7).

Publicly available spatial data sets relevant to the scope of the survey were compiled and reviewed, by spatially overlaying these on the study area in MapInfo Professional v12 Geographical Information System (GIS). Data sets reviewed included:

- land systems (van Vreeswyk et al. 2004) (Section 4.2);
- broad-scale regional vegetation (Beard 1975, 1979) (Section 4.3);
- regional geology (Geoscience Australia 2008) (Section 4.4);
- soils (Agriculture Western Australia 1967) (Section 4.5; and
- conservation estate (DBCA 2022) (Section 4.6).

3.3 Assessment of Likelihood of Occurrence

For previously recorded significant species and communities identified from the study area, an assessment of the likelihood of occurrence in the survey area was made prior to the field survey. The likelihood assessment was based on factors including the proximity of previous records to the survey area, knowledge of the associated landforms or habitat preferences, an assessment of the habitats present within the survey area made during the field survey, and any records obtained during the field survey. The guide used to rank the likelihood of species occurrence outlined in Table 3.1, and was adapted to assess communities. For the purposes of this report, the term "proximity" is defined as within 20 km of the survey area, while 'locality' is within the study area.

Table 3.1: Likelihood ranking guide for species that may occur in the survey area.

Rank / Likelihood	Criteria
Recorded	1. The species has been recorded in the survey area.
Likely to occur / High	1. There are existing records of the species in proximity to the survey area; and <ul style="list-style-type: none"> • the species is strongly linked to a specific habitat, which is present in the survey area; or • the species has more general habitat preferences, and suitable habitat is present.
May occur / Moderate	1. There are existing records of the species from the locality, however <ul style="list-style-type: none"> • the species is strongly linked to a specific habitat, of which only a small amount is present in the survey area; or • the species has more general habitat preferences, but only some suitable habitat is present. 2. There is suitable habitat in the survey area, but the species is recorded infrequently in the locality.
Unlikely to occur / Low	1. The species is linked to a specific habitat, which is absent from the survey area; or 2. Suitable habitat is present, however there are no existing records of the species from the locality despite reasonable previous search effort in suitable habitat; or 3. There is some suitable habitat in the survey area, however the species is very infrequently recorded in the locality or the only records are historical (>40 years old).
Would not occur / Negligible	1. The species is strongly linked to a specific habitat, which is absent from the survey area; or 2. The species' range is very restricted and does not include the survey area; or 3. The species is not considered extant in the locality.

3.3.1 Defining Short-range Endemism

SRE invertebrate fauna are invertebrates that exhibit naturally small distributions (less than 10,000 km²) (Harvey 2002). These invertebrates often possess similar ecological and life-history characteristics and are in part characterised by low fecundity, slow growth and poor dispersal capabilities (Harvey 2002). In addition, SRE invertebrates are often confined to disjunct 'refugial' habitats, having persisted from a time when moist conditions were more evenly distributed throughout the Australian landscape (Harvey 2002). Given their predisposition to be restricted at small spatial scales, SRE fauna are more likely to be at risk of population extinctions than more widely distributed taxa (Harvey 2002).

Taxonomic groups that show high levels of short-range endemism include mygalomorph spiders, millipedes, pseudoscorpions, and both freshwater and terrestrial molluscs (EPA 2016b). Given the importance of short-range endemism to the conservation of biodiversity (EPA 2016b), the assessment of such invertebrate taxa is an important component of Environmental Impact Assessment (EIA).

Table 3.2 details the criteria used to determine a species' SRE status for the purposes of this report.

Table 3.2: Criteria used to determine SRE status.

SRE Status	Defining Criteria
Known SRE	<ul style="list-style-type: none"> Species, morphotype or genetic type has a documented distribution of <10,000 km². Species, morphotype or genetic type is well collected with numerous specimens typed and habitat preference understood.
Potential SRE	<ul style="list-style-type: none"> Species, morphotype or genetic type has a documented distribution of <10,000 km² but is poorly sampled. Specimen may not be formally described or assigned to a morphotype / genetic type. Short-range endemism may be common in genus or family. May have been collected from restricted, refugial or isolated habitats.
Unlikely to be an SRE	<ul style="list-style-type: none"> Species, morphotype or genetic type has a documented distribution of <10,000 km² but is poorly sampled. Specimen may not be formally described or assigned to a morphotype / genetic type. Short-range endemism is not common in genus or family. Taxon was not collected from restricted, refugial or isolated habitats. Few other individuals of the taxon collected, but records are separated by long distances (>100 km).
Not an SRE	<ul style="list-style-type: none"> Specimen formally described or assigned to a morphotype / genetic type. Species, morphotype or genetic type has a documented distribution of >10,000 km².
Undetermined	<ul style="list-style-type: none"> Taxon for which there is insufficient taxonomic framework available to provide any informed comment on the species-level distribution of the fauna or, therefore, the risk of small-scale spatial restrictions.

3.4 Survey Timing and Personnel

The flora, vegetation and fauna surveys were completed over a 12-day period from the 2nd – 13th May 2024.

A summary of the survey team, their roles in the survey and experience is shown in Table 3.3. The fauna survey work was conducted under the Regulation 27 licence number BA27001040 (fauna taking – biological assessment under the *Biodiversity Conservation Act 2016 (BC Act)* and Part 4 of the *Biodiversity Conservation Regulations 2018*) and Section 40 TFA 2324-0237 (authorisation to take or disturb Threatened species under Section 40 of the *BC Act 2016*).

Table 3.3: Survey team, qualifications and experience.

Name	Position	Survey Role	Years of Experience
	Senior Botanist	Flora (Project manager, field team lead, vegetation mapping, data analysis, reporting)	6
	Botanist	Flora (field team member)	2
	Senior Botanist	Flora (field team member)	20+
	Principal Botanist	Flora (field team member)	13
	GHD Botanist	Flora (field team member)	5
	GHD Early Career Botanist	Flora (field team member)	< 1
	Senior Zoologist	Fauna (field team lead, second half, reporting)	6
	Senior Zoologist	Fauna (field team lead, first half)	8
	Early Career Zoologist	Fauna (field team member, reporting)	2
	Biologist	Fauna (field team member, reporting)	3
	Early Career Zoologist	Fauna (field team member)	2
	Early Career Zoologist	Fauna (field team member, reporting)	2
	Principal Zoologist	Fauna (field team member)	16

3.5 Weather and Climate

Weather during a survey will influence the activity of terrestrial fauna, while conditions in the months leading up to the survey, particularly rainfall, may influence productivity and thereby the overall abundance of individuals for both flora and fauna species. The amount of rainfall preceding a botanical survey has a direct relationship with flora, influencing the number and type of species recorded and the condition of flora and vegetation. One of the more notable effects is the increased presence of annual flora species following high rainfall, in addition to a higher likelihood of plants bearing reproductive material (flowers and/or fruit).

Given the size of the survey area, daily weather observations were retrieved from two of the Bureau of Meteorology's weather stations, Port Hedland Airport station (#004032) in the west (9.5 km north of the western end of the survey area), and Mandora station (#004019) in the east (80.4 km north of the eastern end of the survey area) (locations in Figure 2.1). Conditions during the field survey were typical of the area for the time of year, being generally hot and dry (Table 3.4).

Table 3.4: Weather conditions during the 2024 survey.

	02/05	03/05	04/05	05/05	06/05	07/05	08/05	09/05	10/05	11/05	12/05	13/05
Port Hedland												
Rain(mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min (°C)	19.9	22.4	16.7	17.0	19.8	19.5	19.2	17.8	17.1	17.8	19.2	19.2
Max (°C)	36.1	35.4	34.8	34.1	N/A *	34.0	33.9	34.6	32.7	33.8	32.6	31.4
Mandora												
Rain (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min (°C)	23.3	21.2	20.4	17.5	18.5	17.1	16.3	17.1	19.4	21.5	19.3	16.2
Max (°C)	36.7	35.0	35.2	36.0	36.9	34.6	35.4	34.4	35.7	35.5	34.8	34.7

*BOM has no recorded maximum temperature for the 6th of August.

In the year preceding the field survey, temperatures slightly exceeding the average maximum and minimum monthly temperatures at both Port Hedland Airport (Figure 3.1) and Mandora (Figure 3.2) were recorded. Rainfall at both stations was significantly below the long-term median in January and February, the region's typical wettest months. However, rainfall returned to

normal long-term patterns in March and April. In May 2024, the month of the field survey, Port Hedland experienced rainfall significantly below the long-term median, while Mandora recorded rainfall significantly above the long-term median.

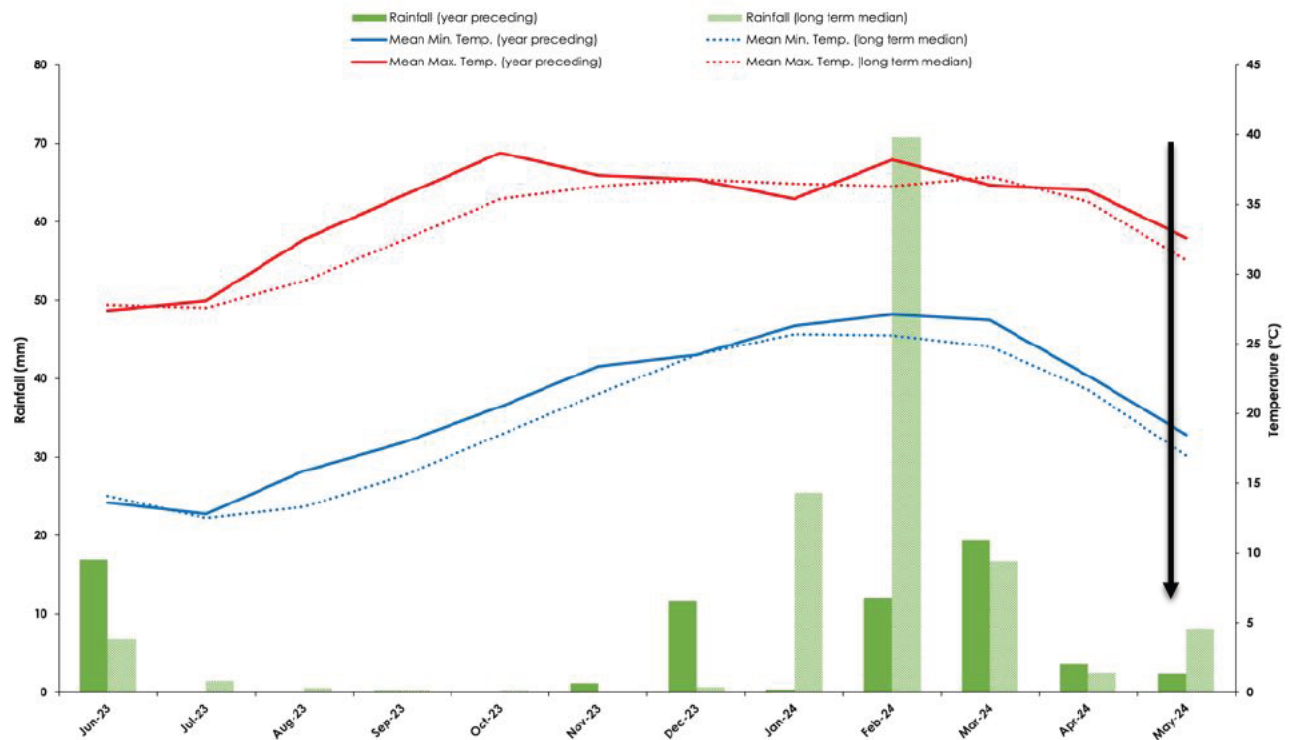


Figure 3.1: Climate graph depicting long-term averages and monthly data for the Port Hedland Airport (#004032) weather station (data from Bureau of Meteorology). (Long-term data 1948-2023; black arrow indicates survey timing).

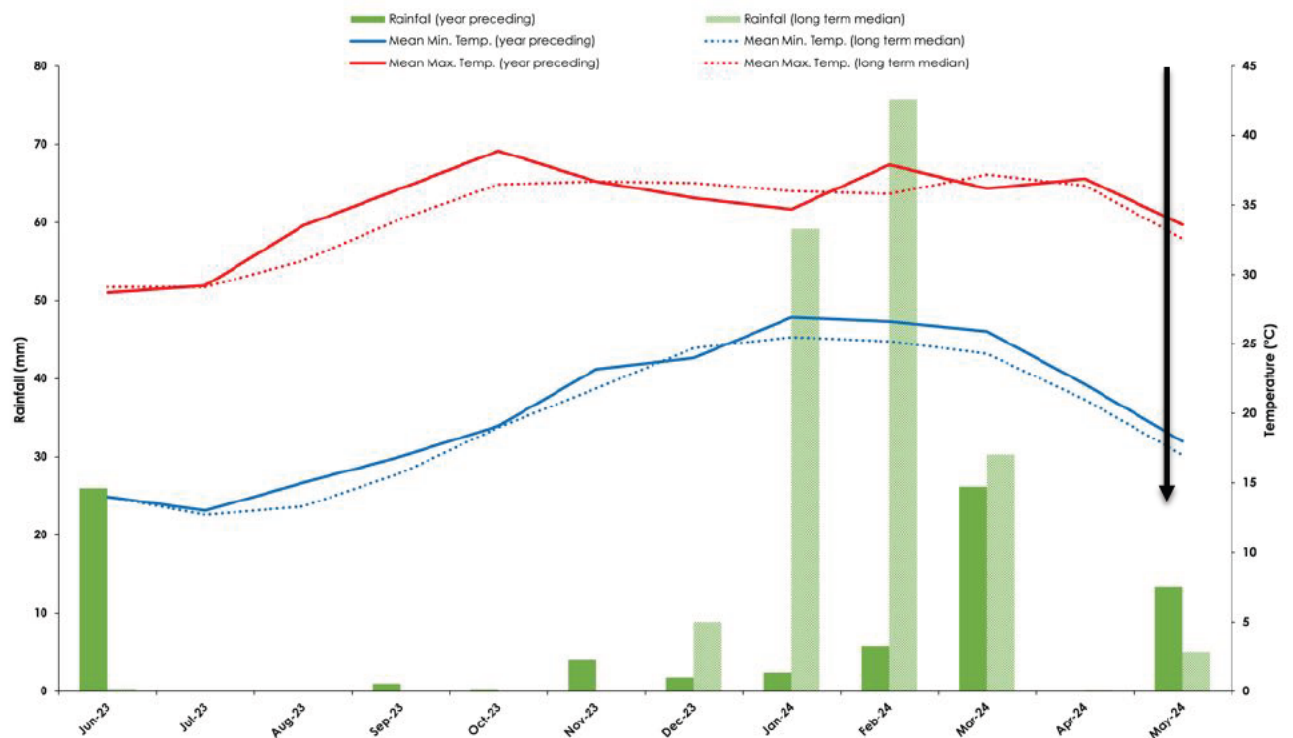


Figure 3.2: Climate graph depicting long-term averages and monthly data for the Mandora (#004019) weather station (data from Bureau of Meteorology). (Long-term data 1913-2023; black arrow indicates survey timing).

3.6 Reconnaissance and Targeted Flora and Vegetation Survey

3.6.1 Floristic Sampling

Indicative sites were selected prior to the field survey, based on the broad habitats and vegetation types apparent from aerial imagery. Once in the field, the actual locations of some sites were adjusted as necessary (e.g. to be placed in an area more representative of the broader vegetation type or to avoid recently burnt areas).

Given the reconnaissance survey type, flora and vegetation sampling sites were established as relevés; unbounded floristic sampling sites. The relevés established during the current survey were thoroughly surveyed for flora.

The following parameters were recorded for all relevés:

1. Location coordinates¹ (± 2 m) were recorded using a hand-held Global Positioning System (GPS) unit. Coordinates were recorded as a central point for the relevés, with a start and end point recorded for relevés that were undertaken in linear habitats such as creek lines.
2. Habitat: A description of the landform and habitat.
3. Soil: A broad description of the soil and any stony surface mantle or rocky outcrops, where present.
4. Fire History: An estimate of time since last fire.
5. Disturbance Details: Vegetation condition was ranked according to the scale from EPA (2016a), which was based on that developed by Trudgen (1988); this considered evidence of grazing, physical disturbance, weed invasion etc. (see Appendix 3).
6. Vegetation Description: A broad description based on the height and estimated cover of dominant species after Aplin's (1979) modification of the vegetation classification system of Specht (1970) (see Appendix 3).
7. Flora Species: The estimated percentage foliar cover of each flora species present within the relevé.
8. Photograph: A representative digital photograph of the vegetation was taken, typically from the centre of a relevé. Linear vegetation types were photographed at the start and end points.

A total of 161 relevés were established in the survey area (see Figure 3.3 to Figure 3.6 for sampling sites). Raw data for all sites are provided in Appendix 5.

3.6.2 Vegetation Description and Mapping

The scale of vegetation mapping is influenced by a range of factors including spatial characteristics of the survey area (e.g. the size and variety of habitats present), and other factors such as the scope of the survey and the availability of current, high-resolution aerial photography. The vegetation types for this survey were described at the association level (level V as per the National Vegetation Information System; NVIS)². This level of detail would be considered fine-scale (intra-locality) delineation of vegetation types as per EPA (2016a). In general, minor variations in the vegetation that were not clearly defined on aerial photography, did not display a high degree of differentiation from surrounding vegetation, or were not practical to accurately map in the field (e.g. minor flowlines) were incorporated into the surrounding 'parent' vegetation type.

¹ All coordinates presented in this report are in GDA94 datum and MGA50 projection, as denoted.

² <http://www.environment.gov.au/land/publications/nvis-taxonomic-review/introduction#del>

Vegetation mapping focused on the data retrieved from relevés, and also took into account data and vegetation mapping completed for a previous survey in the locality (Biota 2024a). Mapping notes were utilised to mark the boundaries of vegetation types in the field and to allow for more accurate delineation of these boundaries following the survey. A total of 58 mapping notes were collected during the survey to inform the vegetation mapping.

Vegetation types and boundaries were subsequently verified using both the data collected in the field and digital imagery. Each vegetation type mapped was given an alphanumeric code, comprising a character representing the broad landform group or vegetation type (e.g. 'D' for drainage lines, 'P' for plains and 'H' for hills), followed by a number sequence. Wherever possible, codes and vegetation descriptions were kept consistent with those mapped by previous studies (Biota 2024a). The codes and a full description of each vegetation type are presented in Section 5.1. Vegetation condition mapping was also prepared using the categories from EPA (2016a).

Vegetation maps were created and consolidated using Geographical Information System (GIS) software (QGIS and MapInfo Professional). All maps in this report were produced by Melissa Robinson (Principal GIS Cartographer at Biota).

3.6.3 Searches for Significant Flora and Weeds

Targeted, systematic searches were conducted over the entirety of the survey area focussing on significant (i.e. Threatened and Priority) species identified in the desktop study (see Section 4.8). Track logs illustrating search effort are shown in Appendix 4 and totalled 53.3 km of search effort within the survey area.

Locations of the significant species were recorded using a handheld GPS unit. The number of individuals and extent of the population were also recorded for each location.

Locations of introduced flora species (weeds) were also recorded during foot traverses, along with an actual count or estimate of their population size. These latter searches focussed on weeds of management concern; i.e. Declared Pests under the *WA Biosecurity and Agriculture Management Act 2007* (the BAM Act) and Weeds of National Significance (WoNS).

3.6.4 Specimen Identification, Nomenclature and Data Entry

Common taxa that were well known to the survey botanists were identified in the field. A voucher specimen was collected if the taxon was either difficult to determine without closer examination, belonged to a recognised species complex, was poorly collected or otherwise unusual. Voucher specimens of significant species were also collected for lodgement with the WA Herbarium as required. Each voucher specimen was assigned a unique internal code to facilitate tracking of data. Specimens were pressed in the field and then returned to Perth for further examination and confirmation.

Voucher specimens were identified using all available flora keys, comparison with reference collections of specimens at the WA Herbarium, and in-house at Biota. Specimens were identified by Biota botanists with assistance from Pierre-Louis de Kock (consultant Specialist Taxonomist of DK Botanical). Mike Hislop (Identification Botanist at the WA Herbarium) is also gratefully acknowledged for his assistance to further resolve some specimen identifications.

Nomenclature and significance rankings for the described species used in this report are consistent with the current listing of WA flora recognised by the WA Herbarium on Florabase³ at the time of writing.

All data were entered into a Microsoft Access database maintained at Biota, which was developed by Ted Griffin at the request of Malcolm Trudgen (M.E. Trudgen & Associates).

³ <http://florabase.dpaw.wa.gov.au>

3.7 Basic and Targeted Fauna Survey

3.7.1 Targeted Species

The results of the desktop study and a preliminary assessment of likely habitat based on aerial imagery were used to identify significant fauna species to be specifically targeted during the field survey (see Section 4.10.2). These species and the techniques used to target them are outlined in Table 3.5.

Table 3.5: Targeted fauna species and survey methods employed.
(See Section 4.10.2 for species' conservation status).

Species	Common Name	Survey Methods
Mammals		
<i>Dasyercus blythi</i>	Brush-tailed Mulgara, Ampurta	Motion cameras, secondary evidence searches, habitat assessment.
<i>Dasyurus hallucatus</i>	Northern Quoll	
<i>Macrotis lagotis</i>	Bilby, Dalgyte	
<i>Petrogale lateralis lateralis</i>	Black-footed Rock-wallaby	
<i>Rhinonicteris aurantia</i> Pilbara form	Pilbara Leaf-nosed Bat	Ultrasonic recording units, habitat assessment.
<i>Macroderma gigas</i>	Ghost Bat	
Birds		
<i>Pezoporus occidentalis</i>	Night Parrot	Acoustic recording units, avifauna censuses.
<i>Falco hypoleucos</i>	Grey Falcon	
Reptiles		
<i>Liopholis kintorei</i>	Great Desert Skink	Targeted searches, habitat assessment.
<i>Liasis olivaceus barroni</i>	Pilbara Olive Python	

The methods used to search for the target species were also suitable for detecting some other conservation significant fauna (e.g. targeted searches for Bilby would also be suitable for detecting Brush-tailed Mulgara). Habitat assessments were also undertaken for all significant fauna species identified as potentially occurring in the survey area.

3.7.2 Habitat Assessment and Targeted Searches

Formal habitat assessments were completed at all search locations and sampling sites. Foot traverses were undertaken across much of the survey area to search for evidence of significant species and to characterise fauna habitats. Searches were mostly focused on the collection of secondary evidence of the occurrence of significant fauna, including tracks, burrows, diggings, scats and remains. Some areas observed to be in poor condition (e.g. recently burnt) were not searched as they were unlikely to support significant fauna.

Over 250 person-hours were spent completing general and targeted searches at 59 sites within the survey area (Table 3.6; Figure 3.3 to Figure 3.6; Appendix 4). Due to timing, safety and access requirements night spotting was only feasible at sites near the accommodation, and nocturnal surveys were conducted across three nights, with one site visited on two occasions (Table 3.6).

Table 3.6: Fauna search locations and effort.

Site	Latitude	Longitude	Date	Effort (mins)
Diurnal Searches				
L1FA018DS			04/05/2024	513
L1FA022DS			09/05/2024	216
L1FA028DS			04/05/2024	240
L1FA030DS			03/05/2024	214
L1FA030DS			09/05/2024	75
L1FA030DS			06/05/2024	330
L1FA035DS			10/05/2024	352

Site	Latitude	Longitude	Date	Effort (mins)
Diurnal Searches				
L1FA041DS			05/05/2024	438
L1FA041DS			11/05/2024	178
L1FA041DS			12/05/2024	76
L1FA043DS			03/05/2024	180
L1FA043DS			05/05/2024	228
L1FA043DS			12/05/2024	72
L1FA045DS			06/05/2024	150
L1FA046DS			06/05/2024	234
L1FA050DS			09/05/2024	92
L1FA051DS			05/05/2024	234
L1FA054DS			09/05/2024	100
L1FA055DS			07/05/2024	86
L1FA059DS			07/05/2024	110
L1FA060DS			06/05/2024	372
L1FA060DS			09/05/2024	78
L1FA060DS			13/05/2024	60
L1FA061DS			08/05/2024	122
L1FA063DS			03/05/2024	152
L1FA063DS			04/05/2024	123
L1FA063DS			06/05/2024	48
L1FA063DS			10/05/2024	308
L1FA063DS			12/05/2024	66
L1FA064DS			05/05/2024	120
L1FA066DS			10/05/2024	360
L1FA067DS			11/05/2024	94
L1FA068DS			10/05/2024	188
L1FA070DS			03/05/2024	164
L1FA070DS			04/05/2024	222
L1FA070DS			08/05/2024	106
L1FA074DS			07/05/2024	138
L1FA077DS			11/05/2024	106
L1FA082DS			08/05/2024	136
L1FA083DS			07/05/2024	56
L1FA087DS			08/05/2024	78
L1FA095DS			12/05/2024	126
L1FA101DS			12/05/2024	84
L1FA103DS			07/05/2024	346
L1FA103DS			10/05/2024	20
L1FA109DS			08/05/2024	306
L1FA109DS			12/05/2024	64
L1FA113DS			08/05/2024	192
L1FA129DS			04/05/2024	170
L1FA129DS			05/05/2024	550
L1FA129DS			11/05/2024	256
L1FA134DS			05/05/2024	140
L1FA141DS			12/05/2024	76
L1FA145DS			06/05/2024	152

Site	Latitude	Longitude	Date	Effort (mins)
Diurnal Searches				
L1FA146DS			06/05/2024	146
L1FA148DS			06/05/2024	166
L1FA148DS			10/05/2024	230
L1FA152DS			04/05/2024	126
L1FA153DS			07/05/2024	231
L1FA154DS			07/05/2024	84
L1FA155DS			09/05/2024	90
L1FA157DS			07/05/2024	142
L1FA158DS			07/05/2024	198
L1FA163DS			10/05/2024	110
L1FA164DS			10/05/2024	250
L1FA172DS			09/05/2024	42
L1FA175DS			09/05/2024	2
L1FA178DS			02/05/2024	189
L1FA179DS			02/05/2024	178
L1FA180DS			02/05/2024	150
L1FA180DS			06/05/2024	16
L1FA181DS			03/05/2024	246
L1FA181DS			09/05/2024	32
L1FA182DS			03/05/2024	330
L1FA182DS			08/05/2024	102
L1FA183DS			03/05/2024	279
L1FA184DS			03/05/2024	162
L1FA185DS			11/05/2024	88
Nocturnal Searches				
L1FA102N			08/05/2024	1050
L1FA102N			12/05/2024	1104
L1FA153N			11/05/2024	300
L1FA155N			11/05/2024	363
			Total	16,103

3.7.3 Avifauna Sampling

Thirty-eight avifauna searches were conducted during the survey for a total effort of 149 person-hours (Table 3.7; Figure 3.3 to Figure 3.6; Appendix 4). Avifauna searches were largely conducted alongside diurnal searches with effort targeted at habitat prospective for significant species such as areas of large spinifex and along wooded drainage lines.

Table 3.7: Avifauna search locations and effort.

Site	Latitude	Longitude	Date	Effort (mins)
L1FA018B			04/05/24	513
L1FA022B			09/05/24	216
L1FA028B			04/05/24	240
L1FA030B			03/05/24	214
L1FA030B			06/05/24	330

Site	Latitude	Longitude	Date	Effort (mins)
L1FA030B			09/05/24	75
L1FA041B			05/05/24	438
L1FA041B			11/05/24	178
L1FA043B			03/05/24	180
L1FA043B			05/05/24	228
L1FA045B			06/05/24	150
L1FA050B			09/05/24	92
L1FA051B			05/05/24	234
L1FA060B			06/05/24	372
L1FA060B			13/05/24	60
L1FA063B			03/05/24	152
L1FA063B			04/05/24	123
L1FA063B			10/05/24	308
L1FA066B			10/05/24	360
L1FA070B			03/05/24	164
L1FA082B			08/05/24	136
L1FA101B			12/05/24	84
L1FA102B			12/05/24	1104
L1FA103B			07/05/24	346
L1FA109B			12/05/24	64
L1FA129B			04/05/24	170
L1FA129B			05/05/24	550
L1FA129B			11/05/24	256
L1FA134B			05/05/24	140
L1FA145B			06/05/24	152
L1FA146B			06/05/24	146
L1FA153B			07/05/24	231
L1FA157B			07/05/24	142
L1FA172B			09/05/24	42
L1FA180B			02/05/24	150
L1FA180B			06/05/24	16
L1FA182B			03/05/24	330
L1FA183B			03/05/24	279
			Total	8,965

3.7.4 Motion Cameras

Baited motion cameras were deployed at 16 locations, primarily targeting ground-dwelling mammals and opportunistically targeting other priority species, for a total of 91 camera-nights (Table 3.8, Figure 3.3 to Figure 3.6; Appendix 4). Cameras were baited with universal bait (peanut butter and oats); small boluses were placed in the cameras field of view under rocks or large sticks to limit how much could be taken at a single visit (particularly by bird species such as the Torresian Crow). Camera site photos are provided in Appendix 4.

Table 3.8: Motion camera locations and effort.

Site Name	Target Species	Latitude	Longitude	Date Deployed	Effort (nights)
L1FA028MC	Northern Quoll, Black-flanked Rock-wallaby			06/05/2024	3
L1FA030MC	Northern Quoll, Black-flanked Rock-wallaby			03/05/2024	3
L1FA041MC	Northern Quoll, Black-flanked Rock-wallaby			05/05/2024	7
L1FA043MC	Northern Quoll, Black-flanked Rock-wallaby			03/05/2024	9
L1FA060MC	Northern Quoll, Pilbara Olive Python			09/05/2024	4
L1FA061MC	Northern Quoll, Black-flanked Rock-wallaby			08/05/2024	3
L1FA063MC	Northern Quoll, Pilbara Olive Python			03/05/2024	7
L1FA070MC	Northern Quoll			04/05/2024	4
L1FA101MC	Northern Quoll, Black-flanked Rock-wallaby			04/05/2024	8
L1FA103MC	Northern Quoll, Pilbara Olive Python			08/05/2024	4
L1FA129MC	Northern Quoll			04/05/2024	4
L1FA155MC	Northern Quoll, Black-flanked Rock-wallaby			09/05/2024	2
L1FA178MC	Bilby, Brush-tailed Mulgara			02/05/2024	7
L1FA180MC	Bilby, Brush-tailed Mulgara			02/05/2024	4
L1FA182MC	Northern Quoll			03/05/2024	5
L1FA183MC	Northern Quoll, Black-flanked Rock-wallaby			03/05/2024	7
Total				91	

3.7.5 Acoustic Recording Units

Wildlife Acoustics SM4Mini acoustic recording units (ARUs) equipped with audible-range microphones were deployed at four locations within the survey area (Table 3.9, Figure 3.3 to Figure 3.6; Appendix 4). These targeted prospective Night Parrot habitat and major water sources for general bird assemblages. Site photos are provided in Appendix 4.

Call analysis was undertaken by John Graff, Senior Zoologist, of Biota, using Kaleidoscope Pro software (version 5.5.2). Recordings were screened and assessed manually by visual inspection of spectra and listening to recordings to identify species present.

Table 3.9: Acoustic sound recorder locations and effort.

Site	Latitude	Longitude	Date Deployed	Date Closed	Effort (nights)
L1FA063A			4/5/2024	10/5/2024	6
L1FA129A			5/5/2024	11/5/2024	6
L1FA179A			2/5/2024	4/5/2024	2
L1FA181A			3/5/2024	9/5/2024	6
			Total	20	

3.7.6 Ultrasonic Sound Recorders

Wildlife Acoustics Song Meter SM4Bat FS units were deployed at eight locations to target significant bat species, particularly the Ghost Bat and Pilbara Leaf-nosed Bat (Table 3.10; Figure 3.3 to Figure 3.6; Appendix 4). Units were set to be active from 30 minutes before sunset to 30 minutes after sunrise and programmed to a frequency range of between 8 kHz and 384 kHz to record the full potential bat assemblage. The selectable filters and triggers, jumper and audio settings used for each unit followed the manufacturer's recommendations for bat detection (Wildlife Acoustics 2010). Site descriptions including a photograph for each site are provided in Appendix 4.

Table 3.10: Ultrasonic bat recorder locations and effort.

Site Name	Latitude	Longitude	Date Deployed	Effort (nights)
L1FA028Bat			6/5/2024	3
L1FA030Bat			3/5/2024	3
L1FA060Bat			9/5/2024	4
L1FA063Bat			3/5/2024	3
L1FA103Bat			7/5/2024	3
L1FA129Bat			4/5/2024	7
L1FA179Bat			2/5/2024	4
			Total	27

Bat call analysis was undertaken by Roxanne de Vos of Biota, using Kaleidoscope Pro software (version 5.5.2), following methods recommended by the Australasian Bat Society (2006), in conjunction with reference data (Churchill 2008, McKenzie and Bullen 2009), and Bob Bullen of Bat Call WA. Only sequences containing good quality search phase calls were considered for identification.

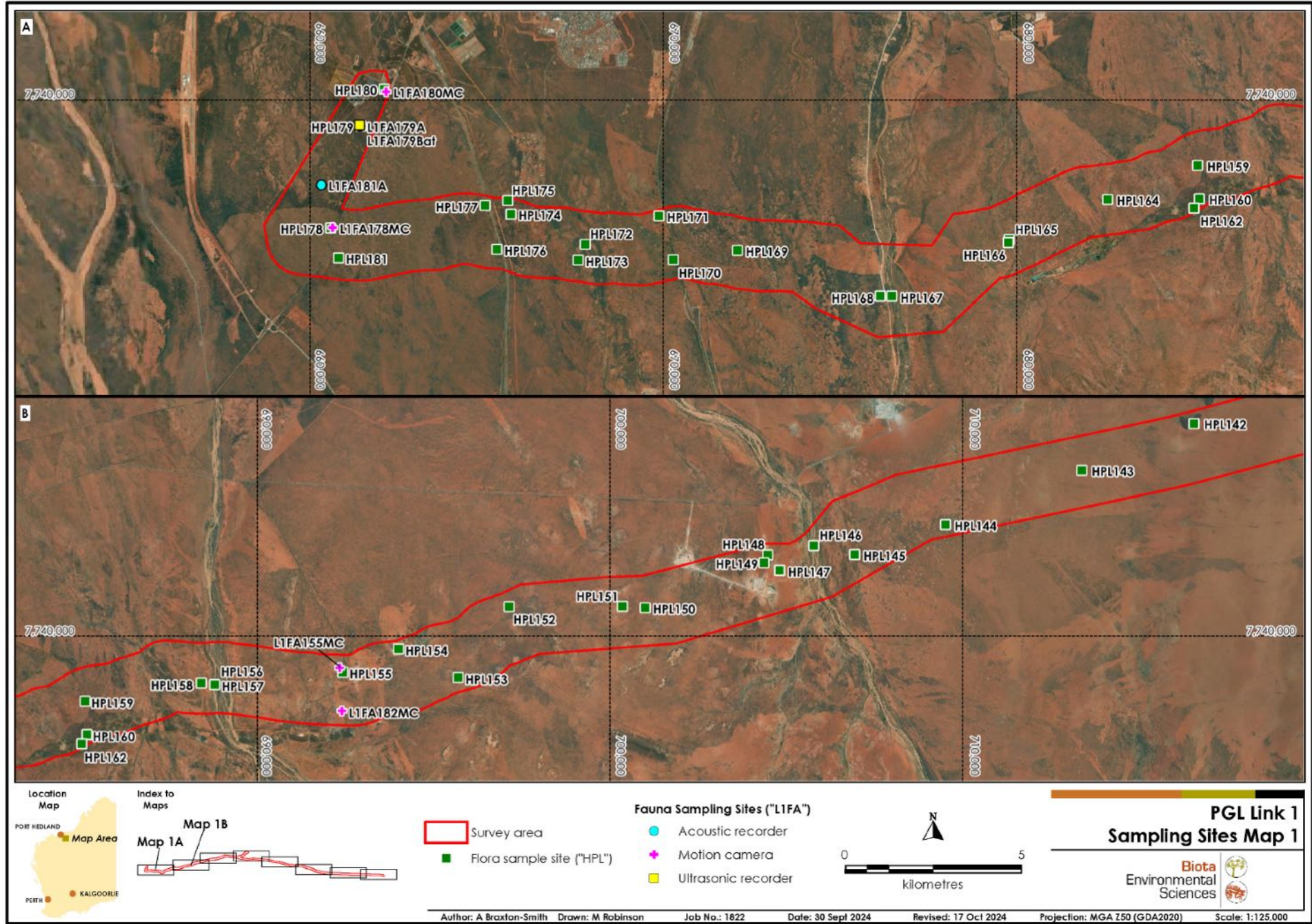


Figure 3.3: Flora and fauna sampling sites - Map 1.

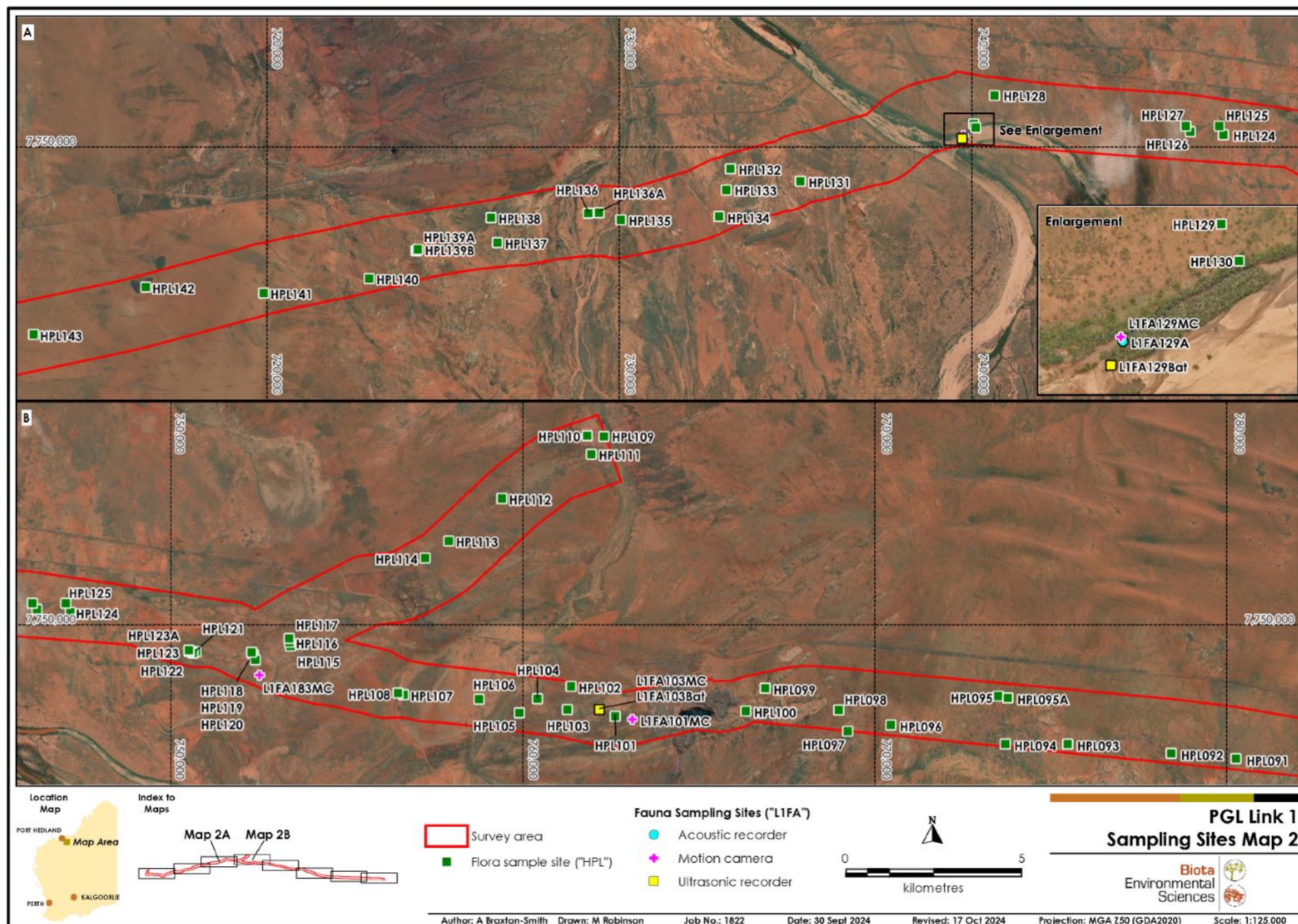


Figure 3.4: Flora and fauna sampling sites - Map 2.

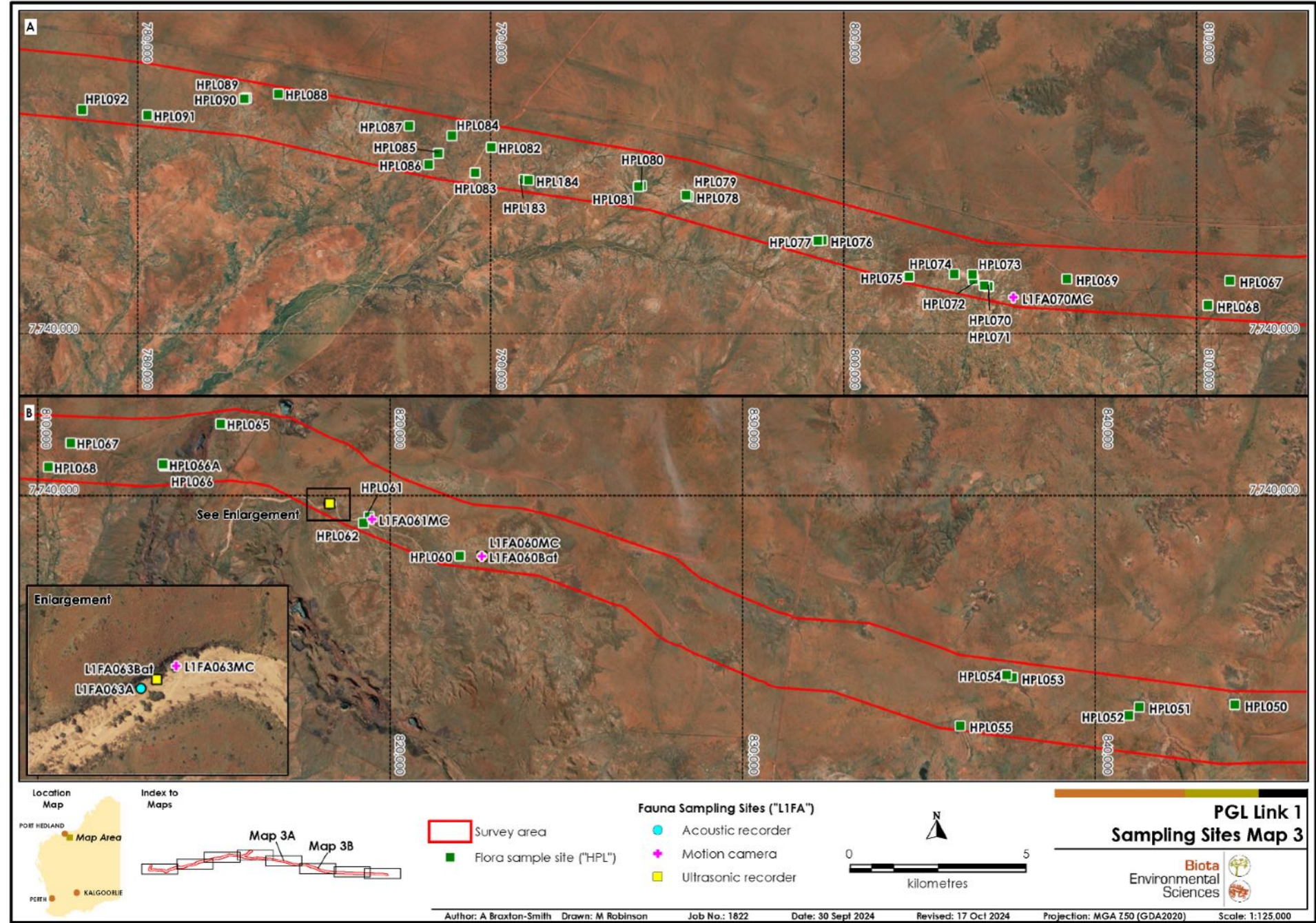


Figure 3.5: Flora and fauna sampling sites - Map 3.

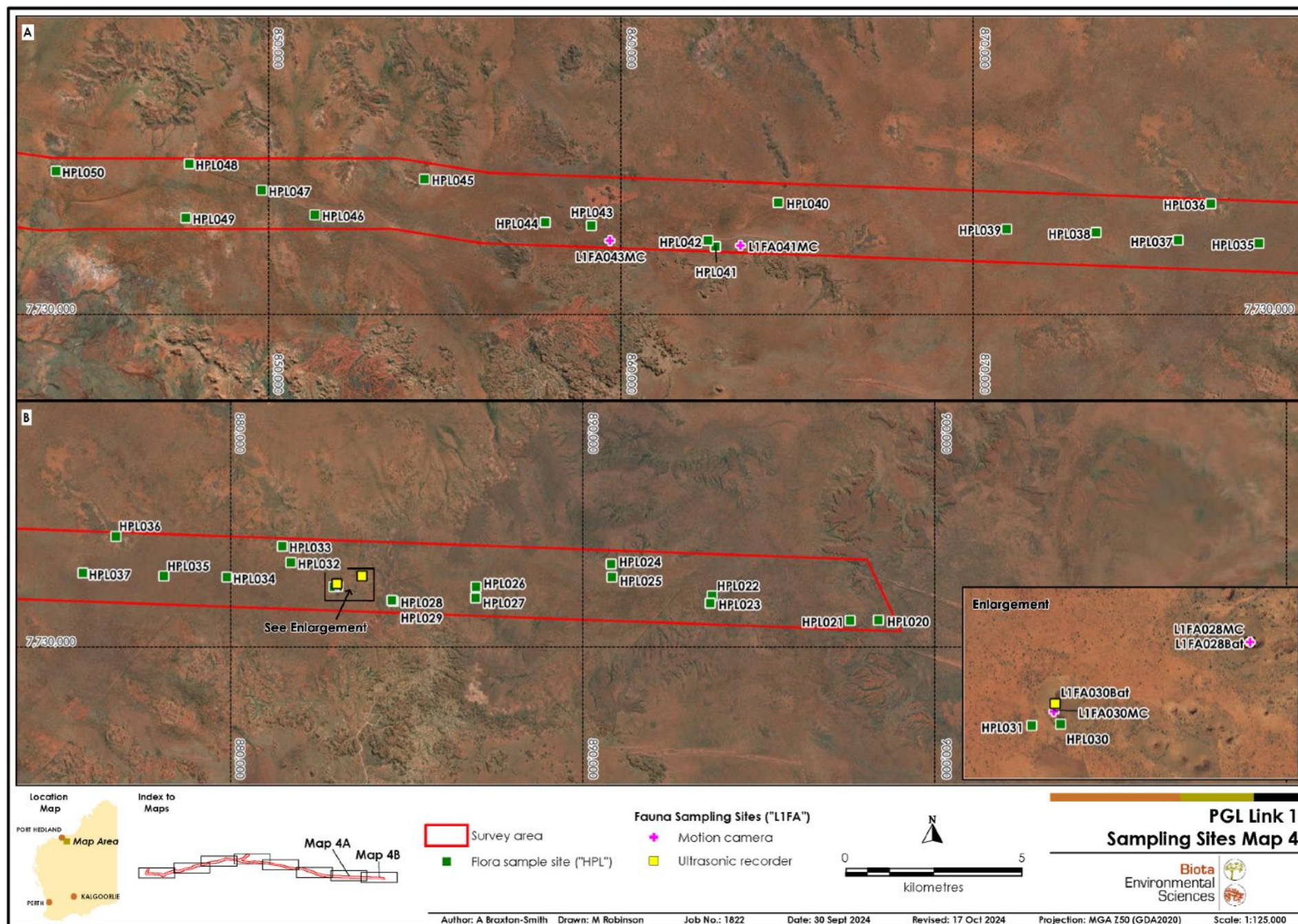


Figure 3.6: Flora and fauna sampling sites - Map 4.

3.7.7 Short Range Endemics

Over 150 person hours were dedicated to SRE fauna searches across 38 search locations (Table 3.11, Figure 3.7). Search sites were targeted in areas with microhabitats favouring SRE species (e.g. habitats with suitable soil profile and drainage depressions). Areas where habitat was found to be unsuitable for SRE fauna, or areas in poor condition, were not searched.

Potential SRE groups targeted were those that the desktop study, the range of habitat types present and consultation with the WA Museum indicated were likely to occur in the survey area. Mygalomorph spider burrows were located visually and were photographed prior to excavation. Holes were dug adjacent to each burrow, allowing the burrow to be followed until the spider was located. During processing, two legs of each spider collected were removed and placed in 100% ethanol for molecular studies, while the remainder of the spider was preserved in 70% ethanol suitable for morphological studies.

Searches for land snails were conducted by excavating leaf litter and soil around the base of trees and bushes and searching under rocks and in rock crevices. Millipede searches were conducted by raking through leaf litter and debris.

Table 3.11: SRE site locations and search effort.

Site	Latitude	Longitude	Date	Effort (min)
L1FA01SRE_MM			10/5/2024	242
L1FA01SRE_SS			2/5/2024	236
L1FA02SRE_MM			10/5/2024	110
L1FA02SRE_SS			3/5/2024	249
L1FA03SRE_MM			11/5/2024	106
L1FA03SRE_SS			3/5/2024	270
L1FA04SRE_MM			11/5/2024	405
L1FA04SRE_SS			3/5/2024	30
L1FA05SRE_SS			3/5/2024	279
L1FA06SRE_SS			3/5/2024	180
L1FA07SRE_SS			4/5/2024	492
L1FA08SRE_SS			4/5/2024	252
L1FA09SRE_SS			4/5/2024	82
L1FA10SRE_SS			4/5/2024	204
L1FA11SRE_SS			5/5/2024	450
L1FA12SRE_SS			5/5/2024	252
L1FA13SRE_SS			5/5/2024	231
L1FA14SRE_SO			10/5/2024	192
L1FA14SRE_SS			5/5/2024	132
L1FA15SRE_SO			7/5/2024	92
L1FA15SRE_SS			6/5/2024	333
L1FA16SRE_SS			6/5/2024	381
L1FA17SRE_SS			6/5/2024	390
L1FA18SRE_SS			7/5/2024	330
L1FA19SRE_SS			7/5/2024	106
L1FA20SRE_SS			7/5/2024	114
L1FA21SRE_SS			7/5/2024	134
L1FA22SRE_SS			7/5/2024	56
L1FA23SRE_SS			8/5/2024	310

Site	Latitude	Longitude	Date	Effort (min)
L1FA24SRE_SS			8/5/2024	192
L1FA25SRE_SS			9/5/2024	242
L1FA26SRE_SS			10/5/2024	428
L1FA27SRE_SS			10/5/2024	392
L1FA28SRE_SS			10/5/2024	232
L1FA29SRE_SS			11/5/2024	252
L1FA30SRE_SS			11/5/2024	98
L1FA31SRE_SS			11/5/2024	372
L1FA32SRE_SS			12/5/2024	240
			Total	9,088

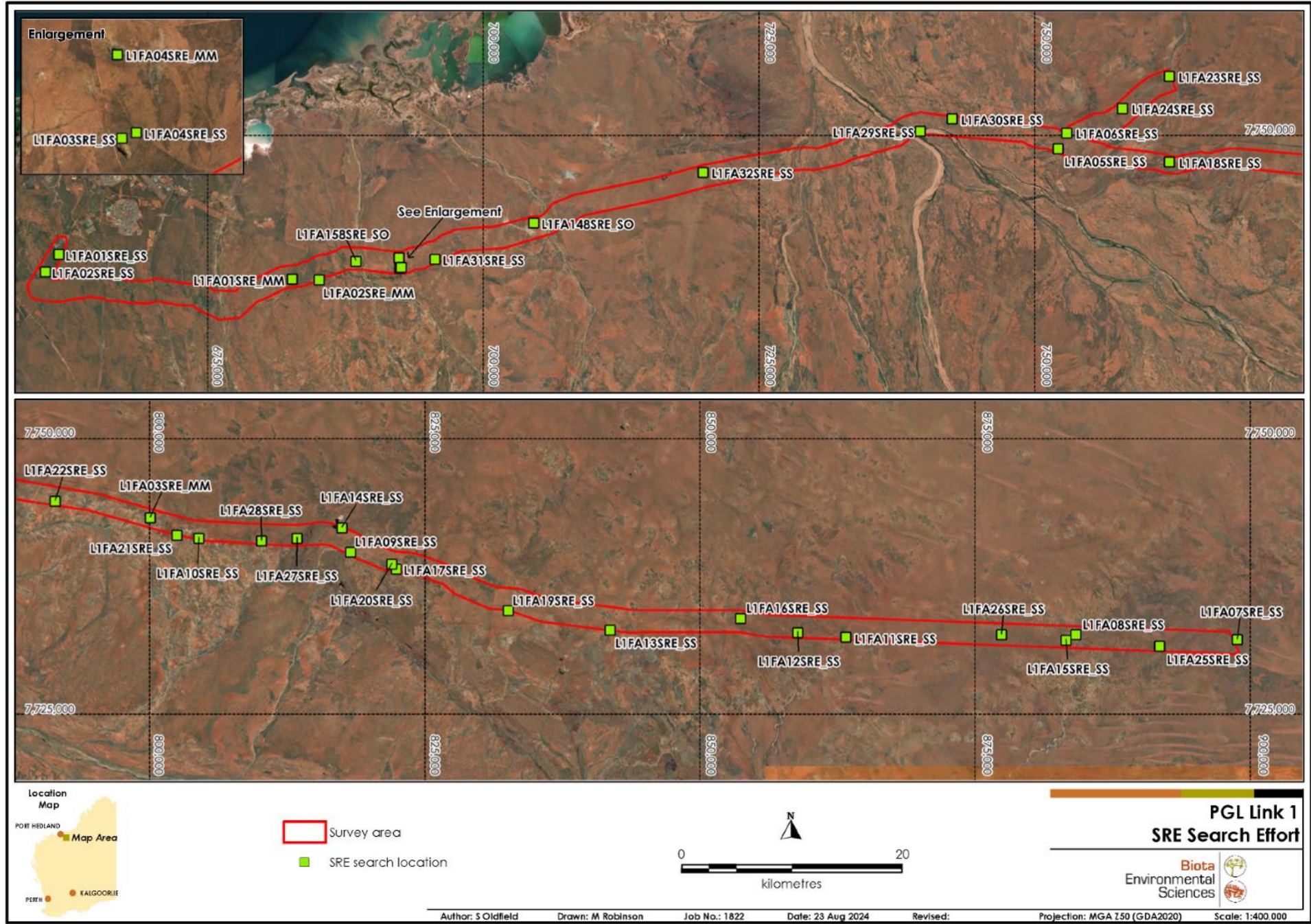


Figure 3.7: SRE search effort.

3.8 Survey Limitations

In accordance with EPA technical guidance (EPA 2016a, 2020), potential constraints and limitations of this biological survey are addressed in Table 3.12 below.

Table 3.12: Potential constraints and limitations of the biological survey.

Potential Constraint	Statement of Limitations
1. Availability of contextual information at a regional and local scale	<ul style="list-style-type: none"> A number of surveys have been undertaken in the locality and numerous surveys in other areas of the Pilbara in the past. Contextual information was not considered to be a limitation.
2. Competency/ experience of the team carrying out the survey, including experience in the bioregion surveyed	<ul style="list-style-type: none"> All field personnel were suitably qualified and had previous Pilbara survey experience. Competency was not considered to be a limitation.
3. Proportion of species recorded and/or collected, any identification issues	<ul style="list-style-type: none"> All vascular flora encountered in the survey area were recorded, with collections made of any taxa that were unusual, or difficult to identify without microscopic examination. A total of 420 native flora species from 148 genera and 51 families were recorded from the survey area. The total number of native species is reasonably high. This is in keeping with the large size of the survey area, its geographic extent, and the range of habitats crossed by a long corridor. The majority (80%) of the flora taxa were able to be identified to the lowest level possible within the current taxonomic framework. The remaining taxa were unable to be fully resolved as the material was too poor due to the dry conditions. Some specimens with unusual characters, or that were difficult to identify from the collected material, were sent to the WA Herbarium for further examination by taxonomic specialists. All terrestrial vertebrate fauna species encountered within the survey area were recorded and there were no uncertainties in regard to identifications. The potential SRE fauna specimens collected were identified to the lowest taxonomic rank possible based on morphology, with species-level identifications to be completed at a later stage of project development if required. Overall, identification and proportion of species recorded was not considered to be a limitation, given the scope of the surveys.
4. Appropriate area fully surveyed (effort and extent)	<ul style="list-style-type: none"> Flora and vegetation sampling was completed through all representative habitats in the survey area, and a total of 161 relevés and 58 mapping notes were completed. Targeted searches for significant flora were completed in representative areas of all prospective habitat. Given the size of the survey area, the records of significant flora must be taken as indicative rather than comprehensive, however this is in keeping with the reconnaissance and targeted level of the survey.. Basic fauna habitat characterisation was conducted through the 161 vegetation sampling sites and the xxx fauna habitat assessment and search sites, with targeted fauna sampling of various types at a further xxx sites in total in the most prospective habitats for significant fauna. Overall, effort and extent were not considered to be limitations, given the type of surveys undertaken..
5. Access restrictions within the survey areas	<ul style="list-style-type: none"> Most of the survey area was not accessible via vehicle, as a result two helicopters were utilised to access much of the survey area, alleviating access restrictions. All habitat types present in the survey area were surveyed either via ground-truthing or overflight. Access was not considered to be a significant limitation.

Potential Constraint	Statement of Limitations
6. Survey timing, rainfall, season of survey	<ul style="list-style-type: none"> • The flora and vegetation survey was undertaken in early-May 2024, which is the recommended post-wet survey season for flora and vegetation in the Pilbara region as per the EPA (2016a). • Conditions were drier than expected leading up to the survey, especially in the western half towards Port Hedland. This resulted in the collection of poor material for some species, hindering identification, and some annual and cryptic perennial taxa are unlikely to have been present, particularly in the clay plains habitats. This would include some Priority flora taxa but no Threatened flora taxa likely for the survey area. • The fauna survey was optimally timed, though some species such as Pilbara Olive Python are more active during warmer months and this may have affected detectability for such species. • Rainfall is considered a limitation for the flora and vegetation survey.
7. Disturbance that may have affected the results of survey such as fire, flood or clearing	<ul style="list-style-type: none"> • Only very small sections of the survey area have been previously cleared, • Parts of the survey area were recently burnt. While there were generally sufficient unburnt remnant patches remaining (or regenerating and juvenile plants) to be able to characterise the vegetation, this was sometimes difficult for very recently burnt areas. • Fire was considered a limitation for the flora survey, but one that is typically encountered in the Pilbara region and unlikely to have affected overall survey adequacy.

4.0 Desktop Study Results

4.1 IBRA Region and Subregion

The Interim Biogeographic Regionalisation for Australia (IBRA) recognises 89 bioregions and 419 biological subregions for Australia (DCCEE 2024). The survey area lies within the McLarty subregion of the Great Sandy Desert bioregion (20,919 ha), and the Chichester and Roebourne subregions of the Pilbara bioregion (19,591 ha and 9,609 ha, respectively) as defined by IBRA, Version 7 (Figure 2.1).

The subregions are described as follows:

1. The McLarty subregion (GSD1) "mainly tree steppe grading to shrub steppe in south; comprising open hummock grassland of *Triodia pungens* and *Triodia schinzii* with scattered trees of *Owenia reticulata* and Bloodwoods, and shrubs of *Acacia* spp, *Grevillea wickhamii* and *G. refracta*, on Quaternary red longitudinal sand dune fields overlying Jurassic and Cretaceous sandstones of the Canning and Armadeus Basins. *Casuarina decaisneana* (Desert Oak) occurs in the far east of the region. Gently undulating lateritised uplands support shrub steppe such as *Acacia pachycarpa* shrublands over *Triodia pungens* hummock grass. Calcrete and evaporite surfaces are associated with occluded palaeo-drainage systems that traverse the desert; these include extensive salt lake chains with samphire low shrublands, and *Melaleuca glomerata* - *M. lasiandra* shrublands. It includes the Mandora Paleoriver System. Red-brown dunefields with finer texture than further south. Includes gravely surfaces of Anketell Ridge along its northern margin. The subregion is arid tropical with summer rain and is influenced by monsoonal activity. Morning fogs are recorded during the dry season. Subregional area is 13,173,266 ha" (Graham 2003).
2. The Chichester subregion (PIL1) "comprises the northern section of the Pilbara Craton. Undulating Archaean granite and basalt plains include significant areas of basaltic ranges. Plains support a shrub steppe characterised by *Acacia inaequilatera* over *Triodia wiseana* (formerly *Triodia pungens*) hummock grasslands, while *Eucalyptus leucophloia* tree steppes occur on ranges. The climate is Semi-desert-tropical and receives 300mm of rainfall annually. Drainage occurs to the north via numerous rivers (e.g. De Grey, Oakover, Nullagine, Shaw, Yule, Sherlock). Subregional area is 9,044,560ha" (Kendrick and McKenzie 2003).
3. The Roebourne subregion (PIL4) "Quaternary alluvial and older colluvial coastal and sub-coastal plains with a grass savannah of mixed bunch and hummock grasses, and dwarf shrub steppe of *Acacia stellaticeps* or *A. pyrifolia* and *A. inaequilatera*. Uplands are dominated by *Triodia* hummock grasslands. Ephemeral drainage lines support *Eucalyptus victrix* or *Corymbia hamersleyana* woodlands. Samphire, *Sporobolus* and mangal occur on marine alluvial flats and river deltas. Resistant linear ranges of basalts occur across the coastal plains, with minor exposures of granite. Islands are either Quaternary sand accumulations, or composed of basalt or limestone, or combinations of any of these three. Climate is arid (semi-desert) tropical with highly variable rainfall, falling mainly in summer. Cyclonic activity is significant, with several systems affecting the coast and hinterland annually. Subregional area is 2,008,983 ha" (Kendrick and Stanley 2003).

4.2 Land Systems

Land systems are composed of repeating patterns of topography, soils and vegetation, which are described as a series of land units (Christian and Stewart 1953). Land systems mapping covering the survey area was prepared by Payne and Schoknecht (2011). The survey area intersects 16 land systems, shown in Table 4.1 and Figure 4.1.

Table 4.1: Description and extent of land systems in the survey area.

Land System	Description	Extent in Survey Area		Proportion in Bioregion (%) ¹	
		Area (ha)	Proportion (%)	Great Sandy Desert	Pilbara
Billygoat (RGEBLG)	Dissected plains and gravelly slopes supporting hard spinifex grasslands.	105.99	0.21	7.38	-
Boolaloo (RGEBOO)	Granite hills, domes, tor fields and sandy plains supporting spinifex grasslands with scattered shrubs.	759.68	1.52	62.67	0.45
Boolgeeda (RGEBGD)	Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands.	291.88	0.58	-	0.15
Callawa (RGECLL)	Highly dissected low hills, mesas and gravelly plains on sandstone and conglomerate supporting soft and hard spinifex grasslands.	3,498.62	6.98	2.82	-
Capricorn (RGECPN)	Rugged sandstone hills, ridges, stony footslopes and interfluvies supporting low acacia shrublands or hard spinifex grasslands with scattered shrubs.	2,931.30	5.85	13.93	0.50
Granitic (RGEGRG)	Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.	318.54	0.64	-	0.08
Horseflat (RGEHOF)	Gilgaid clay plains supporting Roebourne Plains grass grasslands and minor grassy snakewood shrublands.	627.86	1.25	-	0.19
Little Sandy (RGELSA)	Sandplains with linear and reticulate dunes supporting shrubby hard and soft spinifex grasslands.	7.23	0.01	0.004	-
Macroy (RGEMAC)	Stony plains and occasional tor fields based on granite supporting hard and soft spinifex shrubby grasslands.	4,846.69	9.67		0.36
Mallina (RGEMAL)	Sandy surfaced alluvial plains supporting soft spinifex grasslands and minor hard spinifex and tussock grasslands.	1,261.71	2.52	-	0.38
Nita (RGENIT)	Sandplains supporting shrubby spinifex grasslands with occasional trees.	18,026.02	35.97	1.76	6.60
Paradise (RGEPPS)	Alluvial plains supporting soft spinifex grasslands and tussock grasslands.	2,568.91	5.13	-	1.73
River (RGERIV)	Narrow, seasonally active flood plains and major river channels supporting moderately close, tall shrublands or woodlands of acacias and fringing communities of eucalypts sometimes with tussock grasses or spinifex.	1,693.97	3.38	-	0.44
Robe (RGEROB)	Low plateaux, mesas and buttes of limonite supporting soft spinifex and occasionally hard spinifex grasslands.	213.25	0.43	-	0.84
Ruth (RGERUT)	Hills and ridges of volcanic and other rocks supporting shrubby hard spinifex and occasionally soft spinifex grasslands.	5.21	0.01	-	0.003
Uaroo (RGEUAR)	Broad sandy plains, pebbly plains and drainage tracts supporting hard and soft spinifex hummock grasslands with scattered acacia shrubs.	12,436.85	24.81	-	1.39
NA (mines etc.)		525.72	1.05	-	-
Total		50,119.4	100	-	-

¹Extent of each land system in the survey area as a proportion (%) of its bioregional extent.

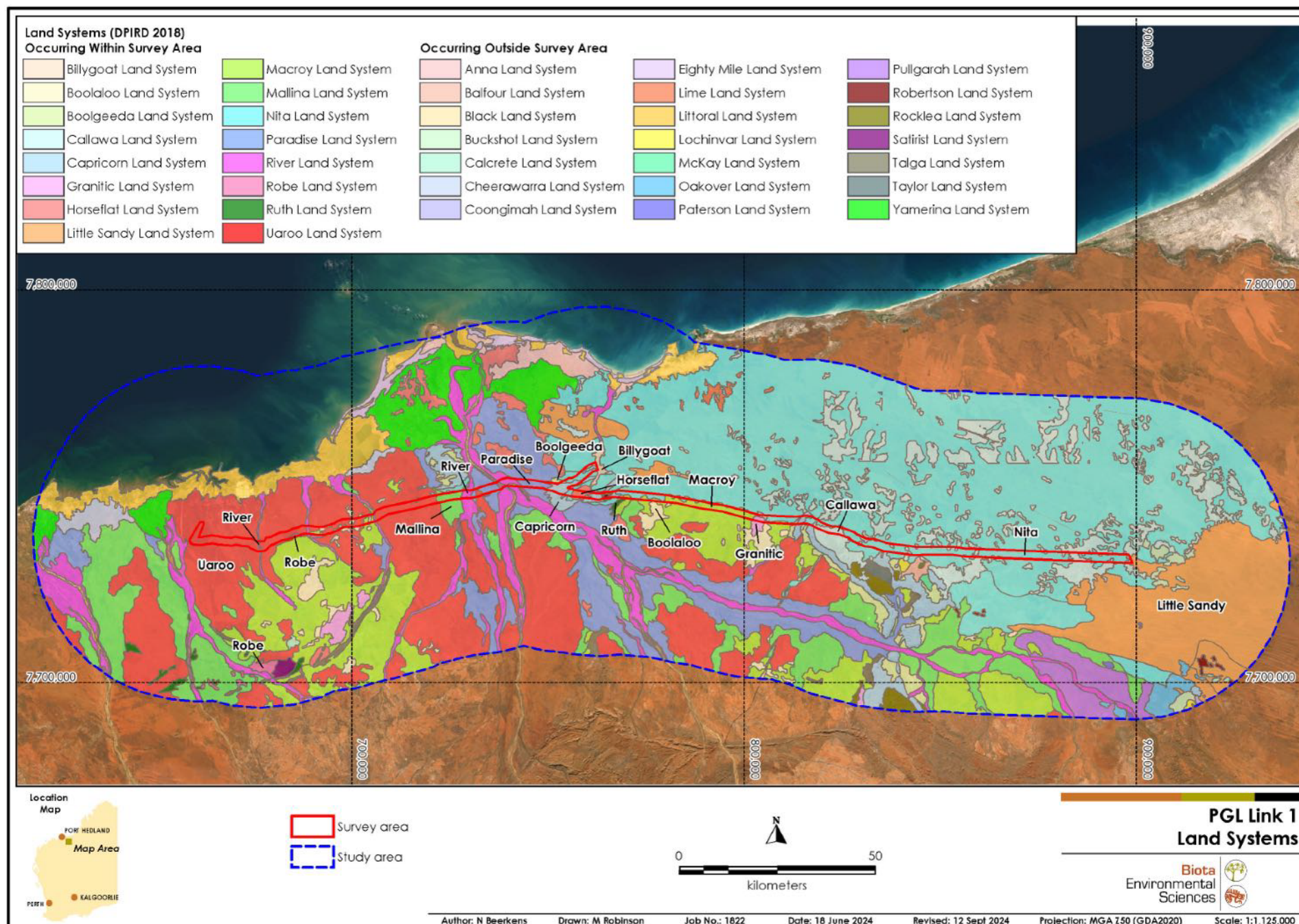


Figure 4.1: Land systems of the study area and survey area.

4.3 Beard's Vegetation

Broad-scale vegetation mapping for the locality has been prepared at 1:1,000,000 scale by J.S. Beard (1975, 1979). The survey area includes 11 of Beard's vegetation system associations, some of which represent similarly described units from adjacent regions (Table 4.2, Figure 4.2).

The pre-European and current extents of Beard's vegetation units were last calculated in 2018 using interpretation of imagery to determine areas that have been cleared (see Shepherd et al. 2002, Government of Western Australia 2019). These sources indicated that, in 2018, less than 2.2% of the extent of each of the units had been cleared (Table 4.2).

Table 4.2: Description and extent of Beard's vegetation system associations in the survey area.

Vegetation System Association	Beard's Description	Extent in Survey Area	
		Area (ha)	Proportion
Abydos Plain – Chichester 117	Hummock grasslands, grass steppe; soft spinifex (<i>Triodia epactia</i>).	3,311.65	6.61
Mandora – West 117		15,150.71	30.23
Abydos Plain 589	Mosaic: Short bunch grassland - savanna / grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex.	7,709.55	15.38
Abydos Plain – Chichester 589		106.83	0.21
Abydos Plain 619	Medium woodland; River Gum (<i>Eucalyptus camaldulensis</i>).	608.05	1.21
Abydos Plain – Chichester 619		116.26	0.23
Abydos Plain 647	Hummock grasslands, dwarf-shrub steppe; <i>Acacia stellaticeps</i> over soft spinifex.	1,139.34	2.27
Abydos Plain – Chichester 647		527.00	1.05
Abydos Plain – Chichester 93	Hummock grasslands, shrub steppe; Kanji (<i>Acacia inaequilatera</i>) over soft spinifex	15,489.14	30.90
George Ranges 171	Hummock grasslands, low tree steppe; Snappy Gum (<i>Eucalyptus leucophloia</i>) over soft spinifex and <i>Triodia brizoides</i> .	536.60	1.07
Mandora – West 101	Hummock grasslands, shrub steppe; <i>Acacia pachycarpa</i> over soft spinifex.	5,424.30	10.82
Total		50,119.4	100.0%

¹Extent of each vegetation system association in the survey area as a proportion of its bioregional extent.

Vegetation System Association	Pilbara				Great Sandy Desert			
	Pre-European Extent in Bioregion (ha)	2018 Extent in Bioregion (ha)	Proportion Remaining in 2018	Proportion of 2018 Extent in Survey Area ¹ (%)	Pre-European Extent in Bioregion (ha)	2018 Extent in Bioregion (ha)	Proportion Remaining in 2018	Proportion of 2018 Extent in Survey Area ¹ (%)
Abydos Plain – Chichester 117	31,844.50	31,362.52	98.49	10.56				
Mandora – West 117	-	-	-	-	188,000.35	187,592.59	99.78	8.08
Abydos Plain 589	598,844.80	596,965.26	99.69	1.29	-	-	-	-
Abydos Plain – Chichester 589	45,319.75	45,319.75	100.00	0.24	-	-	-	-
Abydos Plain 619	43,288.08	42,513.62	98.21	1.43	-	-	-	-
Abydos Plain – Chichester 619	71,229.64	71,200.58	99.96	0.16	-	-	-	-
Abydos Plain 647	188,741.12	184,615.29	97.81	0.62	-	-	-	-
Abydos Plain – Chichester 647	7,118.83	7,095.63	99.67	7.43	-	-	-	-
Abydos Plain – Chichester 93	2,480,781.79	2,477,408.16	99.86	0.63	-	-	-	-
George Ranges 171	270,392.63	269,111.46	99.53	0.20	-	-	-	-
Mandora – West 101	-	-	-	-	379,531.19	379,485.43	99.99	1.43

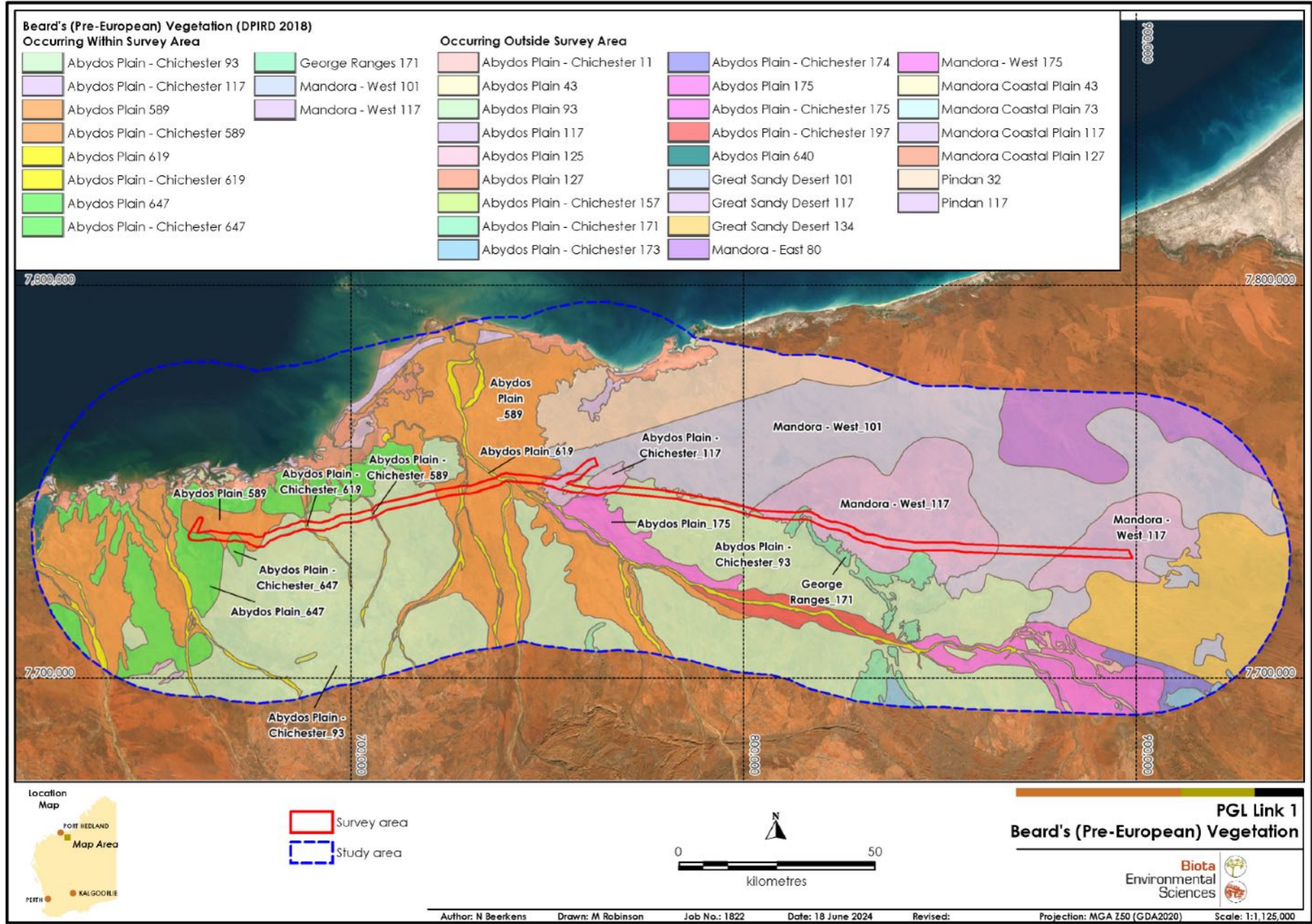


Figure 4.2: Beard's vegetation units within the study area and survey area.

4.4 Geology

Mapping of the surface geological units in the locality was prepared based on data from Stewart et al. (2008). 19 geological units were mapped within the survey area, with Qa being dominant (30.8%) (Table 4.3, Figure 4.3).

Table 4.3: Description and extent of geological units in the survey area.

Geological Unit	Description	Extent in Survey Area		Proportion in Bioregion (%) ¹	
		Area (ha)	Proportion (%)	Great Sandy Desert	Pilbara
Abw	Basalt, komatiitic basalt; locally pillowed; locally carbonated or schistose; local peridotite, serpentinite; metamorphosed	1,428.73	2.85	-	6.90
Acg	Chert, ferruginous chert, banded iron formation, jaspilite; minor siltstone, shale, sandstone, pebbly sandstone, quartzite, polymictic conglomerate, felsic volcanoclastic rock, basalt, ultramafic schist, mafic schist	1,944.63	3.88	25.78	1.85
Agi	Undifferentiated granitoid intrusions of the Sisters Supersuite; leucogranite (locally schlieric or pegmatitic), monzogranite, granodiorite, tonalite, diorite, tonalitic orthogneiss, rhyolite dykes, pegmatite; interleaved in places	2,720.43	5.43	79.27	2.54
Agic	Hornblende-biotite granodiorite, K-feldspar-phyric monzogranite	42.31	0.08		0.61
Agry	Biotite-muscovite monzogranite	757.59	1.51		6.79
Agf	Undivided felsic intrusives; granodiorite, granite, monzogranite, syenogranite, quartz diorite, tonalitic orthogneiss, leucogranite, pegmatite, tonalite, schlieric leucogranite and diatexite	622.84	1.24		0.98
Agu	undivided and unnamed intrusions in the Emu Pool Supersuite; monzogranite, hornblende-biotite monzogranite, syenogranite, tonalite, granodiorite, mafic tonalite, quartz diorite	305.86	0.61	32.21	0.68
Asc	Siltstone, shale, iron formation, sandstone, pebbly sandstone, pebble to boulder conglomerate; metamorphosed	45.40	0.09	1.29	-
Ascc	Metamorphosed fine to coarse grained wacke, shale, iron formation, poorly sorted arkose, sub-arkosic and lithic sandstone, conglomerate, pebbly sandstone, siltstone, tuff, turbidite, basalt; intruded by mafic to ultramafic sills	406.52	0.81	-	0.61
Azp	Mylonite	143.18	0.29	-	5.19
Cza	Reworked or incised sandy alluvium in older stream channels; lateritised alluvium; alluvial terraces above younger alluvium; alluvial and colluvial outwash deposits not in defined channel systems; sand, silt, gravel, clay, evaporites	150.93	0.30	-	0.11
Czc	Fossiliferous terrestrial sandstone; sandstone and silcrete; quartz-lithic-pebbly-gritty sand	25.10	0.05	6.24	-
Czl	Pisolitic, nodular or vuggy ferruginous laterite; some lateritic soils; ferricrete; magnesite; ferruginous and siliceous duricrusts and reworked products, calcrete, kaolinised rock, gossan; residual ferruginous saprolite	1,835.88	3.66	0.55	-
Czlr	Pisolitic, oolitic, and massive limonite, goethite, and hematite deposits containing fossil wood fragments; iron ore	196.87	0.39	-	1.20
Czs	Sand or gravel plains; quartz sand sheets commonly with ferruginous pisoliths or pebbles, minor clay; local calcrete, laterite, silcrete, silt, clay, alluvium, colluvium, aeolian sand	12,709.90	25.36	0.69	0.42
JKsc	Fluvial cross-bedded very fine to coarse-grained sandstone, granule conglomerate and minor siltstone; plant and trace fossils	2,869.60	5.73	2.57	7.67
Kspa	Mudstone, claystone; minor fine-grained sandstone; macrofossils; shallow marine deposits	32.88	0.07	0.17	-

Geological Unit	Description	Extent in Survey Area		Proportion in Bioregion (%) ¹	
		Area (ha)	Proportion (%)	Great Sandy Desert	Pilbara
Qa	Channel and flood plain alluvium; gravel, sand, silt, clay, locally calcreted	15,464.03	30.85	0.99	0.88
Qrc	Colluvium, sheetwash, talus; gravel piedmonts and aprons over and around bedrock; clay-silt-sand with sheet and nodular kankar; alluvial and aeolian sand-silt-gravel in depressions and broad valleys in Canning Basin; local calcrete, reworked laterite	8,416.77	16.79	1.88	0.33
Total		50,119.4	100.0	-	-

¹Extent of each geological unit in the survey area as a proportion of its bioregional extent.

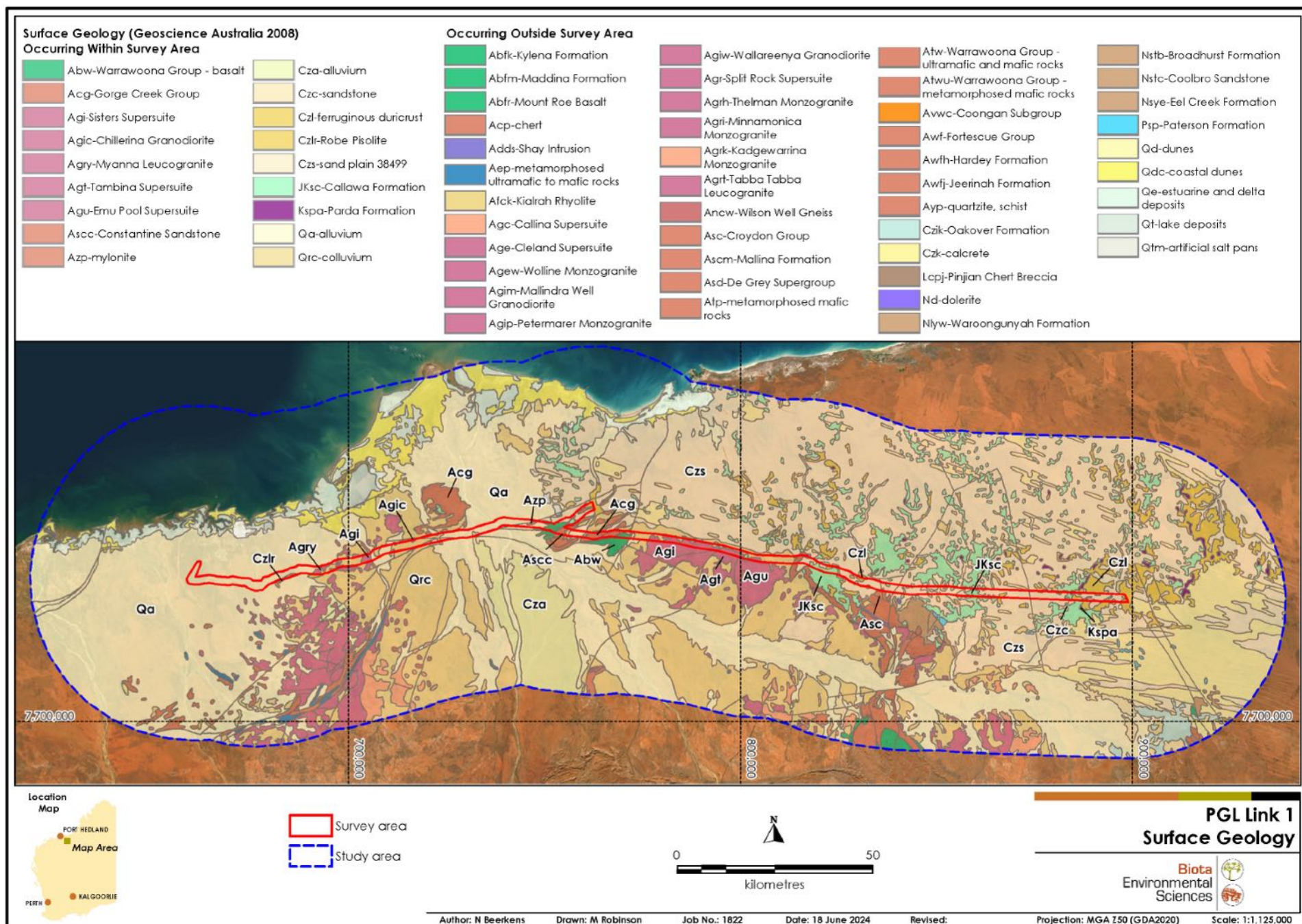


Figure 4.3: Geology of the study area and survey area.

4.5 Soils

Soil units have been mapped by Northcote et al. (1960). Nine broad soil types have been mapped within the survey area, which is largely comprised of soil units AB21 and My54 (28.5% and 23.5% respectively) (Table 4.4, Figure 4.4).

Table 4.4: Description and extent of soil units within the survey area.

Soil Unit	Description	Extent in Survey Area		Proportion in Bioregion (%) ¹	
		Area (ha)	Proportion (%)	Great Sandy Desert	Pilbara
AB19	Extensive sandy plains: chief soils are red earthy sands (Uc5.21) with extensive areas of red earths (Gn2.12) and with some hard red soils (Dr) along creek lines. Similar to unit AB21 but without sandstone residuals. Occurs on sheet(s): 6	4,524.84	9.03	-	6.55
AB21	Pindan country--gently undulating sand plain with a few small rocky sandstone residuals; no external drainage: chief soils are red earthy sands (Uc5.21), with associated (Uc5.11) and hummocks of siliceous sands (Uc1.23). Occurs on sheet(s): 6,9,10	14,273.04	28.48	1.39	-
AB22	Gently undulating sand plain as for unit AB21 but with many rocky sandstone residuals: chief soils are red earthy sands (Uc5.21), with (Uc5.11) and (Uc1.23) as for unit AB21. Associated are bare rock and shallow sands, probably (Uc1.4), of the sandstone residuals. Occurs on sheet(s): 9,10	4,160.88	8.30	1.81	-
B27	Low terrace associated with main stream channels: chief soils are loose sands (Uc1.22) with some (Um5.11) soils on patches of calcrete (kunkar). Occurs on sheet(s): 6,10	602.99	1.20	-	0.39
Fa30	Ranges on metamorphosed sandstones, dolomites, jaspilites, and lavas with extensive rock exposures; soils are shallow and stony: chief soils are shallow stony earthy loams (Um5.51) together with some (Uc5.11) soils. Occurs on sheet(s): 10	921.76	1.84	5.50	0.001
My54	Broad very gently undulating plains with scattered rock outcrops occurring as mesas: chief soils are neutral and acid red earths (Gn2.12, Gn2.11) with some hard red soils (Dr) occurring on pediments of unit Oc61. Occurs on sheet(s): 6,10	11,785.04	23.51	-	2.17
Oc40	Alluvial plains, which are frequently badly surface-eroded, and levees associated with prior streams: chief soils are hard alkaline red soils (Dr2.33) and (Dr2.13), together with various sandy alkaline red soils including (Dr4.43) and (Dr4.33). There are small areas of sandy (Uc) soils on levees and prior stream channels, and also small areas of red dune soils (Uc5.11); and some sandy red earths (Gn). In places erosion has removed the sandy surfaces, and the resulting clay pans have sandy clay (Uf1.43) soils. Occurs on sheet(s): 6,10	4,951.71	9.88	-	1.20
Oc61	Dissected pediments and steep residual hills with iron formations: chief soils are hard alkaline red soils, probably (Dr2.33). Associated are various (Um) and (Uc) soils on the residual hills. Occurs on sheet(s): 6,10	6,052.69	12.08	19.81	5.90
Oc62	Very gently undulating pediplain with low granite outcrops and tors; occasional basic dykes occur as low elongate ridges: chief soils are hard alkaline red soils (Dr2.33) and (Dr2.43) having coarse-textured A horizons up to 18 in. thick. Associated are occasional patches of calcrete (kunkar) with (Um5.11) soils as well as some (Gn2.12) soils. Occurs on sheet(s): 6	2,846.49	5.68	-	0.50
Total		50,119.4	100	-	-

¹Extent of each soil unit in the survey area as a proportion of its bioregional extent.

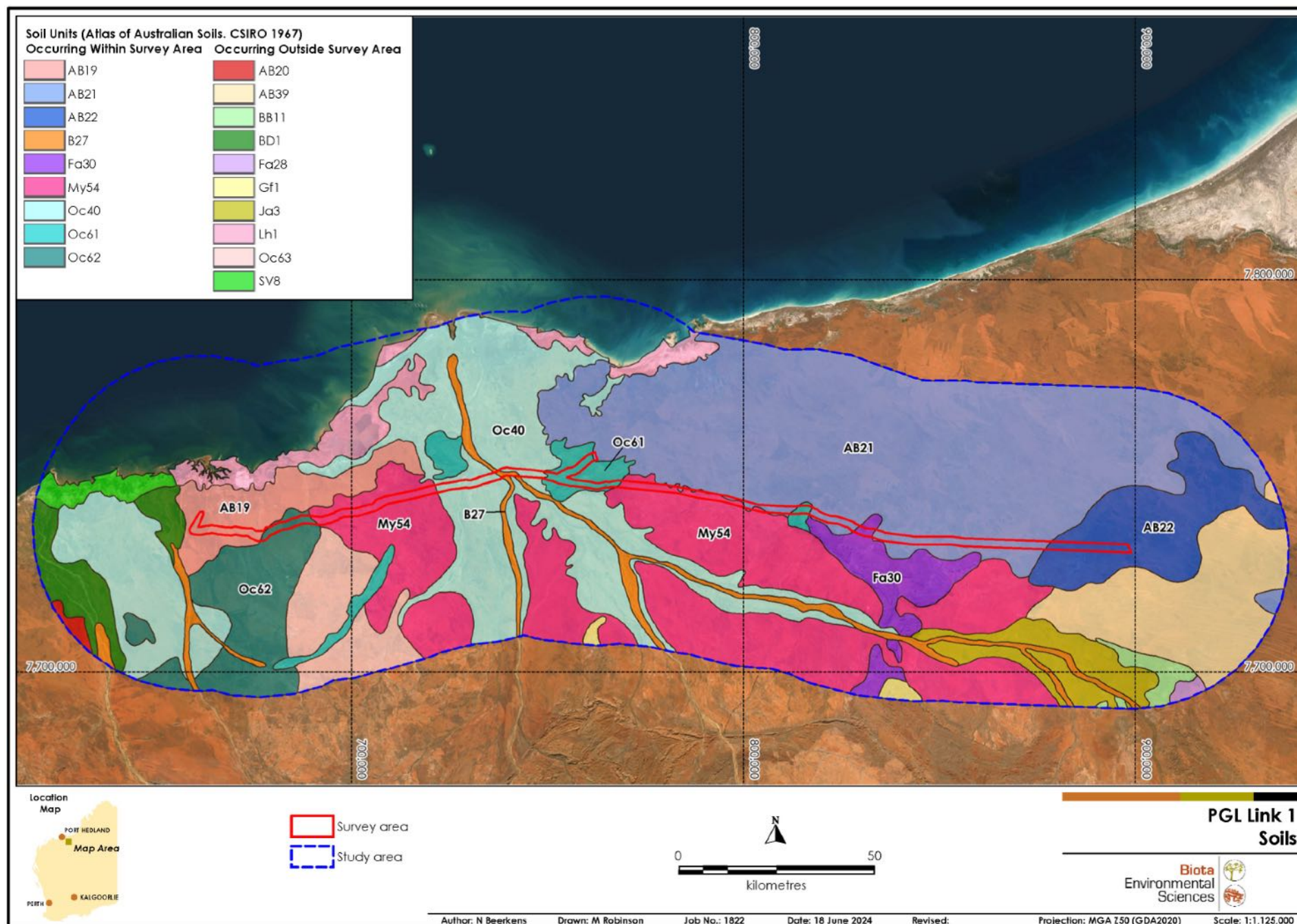


Figure 4.4: Soil units of the study area and survey area.

4.6 Conservation Reserves

Two areas of conservation significance lie within the study area, comprising one DBCA-managed reserve and one wetland of importance (Figure 4.5):

- Eighty Mile Beach Marine Park is a DBCA-managed conservation reserve, and is also listed as an ESA under the EP Act (DWER 2021). The border of this reserve is 19 km north of the survey area.
- The Leslie (Port Hedland) Saltfields System is listed on the Directory of Important Wetlands of Australia (DAWE 2021), and is also listed as an ESA under the EP Act (DWER 2021). The border of this wetland is approximately 19 km north of the survey area.

A section of the survey area intersects the De Grey River which is listed on the Directory of Important Wetlands of Australia (DAWE 2021), and is also listed as an ESA under the EP Act (DWER 2021). The survey area contains 299.71 ha of the mapped wetland area and 322.29 ha of the ESA (Figure 4.5). The De Grey River supports some significant fauna species such as the Grey Falcon (Vulnerable), the Far Eastern Curlew (Vulnerable) and the Pilbara Dragonfly (Priority 2). It also has high potential to support vegetation representing GDEs (Bureau of Meteorology 2024).

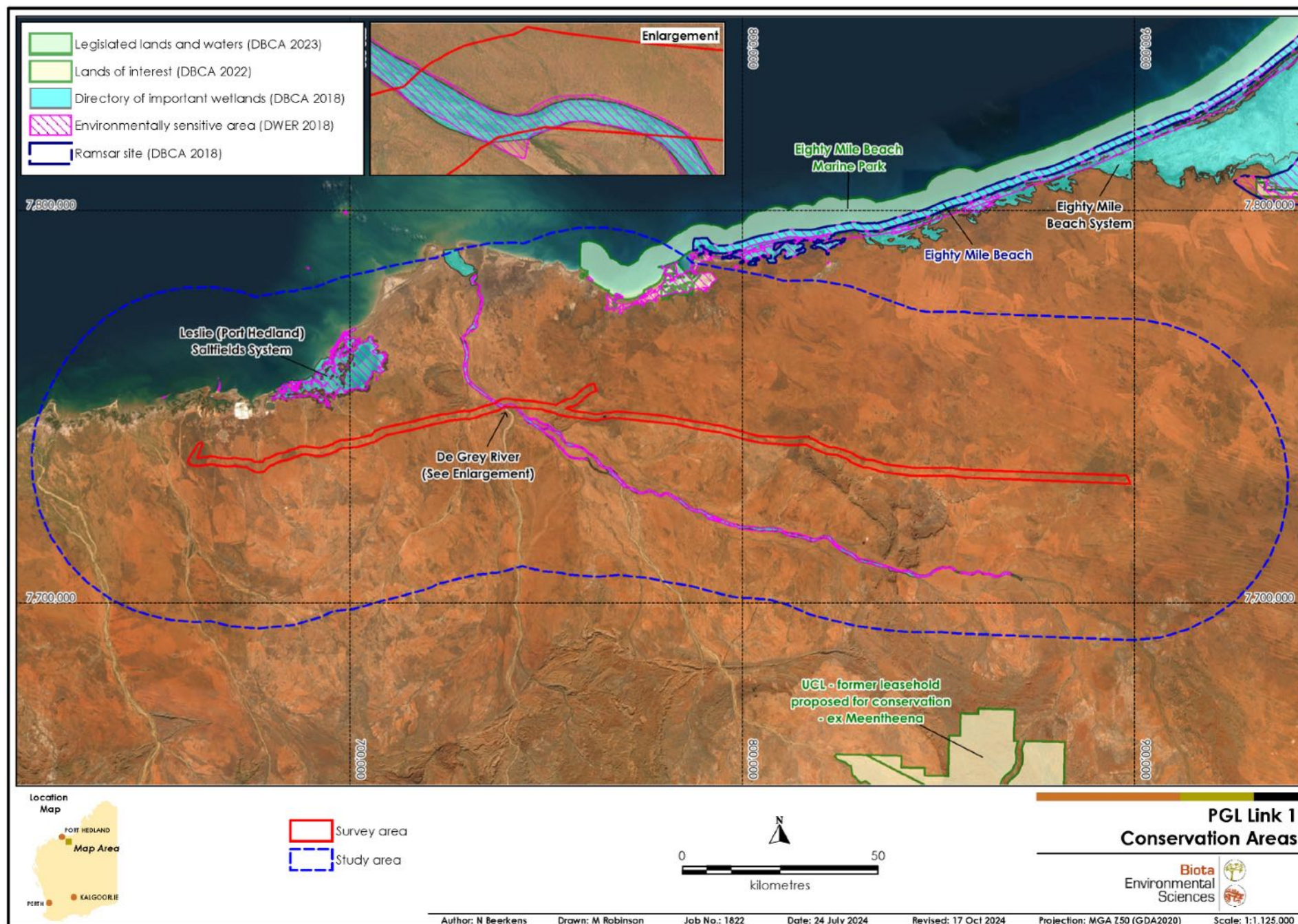


Figure 4.5: Conservation reserves and significant vegetation in the study area.

4.7 Previous Biological Surveys in the Study Area

Results of the review of previous biological surveys conducted in the study area are presented in Table 4.5.

Table 4.5: Summary of the literature review.

Report/Survey	Survey Timing	Survey Description	Relevant Findings
Flora and Fauna			
Lumsden Point Biological Survey (Biota 2023a)	March 2023	<ul style="list-style-type: none"> Detailed and Targeted Flora and Vegetation Survey Basic Fauna Survey 	One significant flora taxon recorded: <ul style="list-style-type: none"> <i>Tephrosia rosea</i> var. Port Hedland (A.S. George 1114) (Priority 1)
A Biodiversity Assessment of the Utah Point Berth Development, Port Hedland (Biota 2008)	April 2007	<ul style="list-style-type: none"> Detailed and Targeted Flora and Vegetation Survey Fauna Desktop Review 	One significant flora taxon recorded: <ul style="list-style-type: none"> <i>Bulbostylis burbridgeae</i> (Priority 4)
Flora			
Australian Renewable Energy Hub Detailed Flora and Vegetation Survey – Phases 1 to 4 (Biota 2024a)	<u>Phase 1:</u> August – September 2017 <u>Phase 2:</u> March 2018 <u>Phase 3:</u> March 2021 <u>Phase 4:</u> March – April 2023	<ul style="list-style-type: none"> Detailed and Targeted Flora and Vegetation Survey 	Nine significant flora taxa recorded: <ul style="list-style-type: none"> <i>Tephrosia rosea</i> var. Port Hedland (A.S. George 1114) (Priority 1) <i>Goodenia hartiana</i> (Priority 2) <i>Bonamia oblongifolia</i> (Priority 3) <i>Croton aridus</i> (Priority 3) <i>Indigofera ammobia</i> (Priority 3) <i>Phyllanthus</i> sp. aff. <i>hebecarpus</i> (Priority 3) <i>Polymeria</i> sp. Broome (K.F. Kennedally 9759) (Priority 3) <i>Terminalia kumpaja</i> (Priority 3) <i>Tribulopsis marliesiae</i> (Priority 3)
Detailed Flora and Vegetation Survey, Pardoo/Ridley (Focused Vision Consulting 2022)	May 2022	<ul style="list-style-type: none"> Detailed and Targeted Flora and Vegetation Survey 	One significant flora taxon recorded: <ul style="list-style-type: none"> <i>Rothia indica</i> subsp. <i>australis</i> (Priority 3)
Port Hedland Solar Saltfield Expansion Botanical Survey (Biota 2006)	September 2005	<ul style="list-style-type: none"> Detailed and Targeted Flora and Vegetation Survey 	No currently listed taxa recorded.
Fauna			
Ridley Project Detailed Terrestrial Vertebrate Fauna Survey (Biota 2024b)	November 2022 (Phase 1) June 2023 (Phase 2)	<ul style="list-style-type: none"> Level 2 fauna survey 	Five significant fauna species recorded: <ul style="list-style-type: none"> Northern Quoll (<i>Dasyurus hallucatus</i>) Pilbara Leaf-nosed Bat (<i>Rhinionicteris aurantia</i> Pilbara form) Ghost Bat (<i>Macroderma gigas</i>) Brush-tailed Mulgara (<i>Dasyurus blythi</i>) Western Pebble-mound Mouse (<i>Pseudomys chapmani</i>) Far Eastern Curlew (<i>Numenius madagascariensis</i>) Pacific Swift (<i>Apus pacificus</i>) Australian Tern (<i>Gelochelidon macrotarsa</i>) Peregrine Falcon (<i>Falco peregrinus</i>) Pilbara Olive Python (<i>Liasis olivaceus barroni</i>)

Report/Survey	Survey Timing	Survey Description	Relevant Findings
Ridley Services Corridors Basic and Targeted Vertebrate Fauna Survey (Biota 2024c)	June 2023 September 2023 (supplementary survey)	<ul style="list-style-type: none"> Basic and targeted terrestrial vertebrate fauna survey and habitat assessment 	Five significant fauna species recorded: <ul style="list-style-type: none"> Northern Quoll (<i>Dasyurus hallucatus</i>) Brush-tailed Mulgara (<i>Dasycercus blythi</i>) Western Pebble-mound Mouse (<i>Pseudomys chapmani</i>) Bar-tailed Godwit (<i>Limosa lapponica</i>) Migratory bird species
Roy Hill Port Expansion Project Biological Study (Biota 2023b)	4th to 8th November 2022	<ul style="list-style-type: none"> Basic and targeted terrestrial vertebrate fauna survey and habitat assessment 	Five significant fauna species recorded: <ul style="list-style-type: none"> Far Eastern Curlew (<i>Numenius madagascariensis</i>) Greater Sand Plover (<i>Charadrius leschenaultia</i>) Grey-tailed Tattler (<i>Tringa brevipes</i>) <i>Ctenotus angusticeps</i> Short-tailed Mouse (<i>Leggadina lakedownensis</i>)
Yarrie Pilbara Olive Python Monitoring	7th March to 6th April 2023 31st October to 7th November 2023 1st to 5th December 2023	<ul style="list-style-type: none"> Targeted Fauna Survey 	Pilbara Olive Python (<i>Liasis olivaceus barroni</i>)
Asian Renewable Energy Hub Detailed Fauna Assessment (Biota 2022a)	24th August to 5th September 2017 (Phase 1) 13th to 21st March 2018 (Phase 2) 8th to 19th March 2021 (Phase 3)	<ul style="list-style-type: none"> Level 2 fauna survey 	Eight significant fauna species recorded: <ul style="list-style-type: none"> Northern Quoll (<i>Dasyurus hallucatus</i>) Black-footed Rock-wallaby (<i>Petrogale lateralis lateralis</i>) Bilby (<i>Macrotis lagotis</i>) Dampierland Plain Slider (<i>Lerista separanda</i>) Spectacled Hare-wallaby (<i>Lagorchestes conspicillatus</i>) Brush-tailed Mulgara (<i>Dasycercus blythi</i>) Western Pebble-mound Mouse (<i>Pseudomys chapmani</i>) Migratory bird species
Australian Renewable Energy Hub Specialist Fauna Study: Migratory Shorebirds and Waterbirds (Biota 2018)	October 2017 (Phase 1) March 2018 (Phase 2)	<ul style="list-style-type: none"> Targeted terrestrial vertebrate fauna survey 	Nine significant fauna species recorded: <ul style="list-style-type: none"> Eastern Curlew (<i>Numenius madagascariensis</i>) Bar-tailed Godwit (<i>Limosa lapponica</i>) Great Knot (<i>Calidris tenuirostris</i>) Curlew Sandpiper (<i>Calidris ferruginea</i>) Lesser Sand Plover (<i>Charadrius mongolus</i>) Red Knot (<i>Calidris canutus</i>) Greater Sand Plover (<i>Charadrius leschenaultia</i>) Grey-tailed Tattler (<i>Tringa brevipes</i>) Migratory bird species

4.8 Significant Flora

One significant flora species has been previously recorded within the survey area, the Priority 4 species *Bulbostylis burbidgeae*. A species profile is provided below.

Bulbostylis burbidgeae

Priority 4

This small annual sedge (Plate 4.1) grows to 30 cm tall and is found in damp microhabitats such as granite outcrops and cliff bases. It is relatively widespread through the northeastern Pilbara, but rarely recorded due to its small size and ephemeral nature.

Seven records of this species were returned from the desktop study, one of which falls within the survey area. Specimen PERTH 04275098 was collected from "a soil pocket on a granite rock", apparently within the central section of the survey area. However, the described habitat does not fit with the underlying aerial imagery at that location. We suspect that the collection is actually from the large rocks approximately 700 m south of the record location, outside the survey area.



Plate 4.1: *Bulbostylis burbidgeae* (Priority 4).

In addition, a further 35 significant flora species were identified in the desktop study as having been previously recorded from the study area, comprising 11 Priority 1 species, three Priority 2 species, 19 Priority 3 species and two Priority 4 species. No Threatened flora species were returned during the desktop study.

Figure 4.6 shows the spatial location of all significant flora returned by the DBCA database search. A list of the significant species identified by the desktop study is provided in Appendix 6.

4.9 Significant Communities

One PEC is known to occur in the study area, Lime Land System (Priority 3) (Figure 4.7). Only one record of this PEC has been mapped within the study area, which is 40 km north of the survey area at the nearest point, 21 km east of Pardoo. The PEC is described as "*Calcareous plains supporting soft and hard spinifex grasslands and melaleuca shrublands*" (DBCA 2023).

The Priority 3 PEC 'Eighty Mile Land System' (Figure 4.7) also occurs within the study area (21.5 km north; (see Biota 2022b)) but was not returned as part of the DBCA communities database search and would not occur within the survey area.

4.10 Fauna

4.10.1 Assemblage

A total of 460 vertebrate fauna species were identified as potentially occurring in the study area based on the desktop study (Table 4.6; Appendix 7). Of these, 75 are listed as significant species (see Section 4.10.2).

Table 4.6: Vertebrate species returned from the desktop study.

Fauna Group	No. of Species	No. of Significant Species
Mammals	55	11
• Native terrestrial	(30)	(8)
• Introduced terrestrial	(10)	(-)
• Native bats	(15)	(3)
Birds	248	59
Reptiles	145	4
Amphibians	12	-
Total	460	74

4.10.2 Significant Vertebrate Fauna

A total of 74 vertebrate fauna species listed as significant under State or Federal legislation or policy were identified from the study area based on the desktop study. This includes 11 mammals, 59 birds and 4 reptile species.

The likelihood of occurrence of these species in the survey area was assessed for each species (see Appendix 8). This assessment took into account previous records identified in the area from the desktop study, available habitat in the survey area and findings from the field survey.

The locations of previous records of significant fauna are mapped in Figure 4.8 and Figure 4.9.

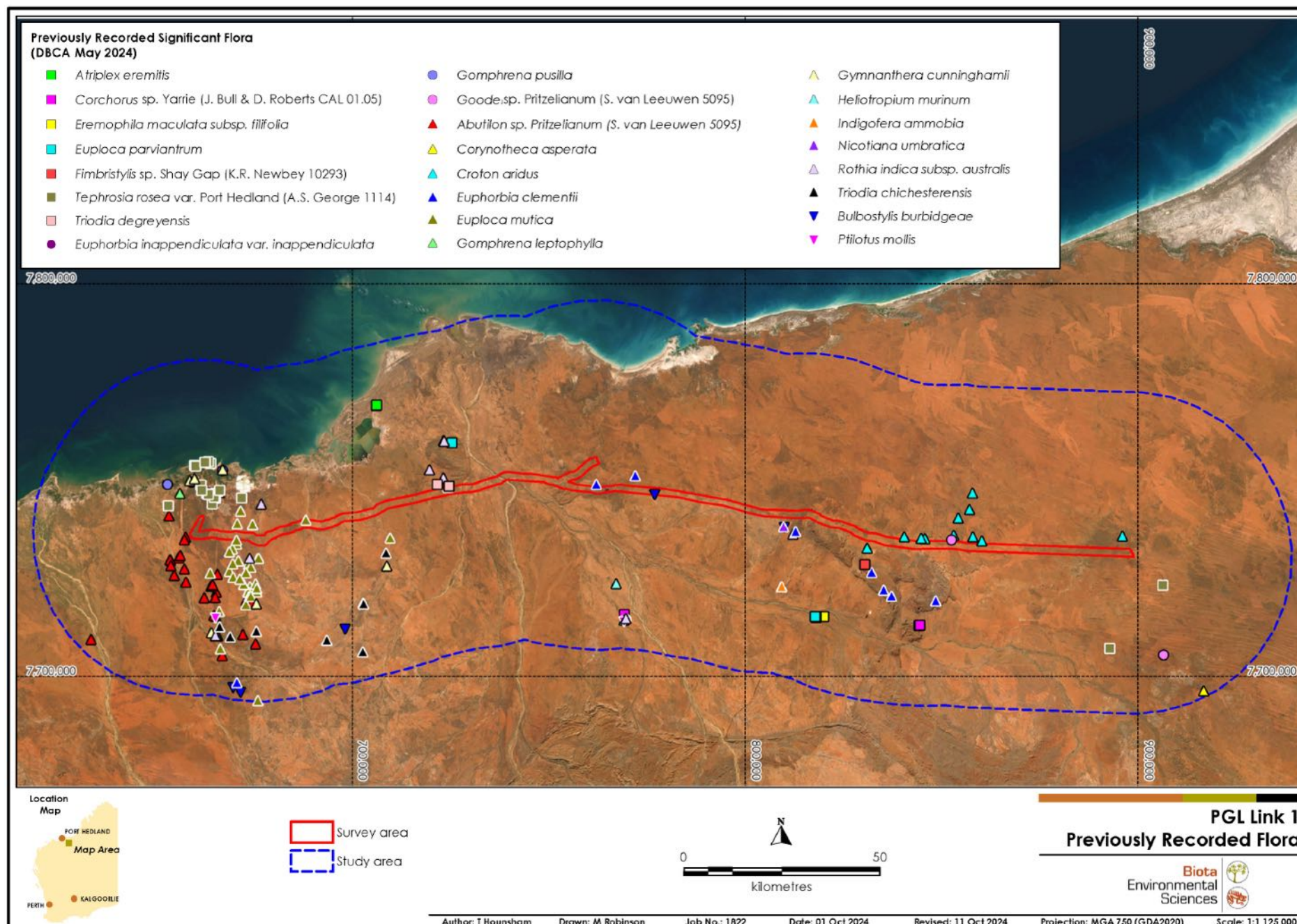


Figure 4.6: Previous significant flora records from the study area.

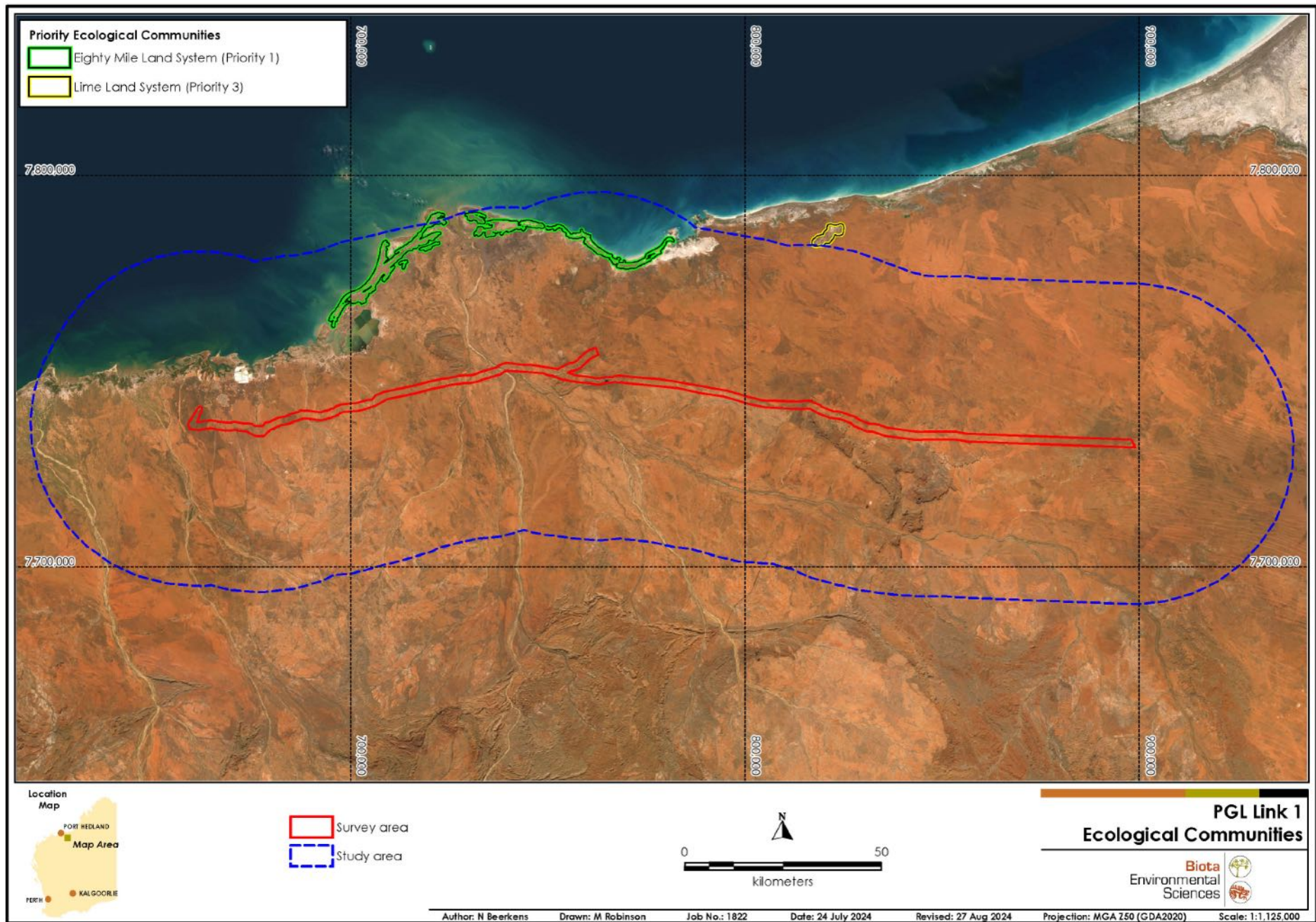


Figure 4.7: Significant ecological communities of the study area.

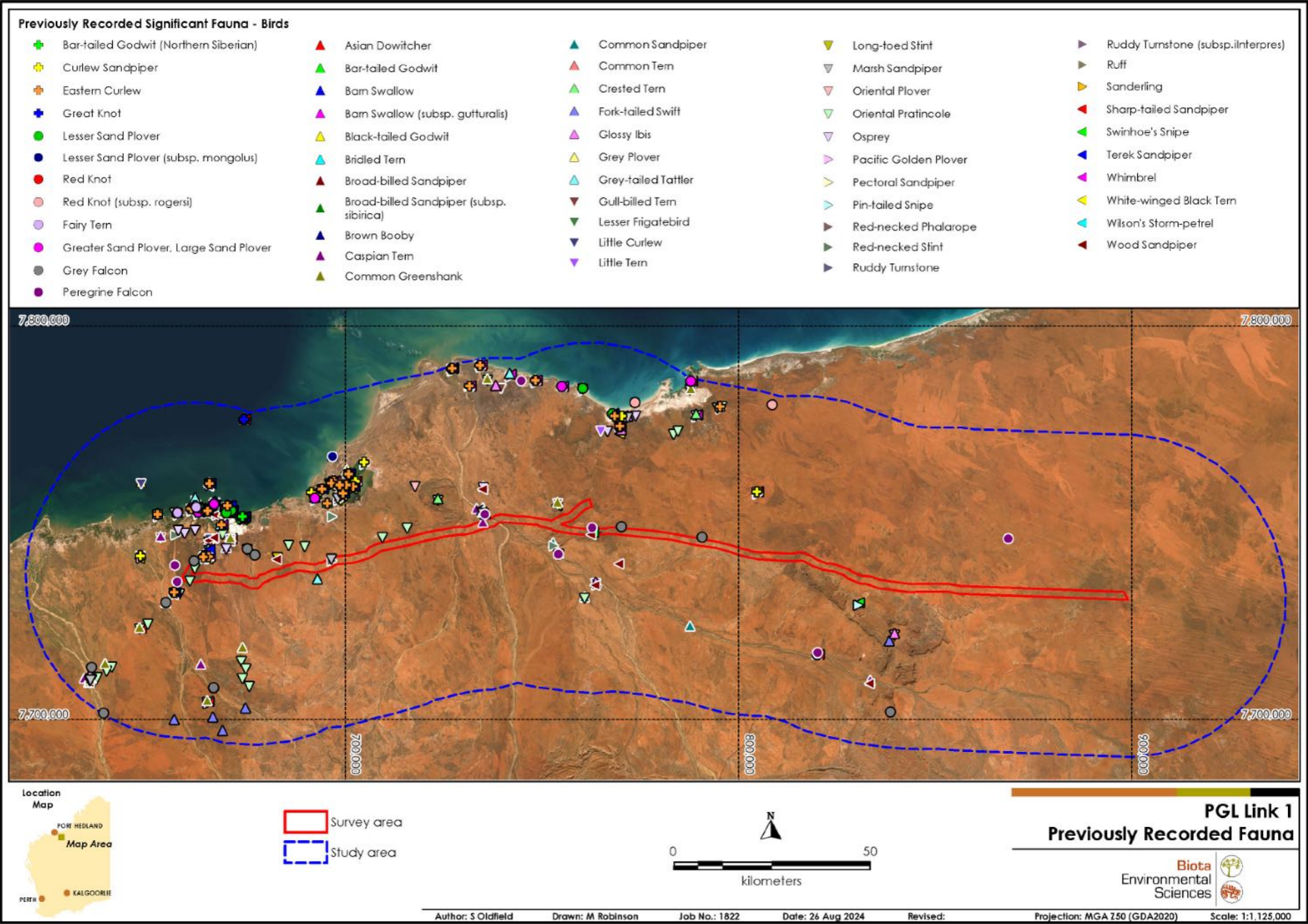


Figure 4.8: Previous significant fauna records of the study area.

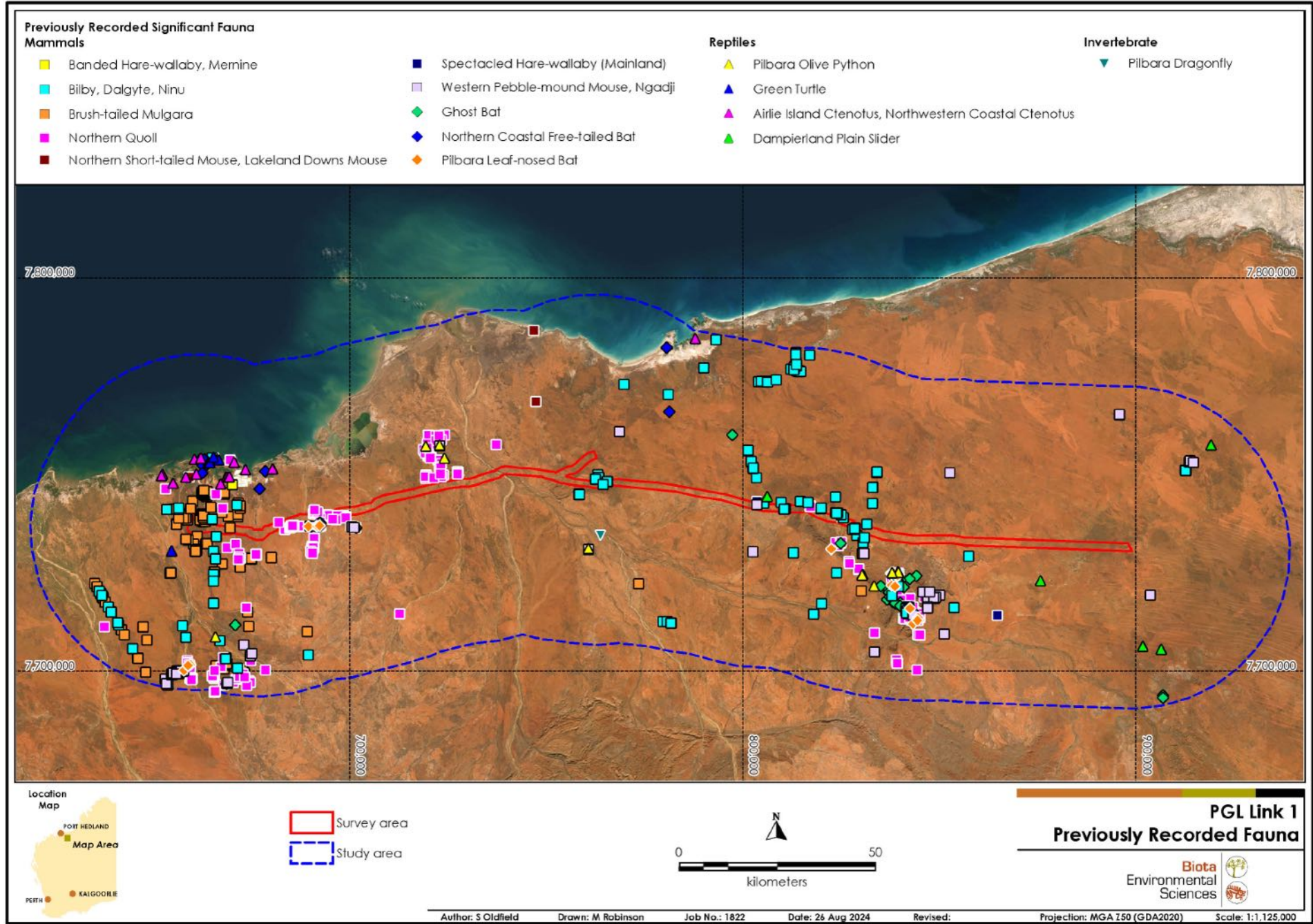


Figure 4.9: Previous significant fauna records of the study area.

4.10.3 SREs

Database searches returned six listed significant invertebrate species (all millipedes) from the study area. These were the Priority 1 *Antichiropus* millipedes; *Antichiropus* `DIP005, abydos`, *Antichiropus* `DIP006, Area C, species1`, *Antichiropus* `DIP007`, *Antichiropus* sp. `DIP008, Flinders`, *Antichiropus* sp. `DIP013, Cloudbreak` and *Antichiropus* sp. `DIP029, Mt Bruce`.

Consolidated data from the database searches yielded a total of 125 species-level taxa previously recorded from the study area (Appendix 7, Figure 4.10, Figure 4.11). These comprised:

- two described Araneomorphae spider species;
- seven described and eight nominal *Antichiropus* millipede species;
- 12 described and five nominal land snail species;
- nine described and 30 nominal mygalomorph spider species;
- four described and 15 nominal pseudoscorpion species; and
- nine described and 24 nominal scorpion species.

In addition, 13 land snail records and three pseudoscorpion records are represented by specimens not identified to species level.

Fifteen of the 125 taxa returned by the desktop study represented confirmed SREs, while 80 represented potential SREs, 29 are known not to be SREs, and one is a known species complex.

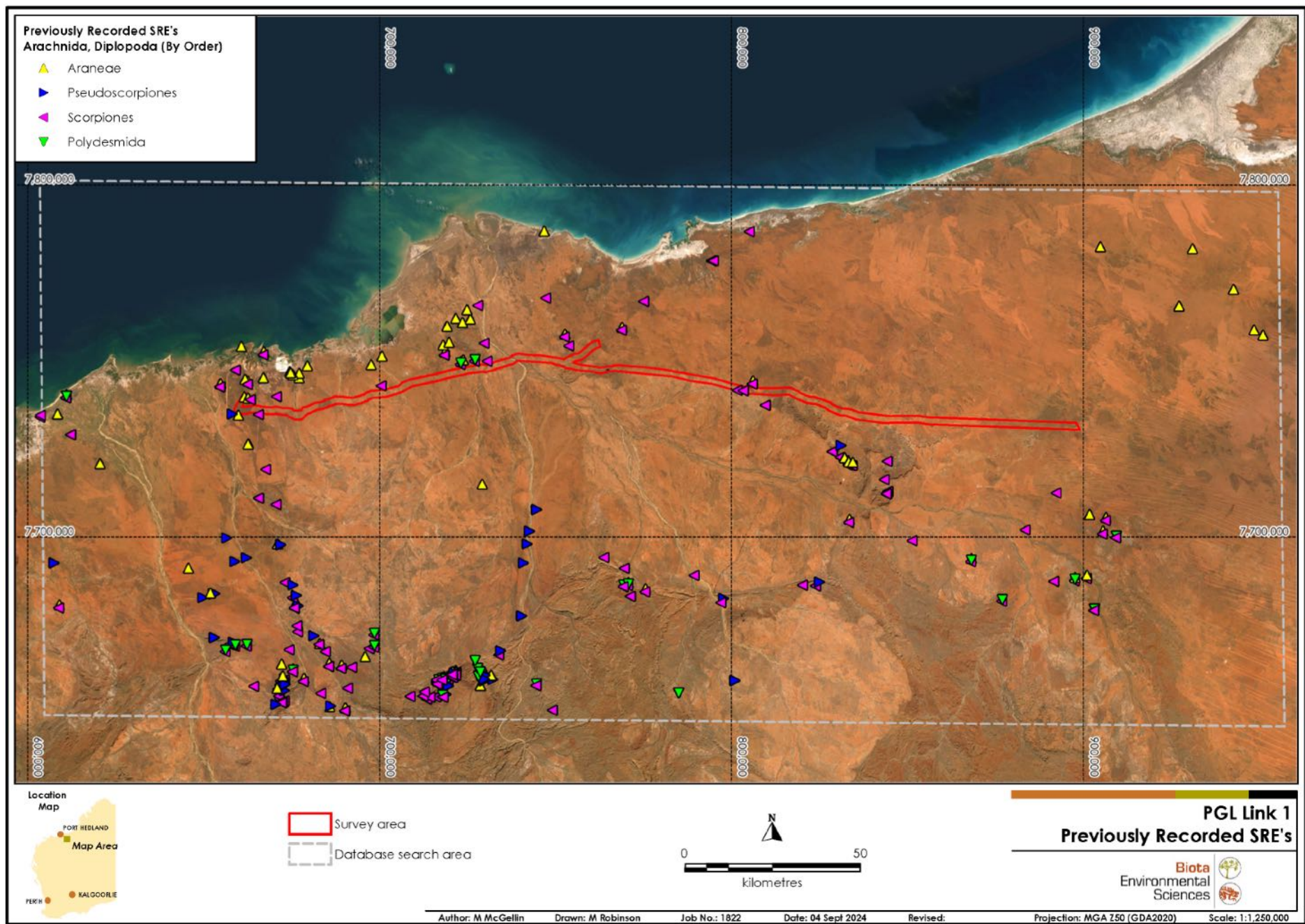


Figure 4.10: Arachnida and Diplopoda specimens previously collected from the study area.

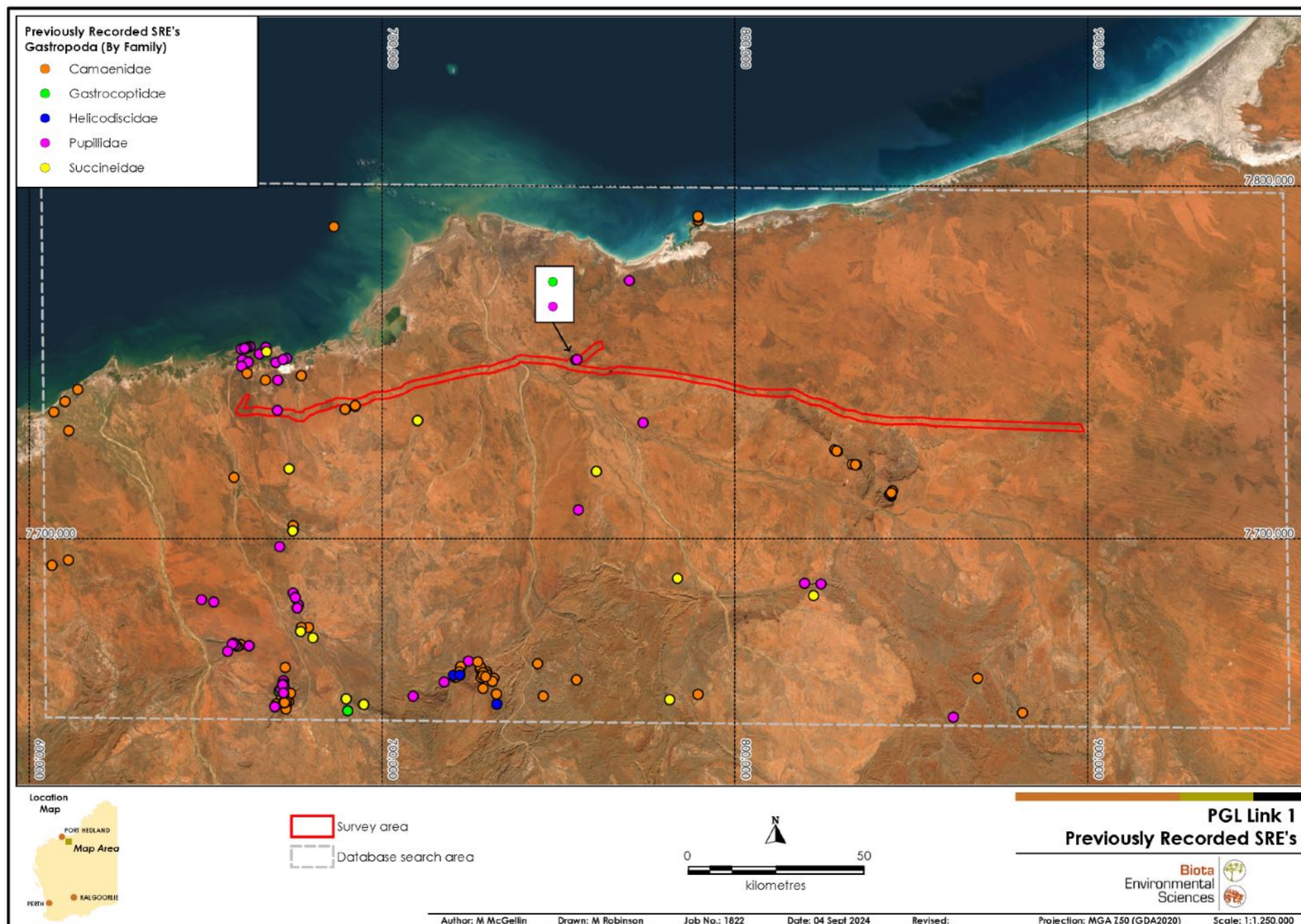


Figure 4.11: Gastropoda specimens previously collected from the study area.

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5.0 Survey Results

5.1 Vegetation

5.1.1 Overview of Vegetation Types

Twenty-four vegetation types were identified from the survey area, associated with six broad landforms:

- drainage areas;
- clay plains;
- sand dunes;
- plains;
- low stony rises; and
- rocky outcrops and breakaways.

Cleared areas were mapped separately as “NA”.

Vegetation types are mapped Appendix 9 and summarised in Table 5.1.

Drainage areas

The larger drainages were mapped into four separate vegetation types and encompassed major flowlines such as the De Grey River, Devils Creek, King Edward River and Turner River. Generally, the vegetation in these drainages consisted of an upper storey of *Eucalyptus camaldulensis* subsp. *refulgens* (River Gum) and/or *Eucalyptus victrix* open woodland to forest over *Melaleuca argentea* (Silver Cadjeput) over a tall *Acacia* (wattle) shrubland over mixed native and weedy tussock grasses and very open hummock grassland of *Triodia epactia*.

There were numerous minor drainage lines dissecting the low stony rises (vegetation sub-types H1d and H2e) and rocky outcrops (vegetation types R2a and R5b). The drainage lines supported an upper stratum of scattered low trees of *Corymbia* spp. over tall *Acacia* (wattle) shrubs over *Triodia epactia* open hummock grassland. These were not mapped separately due to their small size but are described below (Section 5.1.2).

Clay plains

Four clay plains vegetation types were mapped, all closely associated with the lower lying areas adjacent to the De Grey River and its tributaries. These clay units ranged from *Eriachne* spp. (Claypan Grass and Swamp Wanderrie) open to closed tussock grasslands to a floodplain of *Eucalyptus victrix* and *Lysiphyllum cunninghamii* (Bauhinia) low woodland over mixed tall shrubs over *Triodia epactia* open hummock grassland.

Sand dunes

The sand dunes of the survey area were typically long linear dunes tending east-west (vegetation type S2) dominated by scattered *Corymbia zygophylla* (Broome Bloodwood) low trees over mixed shrublands over very open hummock grasslands of *Triodia schinzii* (Feathertop spinifex) (consistent with the inland sand dunes unit S2 mapped as part of the AREH development envelope (Biota 2024a)). The other sand dune vegetation type (S1) was differentiated by having a rockier substrate with granite expressions and supported vegetation of *Corymbia flavesces* over a tall mixed shrubland over *Triodia epactia* open hummock grassland.

Plains

Five plains vegetation types were mapped, differentiated based on either location, substrate or the dominant tree, shrubs and *Triodia* species present. The P1 vegetation type was the dominant plains unit located in the western half of the survey area and was typically dominated by wattles;

with *Acacia inaequilatera* (Baderi) tall shrubs over *Acacia ancistrocarpa* (Fitzroy Wattle) and *Acacia stellaticeps* over *Triodia epactia* open hummock grassland. The P3 vegetation type was the dominant plain unit in the eastern half of the survey area, typically consisting of *Corymbia zygophylla* (Broome Bloodwood) scattered low trees over a tall wattle (*Acacia*) shrubland over *Triodia schinzii* and *Triodia epactia* hummock grasses. The P3 vegetation type is representative of the P3 unit mapped on pindan soils of the AREH development envelope (Biota 2024a)

Low stony rises

Low stony rises were mapped as three separate vegetation types based on the geology present (ironstone, calcrete and chert) and the composition of species (for example, the dominant *Triodia* species). The H1 vegetation type is consistent with the H1 unit mapped in the AREH development envelope (Biota 2024a), consisting of tall shrubs of *Grevillea wickhamii* (Wickham's Grevillea) over an open shrubland of wattles, *Acacia hilliana* (Hill's Tabletop Wattle) and *Acacia adoxa* var. *adoxo* (Grey Whorled Wattle) over *Triodia epactia* with the sub-type H1a mapped as part of this survey containing the dominant hummock grass as *Triodia scintillans*. The H1 vegetation type was the dominant low stony rise unit within the eastern quarter of the survey area, with H2 being the dominant overall. H2 comprised of low stony calcrete rises of *Acacia robeorum* and *Acacia inaequilatera* scattered tall shrubs over *Acacia stellaticeps* over hard spinifex (*Triodia wiseana*, *T. angusta*) with stony lower plains of *Corymbia hamersleyana* scattered low trees over a low shrubland of wattles (*Acacia stellaticeps* and *Acacia bivenosa*) over *Triodia epactia* open hummock grassland. The H2 unit also encompassed the granite boulders (sub-type H2c) where indigenous art was observed during the field survey.

Rocky outcrops and breakaways

Rocky outcrops and breakaways were mapped as six separate vegetation types based on the geology present (granite or ironstone), location along the survey area corridor and the dominant wattle (*Acacia*) species present. Across all the rocky outcropping vegetation types, the vegetation consisted of a tall open shrubland of wattles (*Acacia colei*, *A. orthocarpa* and/or *A. ancistrocarpa*) over *Triodia epactia* open to very open hummock grassland, with *Corymbia hamersleyana* present within the minor drainages of the R2 and R5 units. The R2 vegetation type occurred in the center of the survey area and was the dominant unit of this landform, covering 6% extent in survey area, comparative to the other five units which were below 1%.

Table 5.1: Summary of vegetation types recorded from the survey area.

Broad Landform	Vegetation		Description	Extent in Survey Area	
	Type	Sub-Type		Hectares	Proportion
Drainage Areas	D1	-	<i>Melaleuca argentea</i> , <i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i> open forest over <i>Ficus aculeata</i> var. <i>indecora</i> scattered low trees over * <i>Calotropis procera</i> tall open scrub over <i>Indigofera oblongifolia</i> tall shrubland over * <i>Cenchrus setiger</i> , * <i>Cynodon dactylon</i> open tussock grassland over * <i>Argemone ochroleuca</i> subsp. <i>ochroleuca</i> scattered herbs.	343.2	0.7%
	D2	-	<i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i> and/or <i>Eucalyptus victrix</i> open to low open woodland over <i>Melaleuca argentea</i> tall open scrub to open woodland over <i>Acacia trachycarpa</i> , <i>Acacia colei</i> tall shrubland over <i>Corchorus</i> ? <i>incanus</i> subsp. <i>incanus</i> scattered low shrubs over <i>Triodia epactia</i> open to very open hummock grassland over * <i>Cenchrus</i> spp. scattered to very open tussock grassland.	578.4	1.2%
	D3	-	<i>Corymbia flavescens</i> low open woodland over <i>Acacia tumida</i> var. <i>pilbarensis</i> over <i>Triodia epactia</i> scattered to very open hummock grassland over mixed native tussock grasses.	64.9	0.1%
	D4	-	<i>Eucalyptus victrix</i> low woodland over <i>Lysiphyllum cunninghamii</i> low open woodland over <i>Acacia trachycarpa</i> , <i>Acacia colei</i> var. <i>colei</i> , <i>Acacia ancistrocarpa</i> , <i>Atalaya hemiglauca</i> tall shrubland over <i>Carissa lanceolata</i> open shrubland over <i>Chrysopogon fallax</i> open tussock grassland.	22.2	<0.1%
Clay Plains	C1	-	<i>Eriachne</i> spp. open to closed tussock grassland.	1,333.3	2.7%
	C2	-	<i>Acacia</i> spp., <i>Indigofera</i> spp., <i>Senna</i> spp. scattered low shrubs over <i>Triodia epactia</i> very open to hummock grassland.	1,255.5	2.5%
	C3	-	<i>Triodia epactia</i> open hummock to hummock grassland.	1,575.5	3.1%
	C4	-	<i>Eucalyptus victrix</i> , <i>Lysiphyllum cunninghamii</i> low open woodland over <i>Acacia tumida</i> var. <i>pilbarensis</i> scattered tall shrubs over <i>Atalaya hemiglauca</i> , <i>Acacia stellaticeps</i> low open shrubland over <i>Corchorus</i> ? <i>incanus</i> subsp. <i>incanus</i> , <i>Bonamia alatisemina</i> scattered low shrubs over <i>Triodia epactia</i> open hummock grassland.	120.5	0.2%
Sand Dunes	S1	-	<i>Corymbia flavescens</i> low open woodland over <i>Acacia tumida</i> var. <i>pilbarensis</i> , <i>Acacia ancistrocarpa</i> tall shrubland over <i>Grevillea refracta</i> subsp. <i>refracta</i> , <i>Petalostylis labicheoides</i> open shrubland over <i>Acacia adoxa</i> var. <i>adoxa</i> , <i>Acacia hilliana</i> low shrubland over <i>Triodia epactia</i> open hummock grassland over <i>Grevillea wickhamii</i> , <i>Bonamia erecta</i> low shrubland.	10.7	<0.1%
	S2	-	<i>Corymbia zygophylla</i> scattered low trees over <i>Acacia</i> spp. scattered tall shrubs over <i>Dicrastylis doranii</i> low open shrubland over <i>Triodia schinzii</i> very open hummock grassland over <i>Aristida holathera</i> var. <i>holathera</i> scattered tussock grasses.	10.2	<0.1%

Broad Landform	Vegetation		Description	Extent in Survey Area	
	Type	Sub-Type		Hectares	Proportion
Plains	P1	a	<i>Acacia inaequilatera</i> scattered tall shrubs over <i>Acacia ancistrocarpa</i> scattered shrubs over <i>Acacia stellaticeps</i> scattered to low open shrubland over <i>Triodia epactia</i> scattered tussocks to open hummock grassland.	13,224.1	26.4%
		b	<i>Eucalyptus victrix</i> low woodland over <i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia colei</i> var. <i>colei</i> tall open shrubland over <i>Triodia epactia</i> open hummock grassland.		
	P2	-	<i>Lysiphyllum cunninghamii</i> scattered low trees over <i>Acacia inaequilatera</i> tall shrubland over <i>Triodia ? longiceps</i> very open hummock grassland.	1,173.8	2.3%
	P3	-	<i>Corymbia zygophylla</i> scattered low trees to low open woodland over <i>Grevillea refracta</i> subsp. <i>refracta</i> , <i>Acacia tumida</i> , <i>Acacia ancistrocarpa</i> , <i>Acacia eriopoda</i> , <i>Acacia monticola</i> tall open shrubland over <i>Jacksonia aculeata</i> , <i>Croton aridus</i> low open shrubland over <i>Triodia schinzii</i> (<i>T. epactia</i>) open to very open hummock grassland.	15,425.1	30.8%
	P4	-	<i>Acacia inaequilatera</i> , <i>Acacia ancistrocarpa</i> , <i>Grevillea wickhamii</i> tall open shrubland over <i>Acacia stellaticeps</i> low open shrubland over <i>Triodia epactia</i> (<i>T. wiseana</i> , <i>T. angusta</i>) open to very open hummock grassland.	2,490.8	5.0%
	P5	-	<i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia stellaticeps</i> , <i>Acacia adoxa</i> var. <i>adoxo</i> low open shrubland over <i>Triodia epactia</i> hummock grassland.	1,579.4	3.2%
Low Stony Rises	H1	a	<i>Grevillea wickhamii</i> scattered tall shrubs <i>Acacia hilliana</i> , <i>Acacia stellaticeps</i> low open shrubland over <i>Triodia scintillans</i> hummock grassland to open hummock grassland.	1,909.0	3.8%
		b	<i>Corymbia hamersleyana</i> scattered low trees over <i>Grevillea wickhamii</i> , <i>Acacia</i> spp. scattered tall shrubs over <i>Acacia hilliana</i> , <i>Acacia stellaticeps</i> scattered low shrubs over <i>Triodia epactia</i> open to very open hummock grassland.		
		c	<i>Acacia bivenosa</i> , <i>Carissa lanceolata</i> scattered shrubs over <i>Acacia adoxa</i> var. <i>adoxo</i> scattered low shrubs over <i>Triodia wiseana</i> very open hummock grassland over scattered native tussock grasses.		
		d	<i>Corymbia flavescens</i> scattered low trees to low open woodland over <i>Acacia elachantha</i> , <i>Acacia ancistrocarpa</i> , <i>Acacia colei</i> tall open shrubland over <i>Triodia epactia</i> open to very open hummock grassland.		
	H2	a	<i>Acacia robeorum</i> scattered tall shrubs over <i>Acacia stellaticeps</i> low open shrubland over <i>Triodia angusta</i> (<i>Triodia wiseana</i> , <i>T. epactia</i>) hummock grassland to very open hummock grassland.	3,786.4	7.6%
		b	<i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia stellaticeps</i> , <i>Acacia bivenosa</i> low shrubland to open shrubland over <i>Triodia epactia</i> open to very open hummock grassland.		
		c	<i>Gyrocarpus americanus</i> subsp. <i>pachyphyllus</i> scattered low trees over <i>Carissa lanceolatum</i> , <i>Flueggea virosa</i> subsp. <i>melanthesoides</i> scattered tall shrubs over * <i>Cenchrus ciliaris</i> very open tussock grassland and <i>Triodia epactia</i> scattered hummock grasses.		
		d	<i>Acacia inaequilatera</i> scattered tall shrubs over <i>Triodia wiseana</i> (<i>T. epactia</i>) open hummock grassland.		
		e	<i>Corymbia flavescens</i> scattered low trees over <i>Acacia colei</i> var. <i>colei</i> scattered tall shrubs over <i>Acacia stellaticeps</i> low open shrubland over <i>Triodia epactia</i> open hummock grassland over * <i>Cenchrus ciliaris</i> scattered tussock grasses.		
	H3	-	<i>Acacia inaequilatera</i> scattered shrubs over <i>Triodia epactia</i> scattered to open hummock grassland.	211.0	0.4%

Broad Landform	Vegetation		Description	Extent in Survey Area	
	Type	Sub-Type		Hectares	Proportion
Rocky Outcrops and Breakaways	R1	-	<i>Atalaya hemiglauc</i> a scattered low trees over <i>Acacia colei</i> scattered shrubs over <i>Triodia epactia</i> very open hummock grassland.	52.2	0.1%
	R2	a	<i>Corymbia hamersleyana</i> low open woodland over <i>Acacia tumida</i> var. <i>pilbarensis</i> , <i>Acacia acradenia</i> tall open scrub over <i>Triodia epactia</i> (<i>T. wiseana</i>) open to very open hummock grassland over * <i>Cenchrus ciliaris</i> scattered tussock grasses.	3,005.7	6.0%
		b	<i>Triodia epactia</i> hummock grassland.		
		c	<i>Terminalia circumalata</i> scattered tall shrubs to tall shrubland over <i>Triodia epactia</i> hummock grassland to very open hummock grassland over mixed scattered tussock grasses.		
		d	<i>Acacia inaequilatera</i> , <i>Grevillea</i> spp. scattered tall shrubs over <i>Triodia epactia</i> open hummock grassland.		
	R3	-	<i>Acacia orthocarpa</i> open shrubland over <i>Triodia epactia</i> very open hummock grassland over <i>Eriachne mucronata</i> (Typical Form) scattered tussock grasses over <i>Goodenia</i> ? <i>scaevolina</i> scattered herbs.	17.1	<0.1%
	R4	-	<i>Acacia colei</i> scattered to tall open shrubland over <i>Triodia epactia</i> very open hummock grassland.	7.4	<0.1%
	R5	a	<i>Acacia inaequilatera</i> scattered tall shrubs over <i>Triodia epactia</i> open to very open hummock grassland.	351.7	0.7%
		b	<i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia tumida</i> var. <i>pilbarensis</i> tall shrubland over <i>Triodia epactia</i> open hummock grassland.		
	R6	-	<i>Acacia ancistrocarpa</i> , <i>Acacia colei</i> tall open shrubland over <i>Acacia adoxa</i> var. <i>adox</i> a low open shrubland over <i>Triodia epactia</i> open hummock grassland.	968.9	1.9%
Cleared/NA	NA	-	Cleared vegetation for roads, mining and rails.	602.7	1.2%

5.1.2 Description of Vegetation Types

5.1.2.1 Vegetation of Drainage Areas

Vegetation type D1 is representative of Beard's Abydos Plain 619 unit (see Table 4.2) and encompassed the De Grey River.

D1:	<i>Melaleuca argentea</i>, <i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i> open forest over <i>Ficus aculeata</i> var. <i>indecora</i> scattered low trees over *<i>Calotropis procera</i> tall open scrub over <i>Indigofera oblongifolia</i> tall shrubland over *<i>Cenchrus setiger</i>, *<i>Cynodon dactylon</i> open tussock grassland over *<i>Argemone ochroleuca</i> subsp. <i>ochroleuca</i> scattered herbs.
Distribution and Extent	This vegetation type was recorded on the banks of the De Grey River (Plate 5.1).
Other Associated Species	<p><u>Trees/Tall Shrubs:</u> <i>Acacia colei</i> var. <i>colei</i>, <i>Atalaya hemiglauca</i>, <i>Lysiphyllum cunninghamii</i>, *<i>Parkinsonia aculeata</i>.</p> <p><u>Shrubs:</u> <i>Carissa lanceolata</i>, *<i>Vachellia farnesiana</i>.</p> <p><u>Low Shrubs:</u> <i>Melhania oblongifolia</i>, *<i>Sigesbeckia orientalis</i></p> <p><u>Grasses/Sedges:</u> *<i>Cenchrus ciliaris</i>, <i>Cyperus vaginatus</i>, *<i>Echinochloa colona</i>, <i>Eragrostis tenellula</i>, <i>Setaria dielsii</i>.</p> <p><u>Climbers:</u> *<i>Passiflora foetida</i> var. <i>foetida</i>.</p> <p><u>Herbs:</u> <i>Alternanthera denticulata</i>, <i>Cathetus exilis</i>, <i>Rostellularia adscendens</i> var. <i>clementii</i>.</p>
Vegetation Condition	Poor to Good; Cattle activity and scats present along with numerous weeds; including the WoNS * <i>Parkinsonia aculeata</i> and Declared Pest * <i>Calotropis procerus</i> .
Sites in the Survey Area	HPL130.



Plate 5.1: Vegetation type D1 (HPL130).

Vegetation type D2 is representative of Beard's Abydos Plain 619 unit (see Table 4.2).

D2:	<i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i> and/or <i>Eucalyptus victrix</i> open to low open woodland over <i>Melaleuca argentea</i> tall open scrub to open woodland over <i>Acacia trachycarpa</i>, <i>Acacia colei</i> tall shrubland over <i>Corchorus ? incanus</i> subsp. <i>incanus</i> scattered low shrubs over <i>Triodia epactia</i> open to very open hummock grassland over *<i>Cenchrus</i> spp. scattered to very open tussock grassland.
Distribution and Extent	This vegetation type was recorded from moderate drainages along the western half of the survey area; this vegetation type was found at Devils Creek, King Edward River, Turner River and tributaries to the De Grey River (Plate 5.2 and Plate 5.3).
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Corymbia flavescens</i> , <i>Corymbia hamersleyana</i> . <u>Shrubs:</u> * <i>Calotropis procerus</i> . <u>Low Shrubs:</u> <i>Afrohybanthus aurantiacus</i> , <i>Arivela viscosa</i> , <i>Crotalaria cunninghamii</i> , <i>Tephrosia</i> sp. B Kimberley Flora (C.A. Gardner 7300). <u>Climbers:</u> <i>Cynanchum floribundum</i> , <i>Passiflora foetida</i> var. <i>hispida</i> , <i>Tinospora smilacina</i> . <u>Grasses:</u> <i>Cymbopogon ambiguus</i> . <u>Herbs:</u> <i>Euphorbia australis</i> var. <i>subtomentosa</i> , <i>Ptilotus fusiformis</i> , <i>Trianthema pilosum</i> .
Vegetation Condition	Poor to Very Good; cattle activity and areas of high weed cover.
Sites in the Survey Area	HPL135, HPL146, HPL156, HPL157, HPL166 and HPL167.



Plate 5.2: Vegetation type D2 (HPL146).



Plate 5.3: Vegetation type D2 (HPL166).

D3:	<i>Corymbia flavescens</i> low open woodland over <i>Acacia tumida</i> var. <i>pilbarensis</i> over <i>Triodia epactia</i> scattered to very open hummock grassland over mixed native tussock grasses.
Distribution and Extent	This vegetation type was recorded from two sites along a moderate drainage within the eastern half of the survey area (Plate 5.4 and Plate 5.5).
Other Associated Species	<u>Low Shrubs:</u> <i>Afrohybanthus aurantiacus</i> , <i>Arivela viscosa</i> , <i>Jasminum didymum</i> subsp. <i>lineare</i> , <i>Solanum diversiflorum</i> , <i>Waltheria indica</i> . <u>Grasses:</u> <i>Paspalidium rorum</i> .
Vegetation Condition	Very Good to Excellent.
Sites in the Survey Area	HPL060 and HPL062.



Plate 5.4: Vegetation type D3 (HPL060).



Plate 5.5: Vegetation type D3 (HPL062).

D4:	<i>Eucalyptus victrix</i> low woodland over <i>Lysiphyllum cunninghamii</i> low open woodland over <i>Acacia trachycarpa</i>, <i>Acacia colei</i> var. <i>colei</i>, <i>Acacia ancistrocarpa</i>, <i>Atalaya hemiglauca</i> tall shrubland over <i>Carissa lanceolata</i> open shrubland over <i>Chrysopogon fallax</i> open tussock grassland (when in leaf).
Distribution and Extent	This vegetation type was recorded within the moderate drainage at the most northern part of the survey area along Great Northern Highway (Plate 5.6).
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Acacia acradenia</i> . <u>Shrubs:</u> <i>Senna artemisioides</i> subsp. <i>oligophylla</i> <u>Low Shrubs:</u> <i>Sida</i> ? <i>fibulifera</i> . <u>Grasses:</u> <i>Chrysopogon fallax</i> . <u>Herbs:</u> <i>Rhynchosia minima</i> .
Vegetation Condition	Good.
Sites in the Survey Area	HPL109.



Plate 5.6: Vegetation type D4 (HPL109).

5.1.2.2 Vegetation of Clay Plains

C1:	<i>Eriachne</i> spp. open to closed tussock grassland.
Distribution and Extent	This vegetation type was recorded on clay plains located within the central portion of the survey area (Plate 5.7 and Plate 5.8).
Other Associated Species	<p><u>Shrubs:</u> <i>Sesbania cannabina</i>.</p> <p><u>Low Shrubs:</u> <i>Corchorus tridens</i>, <i>Nelica maderaspatensis</i>, <i>Sida</i> ? <i>fibulifera</i>.</p> <p><u>Grasses:</u> <i>Eragrostis xerophila</i>, <i>Eriachne</i> ? <i>benthamii</i>, <i>Eriachne</i> ? <i>flaccida</i>, <i>Eriachne</i> ? <i>glauca</i> var. <i>glauca</i>, <i>Panicum laevinode</i>, <i>Triodia epactia</i>.</p> <p><u>Climbers:</u> <i>Ipomoea coptica</i>.</p> <p><u>Herbs:</u> <i>Alysicarpus muelleri</i>, <i>Ptilotus murrayi</i>.</p>
Vegetation Condition	Poor to Very Good; cattle activity and weed presence.
Sites in the Survey Area	HPL106, HPL107, HPL137, HPL138 and HPL139A.



Plate 5.7: Vegetation type C1 (HPL107).



Plate 5.8: Vegetation type C1 (HPL137).

C2:	<i>Acacia</i> spp., <i>Indigofera</i> spp., <i>Senna</i> spp. scattered low shrubs over <i>Triodia epactia</i> very open to hummock grassland.
Distribution and Extent	This vegetation type was recorded on loamy clay floodplains in the central portion of the survey area (Plate 5.9 and Plate 5.10).
Other Associated Species	<p><u>Trees/Tall Shrubs:</u> <i>Lysiphyllum cunninghamii</i>.</p> <p><u>Low Shrubs:</u> <i>Pluchea tetranthera</i>.</p> <p><u>Herbs:</u> <i>Ptilotus murrayi</i>.</p>
Vegetation Condition	Good to Very Good; cattle activity and weed presence.
Sites in the Survey Area	HPL108, HPL131, HPL132, HPL133, HPL134 and HPL136.



Plate 5.9: Vegetation type C2 (HPL108).



Plate 5.10: Vegetation type C2 (HPL134).

C3:	<i>Triodia epactia</i> open hummock to hummock grassland.
Distribution and Extent	This vegetation type was recorded on flat clay plains located within the central portion of the survey area (Plate 5.11 and Plate 5.12).
Other Associated Species	<u>Shrubs:</u> <i>Acacia stellaticeps</i> . <u>Low Shrubs:</u> <i>Corchorus incanus</i> subsp. <i>incanus</i> , <i>Pluchea tetranthera</i> . <u>Grasses:</u> <i>Panicum australiense</i> var. <i>australiense</i> .
Vegetation Condition	Good to Very Good; cattle activity.
Sites in the Survey Area	Relevés HPL124, HPL127, HPL139B, HPL140 and HPL141.



Plate 5.11: Vegetation type C3 (HPL140).



Plate 5.12: Vegetation type C3 (HPL127).

C4:	<i>Eucalyptus victrix</i>, <i>Lysiphyllum cunninghamii</i> low open woodland over <i>Acacia tumida</i> var. <i>pilbarensis</i> scattered tall shrubs over <i>Atalaya hemiglauca</i>, <i>Acacia stellaticeps</i> low open shrubland over <i>Corchorus ? incanus</i> subsp. <i>incanus</i>, <i>Bonamia alatisemina</i> scattered low shrubs over <i>Triodia epactia</i> open hummock grassland.
Distribution and Extent	This vegetation type was recorded on a floodplain located within the central portion of the survey area, and was distinguished from the other clay types by having an upper storey of <i>Eucalyptus victrix</i> (Plate 5.13).
Other Associated Species	<u>Shrubs:</u> <i>Carissa lanceolata</i> . <u>Low Shrubs:</u> <i>Indigofera oblongifolia</i> , <i>Pluchea tetranthera</i> .
Vegetation Condition	Good; cattle activity.
Sites in the Survey Area	HPL136A.



Plate 5.13: Vegetation type C4 (HPL136A).

5.1.2.3 Vegetation of Sand Dunes

S1:	<i>Corymbia flavescens</i> low open woodland over <i>Acacia tumida</i> var. <i>pilbarensis</i>, <i>Acacia ancistrocarpa</i> tall shrubland over <i>Grevillea refracta</i> subsp. <i>refracta</i>, <i>Petalostylis labicheoides</i> open shrubland over <i>Acacia adoxa</i> var. <i>adoxo</i>, <i>Acacia hilliiana</i> low shrubland over <i>Triodia epactia</i> open hummock grassland over <i>Grevillea wickhamii</i>, <i>Bonamia erecta</i> low shrubland.
Distribution and Extent	This vegetation type was recorded from the eastern half of the survey area on a sand dune.
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Corymbia zygophylla</i> , <i>Hakea lorea</i> subsp. <i>lorea</i> . <u>Shrubs:</u> <i>Dodonaea coriacea</i> . <u>Low Shrubs:</u> <i>Afrohybanthus aurantiacus</i> , <i>Dampiera candidans</i> , <i>Indigofera monophylla</i> , <i>Isotropis atropurpurea</i> , <i>Leptosema anomalum</i> , <i>Ptilotus astrolasius</i> . <u>Grasses:</u> <i>Amphipogon sericeus</i> , <i>Aristida holathera</i> var. <i>holathera</i> , <i>Aristida inaequiglumis</i> , <i>Chrysopogon fallax</i> , <i>Eragrostis eriopoda</i> , <i>Eriachne mucronata</i> , <i>Paraneurachne muelleri</i> .
Vegetation Condition	Excellent.
Sites in the Survey Area	HPL055.

S2:	<i>Corymbia zygophylla</i> scattered low trees over <i>Acacia</i> spp. scattered tall shrubs over <i>Dicrastylis doranii</i> low open shrubland over <i>Triodia schinzii</i> very open hummock grassland over <i>Aristida holathera</i> var. <i>holathera</i> scattered tussock grasses.
Distribution and Extent	This vegetation type was recorded from the eastern half of the survey area on sand dunes. This vegetation type is representative of unit S2 from the AREH development envelope (Biota 2024a)
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Grevillea stenobotrya</i> . <u>Shrubs:</u> <i>Calytrix carinata</i> . <u>Grasses:</u> <i>Triodia epactia</i> . <u>Herbs:</u> <i>Trianthema pilosum</i> .
Vegetation Condition	Excellent.
Sites in the Survey Area	HPL040 and HPL042.



Plate 5.14: Vegetation type S2 (HPL040).



Plate 5.15: Vegetation type S2 (HPL042).

5.1.2.4 Vegetation of Plains

Vegetation type P1 is representative of Beard's Abydos Plain – Chichester 93 unit (see Table 4.2).

P1a:	<i>Acacia inaequilatera</i> scattered tall shrubs over <i>Acacia ancistrocarpa</i> scattered shrubs over <i>Acacia stellaticeps</i> scattered to low open shrubland over <i>Triodia epactia</i> scattered tussocks to open hummock grassland.
Distribution and Extent	This vegetation sub-type was the dominant type on flat sandy clay loam plains within the western half of the survey (Plate 5.16 and Plate 5.17).
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Acacia sericophylla</i> , <i>Acacia tumida</i> var. <i>pilbarensis</i> , <i>Corymbia hamersleyana</i> , <i>Grevillea pyramidalis</i> subsp. <i>leucadendron</i> , <i>Hakea lorea</i> subsp. <i>lorea</i> . <u>Shrubs:</u> <i>Dodonaea coriacea</i> . <u>Low Shrubs:</u> * <i>Aerva javanica</i> , <i>Bonamia alatisemina</i> , <i>Bonamia erecta</i> , <i>Pluchea tetranthera</i> , <i>Ptilotus astrolasius</i> , <i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543). <u>Climbers:</u> <i>Cassytha capillaris</i> , <i>Tinospora smilacina</i> . <u>Grasses:</u> <i>Eriachne mucronata</i> , <i>Triodia secunda</i> . <u>Herbs:</u> <i>Trigastrotheca molluginea</i> .
Vegetation Condition	Poor to Excellent; cattle activity and weed presence.
Sites in the Survey Area	HPL143, HPL144, HPL145, HPL149, HPL150, HPL152, HPL158, HPL159, HPL164, HPL168, HPL169, HPL170, HPL171, HPL173, HPL174, HPL175, HPL177, HPL178, HPL179, HPL180 and HPL181.



Plate 5.16: Vegetation type P1a (HPL169).



Plate 5.17: Vegetation type P1a (HPL180).

P1b:	<i>Eucalyptus victrix</i> low woodland over <i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia colei</i> var. <i>colei</i> tall open shrubland over <i>Triodia epactia</i> open hummock grassland.
Distribution and Extent	This vegetation sub-type was isolated in a small part of the survey area close to Port Hedland (Plate 5.18).
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Corymbia deserticola</i> subsp. <i>deserticola</i> . <u>Shrubs:</u> <i>Capparis spinosa</i> subsp. <i>nummularia</i> . <u>Grasses:</u> <i>Chrysopogon fallax</i> .
Vegetation Condition	Very Good to Excellent; some cattle activity.
Sites in the Survey Area	HPL172.



Plate 5.18: Vegetation type P1b (HPL172).

P2:	<i>Lysiphyllum cunninghamii</i> scattered low trees over <i>Acacia inaequilatera</i> tall shrubland over <i>Triodia ? longiceps</i> very open hummock grassland.
Distribution and Extent	This vegetation type was located on the floodplains adjacent to the De Grey River (Plate 5.19 and Plate 5.20).
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Corymbia flavescens</i> , <i>Hakea lorea</i> subsp. <i>lorea</i> . <u>Shrubs:</u> * <i>Calotropis procerus</i> , * <i>Vachellia farnesiana</i> . <u>Low Shrubs:</u> <i>Carissa lanceolata</i> , <i>Pluchea tetranthera</i> .
Vegetation Condition	Poor to Good; cattle activity (heavy grazing) and weed presence (declared pest * <i>Calotropis procerus</i>).
Sites in the Survey Area	HPL128 and HPL129.



Plate 5.19: Vegetation type P2 (HPL128).



Plate 5.20: Vegetation type P2 (HPL129).

P3:	<i>Corymbia zygophylla</i> scattered low trees to low open woodland over <i>Grevillea refracta</i> subsp. <i>refracta</i>, <i>Acacia tumida</i>, <i>Acacia ancistrocarpa</i>, <i>Acacia eriopoda</i>, <i>Acacia monticola</i> tall open shrubland over <i>Jacksonia aculeata</i>, <i>Croton aridus</i> low open shrubland over <i>Triodia schinzii</i> (<i>T. epactia</i>) open to very open hummock grassland.
Distribution and Extent	This vegetation type was the dominant flat plains type in the eastern half of the survey area (Plate 5.22). This vegetation type is representative of the P3 unit from the AREH development envelope (Biota 2024a)
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Acacia sericophylla</i> , <i>Grevillea wickhamii</i> , <i>Hakea macrocarpa</i> . <u>Shrubs:</u> <i>Calytrix carinata</i> , <i>Seringia</i> ? <i>exastia</i> . <u>Low Shrubs:</u> <i>Afrohybanthus aurantiacus</i> , <i>Bonamia erecta</i> , <i>Dampiera candicans</i> , <i>Halgania solanacea</i> var. <i>solanacea</i> , <i>Isotropis atropurpurea</i> , <i>Lysiandra eremica</i> , <i>Ptilotus astrolasius</i> , <i>Ptilotus calostachyus</i> , <i>Sida</i> sp. Pindan (B.G. Thomson 3398), <i>Tephrosia</i> sp. D Kimberley Flora (R.D. Royce 1848). <u>Grasses:</u> <i>Aristida holathera</i> var. <i>holathera</i> , <i>Eragrostis eriopoda</i> , <i>Eriachne lanata</i> , <i>Eriachne obtusa</i> , <i>Sorghum plumosum</i> var. <i>plumosum</i> . <u>Sedges:</u> <i>Bulbostylis barbata</i> . <u>Herbs:</u> <i>Trigastrotheca molluginea</i> , <i>Zornia chaetophora</i> .
Vegetation Condition	Very Good to Excellent; minor cattle activity in the western portion of this type.
Sites in the Survey Area	HPL022, HPL025, HPL026, HPL031, HPL034, HPL035, HPL037, HPL038, HPL039, HPL041, HPL046, HPL047, HPL052, HPL067, HPL069 and HPL087.



Plate 5.21: Vegetation type P3 (HPL026).



Plate 5.22: Vegetation type P3 (HPL037).

P4:	<i>Acacia inaequilatera</i>, <i>Acacia ancistrocarpa</i>, <i>Grevillea wickhamii</i> tall open shrubland over <i>Acacia stellaticeps</i> low open shrubland over <i>Triodia epactia</i> (<i>T. wiseana</i>, <i>T. angusta</i>) open to very open hummock grassland.
Distribution and Extent	This vegetation type was located on flat plains within the central portion of the survey area (Plate 5.23 and Plate 5.24).
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Acacia sericophylla</i> , <i>Acacia sphaerostachya</i> . <u>Shrubs:</u> <i>Gossypium australe</i> . <u>Low Shrubs:</u> <i>Bonamia erecta</i> , <i>Hibiscus sturtii</i> , <i>Indigofera monophylla</i> , <i>Pluchea tetranthera</i> , <i>Ptilotus polystachyus</i> , <i>Tephrosia rosea</i> var. <i>clementii</i> . <u>Climbers:</u> <i>Cassytha capillaris</i> . <u>Grasses:</u> <i>Chrysopogon fallax</i> .
Vegetation Condition	Good to Excellent; minor cattle activity.
Sites in the Survey Area	HPL088, HPL091, HPL093, HPL094, HPL095, HPL095A and HPL098.



Plate 5.23: Vegetation type P4 (HPL091).



Plate 5.24: Vegetation type P4 (HPL098).

P5:	<i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia stellaticeps</i>, <i>Acacia adoxa</i> var. <i>adoxo</i> low open shrubland over <i>Triodia epactia</i> hummock grassland.
Distribution and Extent	This vegetation type was located on plains surrounding the R2 vegetation type within the central part of the survey area (Plate 5.25 and Plate 5.26).
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Acacia acradenia</i> , <i>Grevillea wickhamii</i> , <i>Hakea macrocarpa</i> . <u>Low Shrubs:</u> <i>Afrohybanthus aurantiacus</i> . <u>Grasses:</u> <i>Eragrostis eriopoda</i> .
Vegetation Condition	Good to Very Good; cattle activity.
Sites in the Survey Area	HPL110, HPL113 and HPL114.



Plate 5.25: Vegetation type P5 (HPL113).



Plate 5.26: Vegetation type P5 (HPL114).

5.1.2.5 Vegetation of Low Stony Rises

The H1 vegetation type is representative of the H1 unit from the AREH development envelope (Biota 2024a)

H1a:	<i>Grevillea wickhamii</i> scattered tall shrubs <i>Acacia hilliana</i>, <i>Acacia stellaticeps</i> low open shrubland over <i>Triodia scintillans</i> hummock grassland to open hummock grassland.
Distribution and Extent	This vegetation sub-type was located on low rocky rises in the overarching vegetation type H1 in the eastern half of the survey area (Plate 5.27 and Plate 5.28).
Other Associated Species	<p><u>Shrubs:</u> <i>Calytrix carinata</i>.</p> <p><u>Low Shrubs:</u> <i>Acacia adoxa</i> var. <i>adoxo</i>, <i>Afrohybanthus aurantiacus</i>, <i>Bonamia alatisemina</i>, <i>Codonocarpus cotinifolius</i>, <i>Dampiera candidans</i>, <i>Halgania solanacea</i> var. <i>solanacea</i>, <i>Mirbelia viminalis</i>, <i>Ptilotus calostachyus</i>, <i>Tephrosia</i> sp. Bungaroo Creek (M.E. Trudgen 11601).</p> <p><u>Grasses:</u> <i>Amphipogon sericeus</i>, <i>Triodia epactia</i>.</p> <p><u>Sedges:</u> <i>Fimbristylis simulans</i>.</p> <p><u>Herbs:</u> <i>Trigastrotheca molluginea</i>.</p>
Vegetation Condition	Very Good to Excellent; cattle activity only at site HPL050.
Sites in the Survey Area	HPL020, HPL023, HPL024, HPL027, HPL028, HPL036 and HPL050.



Plate 5.27: Vegetation type H1a (HPL028).



Plate 5.28: Vegetation type H1a (HPL050).

H1b:	<i>Corymbia hamersleyana</i> scattered low trees over <i>Grevillea wickhamii</i>, <i>Acacia</i> spp. scattered tall shrubs over <i>Acacia hilliana</i>, <i>Acacia stellaticeps</i> scattered low shrubs over <i>Triodia epactia</i> open to very open hummock grassland.
Distribution and Extent	This vegetation sub-type was located on higher elevated rocky rises with more outcropping rock in the overarching vegetation type H1 in the eastern half of the survey area (Plate 5.29 and Plate 5.30).
Other Associated Species	<p><u>Trees/Tall Shrubs:</u> <i>Acacia inaequilatera</i>, <i>Acacia monticola</i>, <i>Codonocarpus cotinifolius</i>, <i>Ficus brachypoda</i>.</p> <p><u>Shrubs:</u> <i>Carissa lanceolata</i>, <i>Dodonaea coriacea</i>, <i>Senna glutinosa</i> subsp. <i>glutinosa</i>.</p> <p><u>Low Shrubs:</u> <i>Acacia adoxa</i> var. <i>adoxo</i>, <i>Arivela viscosa</i>, <i>Indigofera monophylla</i>, <i>Jasminum didymum</i> subsp. <i>lineare</i>, <i>Mirbelia viminalis</i>, <i>Solanum dioicum</i>, <i>Tephrosia virens</i>, <i>Trachymene oleracea</i> subsp. <i>oleracea</i>.</p> <p><u>Grasses:</u> <i>Eriachne ciliata</i>, <i>Eriachne mucronata</i>, <i>Eriachne pulchella</i> subsp. <i>pulchella</i>, <i>Ptilotus calostachyus</i>.</p> <p><u>Sedges:</u> <i>Bulbostylis barbata</i>, <i>Fimbristylis simulans</i>.</p>

	<u>Climbers:</u> <i>Cassytha capillaris</i> , <i>Tinospora smilacina</i> . <u>Herbs:</u> <i>Gomphrena cunninghamii</i> , <i>Polycarpaea involucrata</i> , <i>Trigastrotheca molluginea</i> .
Vegetation Condition	Excellent.
Sites in the Survey Area	HPL021, HPL030, HPL032, HPL033, HPL043, HPL044, HPL045, HPL048 and HPL054.



Plate 5.29: Vegetation type H1b (HPL032).



Plate 5.30: Vegetation type H1b (HPL045).

H1c:	<i>Acacia bivenosa</i>, <i>Carissa lanceolata</i> scattered shrubs over <i>Acacia adoxa</i> var. <i>adoxo</i> scattered low shrubs over <i>Triodia wiseana</i> very open hummock grassland over scattered native tussock grasses.
Distribution and Extent	This vegetation sub-type was located on undulating stony plains in the overarching vegetation type H1 in the eastern half of the survey area (Plate 5.31).
Other Associated Species	<u>Shrubs:</u> <i>Senna notabilis</i> . <u>Low Shrubs:</u> <i>Arivela viscosa</i> . <u>Grasses:</u> <i>Eriachne mucronata</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i> .
Vegetation Condition	Very Good to Excellent; weeds present and camels observed in HPL049.
Sites in the Survey Area	HPL049 and HPL053.



Plate 5.31: Vegetation type H1c (HPL049).

H1d:	<i>Corymbia flavescent</i> scattered low trees to low open woodland over <i>Acacia elachantha</i>, <i>Acacia ancistrocarpa</i>, <i>Acacia colei</i> tall open shrubland over <i>Triodia epactia</i> open to very open hummock grassland.
Distribution and Extent	This vegetation sub-type was located on lower lying areas and drainages in the overarching H1 vegetation type in the eastern half of the survey area (Plate 5.32).
Other Associated Species	<u>Grasses:</u> <i>Aristida holathera</i> var. <i>holathera</i> , <i>Cymbopogon ambiguus</i> , <i>Eulalia aurea</i> .
Vegetation Condition	Excellent.
Sites in the Survey Area	HPL029 and HPL051.



Plate 5.32: Vegetation type H1d (HPL029).

The H2 vegetation type is representative of the Macroy Land System (see Table 4.1).

H2a:	<i>Acacia robeorum</i> scattered tall shrubs over <i>Acacia stellaticeps</i> low open shrubland over <i>Triodia angusta</i> (<i>Triodia wiseana</i>, <i>T. epactia</i>) hummock grassland to very open hummock grassland.
Distribution and Extent	This vegetation sub-type was located on low stony calcrete rises in the overarching vegetation type H2 in the centre of the survey area (Plate 5.33 and Plate 5.34).
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Acacia ancistrocarpa</i> . <u>Shrubs:</u> <i>Senna glutinosa</i> subsp. <i>glutinosa</i> <u>Climbers:</u> <i>Cassytha capillaris</i> .
Vegetation Condition	Good to Excellent; cattle activity at HPL090.
Sites in the Survey Area	HPL071, HPL074, HPL084, HPL086 and HPL090.



Plate 5.33: Vegetation type H2a (HPL074).



Plate 5.34: Vegetation type H2a (HPL090).

H2b:	<i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia stellaticeps</i>, <i>Acacia bivenosa</i> low shrubland to open shrubland over <i>Triodia epactia</i> open to very open hummock grassland.
Distribution and Extent	This vegetation sub-type was located on stony calcrete, chert and quartz plains in the overarching vegetation type H2 in the centre of the survey area (Plate 5.35 and Plate 5.36).
Other Associated Species	<p><u>Trees/Tall Shrubs:</u> <i>Acacia ancistrocarpa</i>, <i>Acacia orthocarpa</i>, <i>Acacia tumida</i> var. <i>pilbarensis</i>, <i>Grevillea wickhamii</i>, <i>Hakea lorea</i> subsp. <i>lorea</i>, <i>Petalostylis labicheoides</i>.</p> <p><u>Shrubs:</u> <i>Acacia adoxa</i> var. <i>adoxo</i>, <i>Acacia arida</i>, <i>Carissa lanceolata</i>.</p> <p><u>Low Shrubs:</u> <i>Afrohybanthus aurantiacus</i>, <i>Bonamia</i> ? <i>pilbarensis</i>, <i>Bonamia alatisemina</i>, <i>Bonamia erecta</i>, <i>Dampiera candicans</i>, <i>Goodenia</i> ? <i>scaevolina</i>, <i>Indigofera monophylla</i>, <i>Isotropis atropurpurea</i>, <i>Ptilotus calostachyus</i>, <i>Scaevola amblyanthera</i> var. <i>centralis</i>, <i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543), <i>Tephrosia</i> sp. Bungaroo Creek (M.E. Trudgen 11601).</p> <p><u>Grasses:</u> <i>Chrysopogon fallax</i>.</p> <p><u>Climbers:</u> <i>Cassytha capillaris</i>.</p> <p><u>Herbs:</u> <i>Trigastrotheca molluginea</i>.</p>
Vegetation Condition	Good to Excellent; cattle activity.
Sites in the Survey Area	HPL068, HPL072, HPL073, HPL075, HPL082, HPL089 and HPL092.



Plate 5.35: Vegetation type H2b (HPL075).



Plate 5.36: Vegetation type H2b (HPL082).

H2c:	<i>Gyrocarpus americanus</i> subsp. <i>pachyphyllus</i> scattered low trees over <i>Carissa lanceolatum</i>, <i>Flueggea virosa</i> subsp. <i>melanthesoides</i> scattered tall shrubs over *<i>Cenchrus ciliaris</i> very open tussock grassland and <i>Triodia epactia</i> scattered hummock grasses.
Distribution and Extent	This vegetation sub-type was located on a granite boulder outcrop in the overarching vegetation type H2 in the centre of the survey area (Plate 5.37).
Other Associated Species	<p><u>Trees/Tall Shrubs:</u> <i>Acacia colei</i> var. <i>colei</i>, <i>Corymbia flavescens</i>.</p> <p><u>Shrubs:</u> <i>Capparis lasiantha</i>, <i>Ehretia saligna</i> var. <i>saligna</i>, <i>Gossypium australe</i>, <i>Jasminum didymium</i> subsp. <i>lineare</i>.</p> <p><u>Low Shrubs:</u> <i>Abutilon lepidum</i>, <i>Arivela viscosa</i>, <i>Sida rohlenae</i> subsp. <i>rohlenae</i>, <i>Tephrosia</i> ? <i>supina</i>.</p> <p><u>Grasses:</u> <i>Aristida holathera</i> var. <i>holathera</i>, <i>Aristida hydrometrica</i>, <i>Cymbopogon ambiguus</i>, <i>Eragrostis eriopoda</i>, <i>Perotis rara</i>.</p> <p><u>Climbers:</u> <i>Tinospora smilacina</i>.</p> <p><u>Herbs:</u> <i>Rhynchosia minima</i>.</p>
Vegetation Condition	Good to Very Good; cattle activity and weed presence.
Sites in the Survey Area	HPL077.



Plate 5.37: Vegetation type H2c (HPL077).

H2d:	<i>Acacia inaequilatera</i> scattered tall shrubs over <i>Triodia wiseana</i> (<i>T. epactia</i>) open hummock grassland.
Distribution and Extent	This vegetation sub-type was located on stony calcrete, chert and quartz plains in the overarching vegetation type H2 in the centre of the survey area (Plate 5.38 and Plate 5.39).
Other Associated Species	<p><u>Trees/Tall Shrubs:</u> <i>Corymbia hamersleyana</i>, <i>Grevillea pyramidalis</i> subsp. <i>leucadendron</i>.</p>
Vegetation Condition	Very Good to Excellent.
Sites in the Survey Area	HPL078, HPL081, HPL083 and HPL184.



Plate 5.38: Vegetation type H2d (HPL078).



Plate 5.39: Vegetation type H2d (HPL081).

H2e:	<i>Corymbia flavescens</i> scattered low trees over <i>Acacia colei</i> var. <i>colei</i> scattered tall shrubs over <i>Acacia stellaticeps</i> low open shrubland over <i>Triodia epactia</i> open hummock grassland over *<i>Cenchrus ciliaris</i> scattered tussock grasses.
Distribution and Extent	This vegetation sub-type was located in the drainages and creeklines of the overarching vegetation type H2 in the centre of the survey area (Plate 5.40 and Plate 5.41).
Other Associated Species	<p><u>Trees/Tall Shrubs:</u> <i>Acacia ancistrocarpa</i>, <i>Grevillea pyramidalis</i> subsp. <i>leucadendron</i>, <i>Grevillea wickhamii</i>.</p> <p><u>Shrubs:</u> <i>Acacia robeorum</i>, <i>Carissa lanceolata</i>, <i>Senna notabilis</i>.</p> <p><u>Low Shrubs:</u> <i>Afrohybanthus aurantiacus</i>, <i>Bonamia erecta</i>, <i>Indigofera monophylla</i>, <i>Isotropis atropurpurea</i>, <i>Pluchea tetranthera</i>, <i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543), <i>Tephrosia rosea</i> var. <i>rosea</i>.</p> <p><u>Grasses:</u> <i>Chrysopogon fallax</i>, <i>Eriachne mucronata</i>, <i>Eulalia aurea</i>.</p> <p><u>Climbers:</u> <i>Cassytha capillaris</i>, <i>Cucumis variabilis</i>.</p> <p><u>Herbs:</u> <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>, <i>Rhynchosia minima</i>, <i>Trigastrotheca molluginea</i>.</p>
Vegetation Condition	Very Good to Excellent; camel tracks, cattle activity and weed presence.
Sites in the Survey Area	HPL070, HPL076, HPL079, HPL080, HPL085 and HPL183.



Plate 5.40: Vegetation type H2e (HPL085).



Plate 5.41: Vegetation type H2e (HPL183).

H3:	<i>Acacia inaequilatera</i> scattered shrubs over <i>Triodia epactia</i> scattered to open hummock grassland.
Distribution and Extent	This vegetation type was located on low calcrete and quartz rocky rises in the western half of the survey area (Plate 5.42 and Plate 5.43).
Other Associated Species	<u>Grasses:</u> <i>Eriachne mucronata</i> .
Vegetation Condition	Poor to Excellent; presence of weeds in site HPL147.
Sites in the Survey Area	HPL147, HPL148 and HPL151.



Plate 5.42: Vegetation type H3 (HPL147).



Plate 5.43: Vegetation type H3 (HPL148).

5.1.2.6 Vegetation of Rocky Outcrops and Breakaways

R1:	<i>Atalaya hemiglauca</i> scattered low trees over <i>Acacia colei</i> scattered shrubs over <i>Triodia epactia</i> very open hummock grassland.
Distribution and Extent	This vegetation type was located on the crests of granite rocky hilltops in the western half of the survey area (Plate 5.44 and Plate 5.45).
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Acacia inaequilatera</i> . <u>Low Shrubs:</u> <i>Triumfetta maconochieana</i> . <u>Grasses:</u> <i>Eriachne mucronata</i> . <u>Climbers:</u> <i>Tinospora smilacina</i> .
Vegetation Condition	Good to Very Good; weed presence.
Sites in the Survey Area	HPL153, HPL154 and HPL155.



Plate 5.44: Vegetation type R1 (HPL153).



Plate 5.45: Vegetation type R1 (HPL154).

R2a:	<i>Corymbia hamersleyana</i> low open woodland over <i>Acacia tumida</i> var. <i>pilbarensis</i>, <i>Acacia acradenia</i> tall open scrub over <i>Triodia epactia</i> (<i>T. wiseana</i>) open to very open hummock grassland over *<i>Cenchrus ciliaris</i> scattered tussock grasses.
Distribution and Extent	This vegetation sub-type was located in the drainages of the overarching vegetation type R2 in the central part of the survey area (Plate 5.46 and Plate 5.47).
Other Associated Species	<u>Low Shrubs:</u> <i>Afrohybanthus aurantiacus</i> , <i>Bonamia pilbarensis</i> , <i>Corchorus parviflorus</i> , <i>Dampiera candicans</i> , <i>Hibiscus sturtii</i> var. <i>campylochlamys</i> , <i>Sida</i> sp. Pilbara (A.A. Mitchell PRP1543), <i>Tephrosia rosea</i> var. <i>rosea</i> .
Vegetation Condition	Very Good to Excellent; cattle activity and weed presence
Sites in the Survey Area	HPL102, HPL105, HPL117, HPL118 and HPL121.



Plate 5.46: Vegetation type R2a (HPL118).



Plate 5.47: Vegetation type R2a (HPL121).

R2b:	<i>Triodia epactia</i> hummock grassland.
Distribution and Extent	This vegetation sub-type was located on the lower slopes of the overarching vegetation type R2 in the central part of the survey area (Plate 5.48 and Plate 5.49).
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Acacia acradenia</i> . <u>Low Shrubs:</u> <i>Bonamia pilbarensis</i> . <u>Grasses:</u> <i>Triodia wiseana</i> .
Vegetation Condition	Very Good to Excellent; weed presence and previous human disturbance at site HPL104.
Sites in the Survey Area	HPL104, HPL116, HPL120, HPL122, HPL123A, HPL125 and HPL126.



Plate 5.48: Vegetation type R2b (HPL116).



Plate 5.49: Vegetation type R2b (HPL122).

R2c:	<i>Terminalia circumalata</i> scattered tall shrubs to tall shrubland over <i>Triodia epactia</i> hummock grassland to very open hummock grassland over mixed scattered tussock grasses.
Distribution and Extent	This vegetation sub-type was located on the crests and cliff faces of the overarching vegetation type R2 in the central part of the survey area (Plate 5.50 and Plate 5.51).
Other Associated Species	<u>Grasses:</u> <i>Eriachne mucronata</i> .
Vegetation Condition	Excellent.
Sites in the Survey Area	HPL115 and HPL123.



Plate 5.50: Vegetation type R2c (HPL115).



Plate 5.51: Vegetation type R2c (HPL123).

R2d:	<i>Acacia inaequilatera</i>, <i>Grevillea</i> spp. scattered tall shrubs over <i>Triodia epactia</i> open hummock grassland.
Distribution and Extent	This vegetation sub-type was located on the mid to upper slopes of the overarching vegetation type R2 in the central part of the survey area (Plate 5.52 and Plate 5.53).
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Acacia acradenia</i> , <i>Acacia ancistrocarpa</i> , <i>Acacia orthocarpa</i> , <i>Corymbia hamersleyana</i> , <i>Grevillea pyramidalis</i> subsp. <i>leucadendron</i> , <i>Grevillea wickhamii</i> , <i>Petalostylis labicheoides</i> . <u>Low Shrubs:</u> <i>Acacia adoxa</i> var. <i>adoxo</i> , <i>Bonamia pilbarensis</i> , <i>Corchorus parviflorus</i> , <i>Ptilotus calostachyus</i> , <i>Tephrosia rosea</i> . <u>Grasses:</u> <i>Eriachne ciliata</i> .
Vegetation Condition	Very Good to Excellent.
Sites in the Survey Area	HPL096*4, HPL097, HPL099, HPL100, HPL101, HPL103, HPL111, HPL112 and HPL119.



Plate 5.52: Vegetation type R2d (HPL100).



Plate 5.53: Vegetation type R2d (HPL103).

⁴ *HPL096 was located near the boundary of the P4 plain vegetation unit and was included in the R2d unit based on the upper stratum containing *Acacia inaequilatera*.

R3:	<i>Acacia orthocarpa</i> open shrubland over <i>Triodia epactia</i> very open hummock grassland over <i>Eriachne mucronata</i> (Typical Form) scattered tussock grasses over <i>Goodenia</i> ? <i>scaevolina</i> scattered herbs.
Distribution and Extent	This vegetation type was located on a single rocky ironstone rise in the mid to western portion of the survey area (Plate 5.54).
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Acacia tumida</i> var. <i>pillbarensis</i> . <u>Low Shrubs:</u> <i>Bonamia pillbarensis</i> , <i>Indigofera monophylla</i> , <i>Ptilotus calostachyus</i> , <i>Seringia</i> ? <i>nephrosperma</i> , <i>Solanum diversiflorum</i> . <u>Grasses:</u> <i>Aristida holathera</i> var. <i>holathera</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i> . <u>Herbs:</u> <i>Goodenia microptera</i> , <i>Trigastrotheca molluginea</i> .
Vegetation Condition	Very Good; human disturbance (vehicle tracks and evidence of drilling).
Sites in the Survey Area	HPL142.



Plate 5.54: Vegetation type R3 (HPL142).

R4:	<i>Acacia colei</i> scattered to tall open shrubland over <i>Triodia epactia</i> very open hummock grassland.
Distribution and Extent	This vegetation type was located on two adjacent rocky rises in the western portion of the survey area (Plate 5.55 and Plate 5.56).
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Grevillea wickhamii</i> . <u>Low Shrubs:</u> <i>Triumfetta</i> ? <i>incana</i> . <u>Grasses:</u> <i>Eriachne mucronata</i> .
Vegetation Condition	Poor to Good; human disturbance, active mining area.
Sites in the Survey Area	HPL160 and HPL162.



Plate 5.55: Vegetation type R4 (HPL160).



Plate 5.56: Vegetation type R4 (HPL162).

R5a:	<i>Acacia inaequilatera</i> scattered tall shrubs over <i>Triodia epactia</i> open to very open hummock grassland.
Distribution and Extent	This vegetation sub-type was located on rocky slopes of the overarching vegetation type R5 adjacent to a pit within the Nimingarra mine in the eastern portion of the survey area (Plate 5.57 and Plate 5.58).
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Grevillea wickhamii</i> . <u>Low Shrubs:</u> <i>Acacia</i> ? <i>hilliana</i> .
Vegetation Condition	Very Good to Excellent; human disturbance, active mining area.
Sites in the Survey Area	HPL065 and HPL066.



Plate 5.57: Vegetation type R5a (HPL065).



Plate 5.58: Vegetation type R5a (HPL066).

R5b:	<i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia tumida</i> var. <i>pilbarensis</i> tall shrubland over <i>Triodia epactia</i> open hummock grassland.
Distribution and Extent	This vegetation sub-type was located on the drainages of the rocky slopes of the overarching vegetation type R5 adjacent to a pit within the Nimingarra mine in the eastern portion of the survey area (Plate 5.59).
Other Associated Species	<u>Low Shrubs:</u> <i>Indigofera</i> ? <i>deserticola</i> <u>Herbs:</u> <i>Goodenia</i> ? <i>scaevolina</i>

Vegetation Condition	Very Good to Excellent; human disturbance, active mining area.
Sites in the Survey Area	HPL066A.



Plate 5.59: Vegetation type R5b (HPL066A).

R6:	<i>Acacia ancistrocarpa</i>, <i>Acacia colei</i> tall open shrubland over <i>Acacia adoxa</i> var. <i>adoxa</i> low open shrubland over <i>Triodia epactia</i> open hummock grassland.
Distribution and Extent	This vegetation type was located on a single red sandstone hillslope in the eastern portion of the survey area (Plate 5.60).
Other Associated Species	<u>Trees/Tall Shrubs:</u> <i>Atalaya hemiglauca</i> . <u>Shrubs:</u> <i>Ficus aculeata</i> . <u>Low Shrubs:</u> <i>Solanum</i> ? <i>dioicum</i> , <i>Tribulus suberosus</i> . <u>Grasses:</u> <i>Chrysopogon fallax</i> . <u>Herbs:</u> <i>Gomphrena cunninghamii</i> .
Vegetation Condition	Very Good to Excellent.
Sites in the Survey Area	HPL061.



Plate 5.60: Vegetation type R6 (HPL061).

5.1.3 Significant Vegetation

No TECs or PECs were recorded within the survey area.

The riparian vegetation types D1 and D2 (the De Grey River and its tributaries) are considered as having a high potential to be GDEs or Groundwater Dependent Vegetation (GDV) due to the phreatophytic species *Eucalyptus camaldulensis*, *Eucalyptus victrix* and *Melaleuca argentea* being dominant taxa.

5.1.4 Vegetation Condition

Vegetation condition mapping, using the condition categories from EPA (2016a), is provided in Appendix 10. Areas completely devoid of native vegetation were mapped as Cleared ('NA') and were not assigned a condition rating. Just 1.2% of the survey area has been completely cleared of vegetation (e.g. roads, rails, mining area). The condition of the remaining vegetation in the survey area ranged from Excellent to Poor, with most (72%) being in Very Good or Excellent condition (Table 5.2).

The main disturbance factors in the survey area comprised weed invasion, and cattle grazing and/or trampling. The areas in the worst condition were associated with drainage lines and floodplains, and usually supported high densities of weed species. Areas rated as Excellent, Excellent to Very Good and Very Good were often associated with hills or stony plains vegetation.

Table 5.2: Extent of vegetation condition categories in the survey area.

Condition Rating	Area (ha)	Proportion of Survey Area (%)
Excellent	17,176.9	34.3
Very Good to Excellent	18,874.9	37.7
Very Good	3,805.0	7.6
Good to Very Good	3,628.1	7.2
Good	3,790.2	7.6
Poor to Good	2,241.7	4.5
Cleared/NA	602.6	1.2
Total	50,119.4	100.0

5.2 Flora

5.2.1 Overview

A total of 420 native flora species from 148 genera and 51 families were recorded during the survey (Appendix 11). The dominant native plant families and genera recorded from the survey area are presented in Table 5.3. These families and genera are typical of species lists from the region.

A total of 15 introduced flora species (weeds) were also recorded (see Section 5.2.4).

Table 5.3: Dominant native families and genera recorded from the survey area.

Family	No. of Native Species	Genus	No. of Native Species
Fabaceae	89	<i>Acacia</i>	37
Poaceae	66	<i>Eriachne</i>	14
Malvaceae	43	<i>Euphorbia</i>	14
Convolvulaceae	21	<i>Tephrosia</i>	12
Euphorbiaceae	17	<i>Goodenia</i>	11

5.2.2 Significant Flora Species of the Survey Area

Eleven Priority species were recorded in the survey area during the survey, comprising one Priority 2 species, nine Priority 3 species and one Priority 4 species. These taxa are discussed below and their locations within the survey area are provided in Appendix 9 and shown in Figure 5.1.

***Goodenia hartiana* (Hart's Goodenia)**

Priority 2

This herb grows up to 40 cm and is found on sand dunes, swales and sandplains. It is known from 26 vouchered records at the WA Herbarium (WAH), primarily on the southeastern border of the Great Sandy Desert, with a range extending approximately 300 km in this area.

This species was recorded at one location approximately 23 km from the eastern end of the survey area, in vegetation type P3.

***Abutilon* sp. *Pritzelianum* (S. van Leeuwen 5095)**

Priority 3

This upright shrub grows to 2.5 m tall and is typically found on sandplains but may also occur on sand dunes, hill tops and in creek beds. This species is often found in coastal habitats, with many of 51 currently vouchered WAH records being from around Port Hedland, Karratha, Onslow and Carnarvon, in addition to records as far as 200 km inland.

This species was recorded at two locations in the western extent of the survey area, southwest of Port Hedland, with a maximum population size of five individuals. Both records were within vegetation type P1.

Bonamia oblongifolia

Priority 3

This sprawling shrub (Plate 5.61) grows on pindan plains and occurs on the northern coast of WA between Eighty Mile Beach and north of Broome.

This species was recorded at two locations in the survey area; approximately 29 km from the western end in vegetation type D2 and approximately 23 km from the eastern end in vegetation type P3. The western record represents a significant range extension of approximately 200 km for this species.



Plate 5.61: *Bonamia oblongifolia*.

Croton aridus

Priority 3

This shrub (Plate 5.62) grows to 40 cm and is found on sand dunes and sandplains. Its range across the 17 records vouchered at WAH stretch from the western extent of the Great Sandy Desert to the eastern Northern Territory, though there are large gaps throughout this extent.

This species was recorded from 12 locations, in the eastern half of the survey area, with all but one record within 30 km of eastern boundary. The species had a maximum cover of 1.5%, and the largest population size recorded was 109 individuals. All records were from the P3 vegetation type.



Plate 5.62: *Croton aridus* (left: vegetative form, right: close up of leaves and fruit).

Euphorbia clementii

Priority 3

This erect annual herb (Plate 5.63) grows to 0.6 m and is found on gravelly hillsides and stony ground. Most of the 31 vouchered WAH records of this species are from an area between Port Hedland and Meenthen Station.

This species was recorded at one location from a single specimen, in the western extent of the survey area, southwest of Port Hedland. The record occurred in the P1 vegetation type.



Plate 5.63: *Euphorbia clementii* (left: whole specimen, right: close up of fruit).

Euphorbia inappendiculata* var. *inappendiculata**Priority 3**

This herb (Plate 5.64) grows to 0.1 m tall and is typically found on plains, gentle slopes and drainages. It is uncommon but widespread throughout the Pilbara, with 13 vouchered records at WAH.

This species was recorded from 20 specimens at a single location in the survey area, approximately 9 km east of the De Grey River, in vegetation type C1.

Euphorbia inappendiculata* var. *queenslandica**Priority 3**

This herb (Plate 5.65) grows to 0.1 m tall and is found on clay plains and narrow to broad drainages. Within the WA, its known distribution is mostly confined to an area spanning approximately 171 km around Karijini National Park, but is also known from several other Australian states.

One population of this species was recorded at one location within the survey area, approximately 17 km east of the De Grey River, which serves as a range extension of over 200 km. This record occurred in vegetation type C1.



Plate 5.64: *Euphorbia inappendiculata* var. *inappendiculata*.



Plate 5.65: *Euphorbia inappendiculata* var. *queenslandica*.

Indigofera ammobia**Priority 3**

This shrub grows to 1.0 m and is found on sandplains, sand dunes and swales. Within WA, this species is primarily known from the Great Sandy Desert, with the majority of the 18 vouchered records coming from this region, but it is also known from the Kimberley and the Northern Territory.

This species was recorded at one location approximately 36 km from the eastern end of the survey area, in vegetation type S2.

Polymeria* sp. Broome (K.F. Kenneally 9759)*Priority 3**

This erect or sprawling herb (Plate 5.66) is found on pindan plains, mostly between Eighty Mile Beach and north of Broome, though two records from further inland have also been vouchered.

This species was recorded at one location, approximately 49 km from the eastern end of the survey area, in vegetation unit P3.



Plate 5.66: *Polymeria* sp. Broome (K.F. Kenneally 9759).

***Tribulopsis marliesiae* (Eichler's Tribulopsis)**

Priority 3

This spreading herb grows to 50 cm and is found on pindan plains. The nine vouchered WAH records cover an approximately 350 km area from east of Broome towards the northwestern Great Sandy Desert.

A specimen of this species was confirmed from approximately 49 km from the eastern survey area boundary in vegetation type P3. A second specimen representing two additional records of the species at the western end of the survey area was tentatively identified as *T. ? marliesiae*, but the identification could not be confirmed due to inadequate material.

Bulbostylis burbidgeae

Priority 3

This erect to spreading sedge (Plate 5.67) grows to 0.3 m tall and occurs on granite outcrops and at cliff bases. It is relatively common throughout the northeastern Pilbara, but is infrequently recorded due to its small size and ephemeral nature.

This species was recorded at one location in the central section of the survey area in vegetation type H2.



Plate 5.67: *Bulbostylis burbidgeae*.

5.2.3 Significant Species with Potential to Occur

Following the field survey, seven Priority species were ranked as 'likely to occur', based on habitat availability and proximity of historical records, comprising one Priority 1 species and six Priority 3 species:

- *Triodia degreyensis* (Priority 1);
- *Euploca mutica* (Priority 3);
- *Hibiscus* aff. *krichauffianus* (Priority 3);
- *Nicotiana umbratica* (Priority 3);
- *Phyllanthus* sp. aff. *herbecarpus* (Priority 3);
- *Rothia indica* subsp. *australis* (Priority 3); and
- *Terminalia kumpaja* (Priority 3).

An additional eight species were ranked as 'may occur':

- *Acacia cyperophylla* var. *omearana* (Priority 1);
- *Euploca parviantrum* (Priority 1);
- *Tephrosia rosea* var. Port Hedland (A.S. George 1114) (Priority 1);
- *Gomphrena leptophylla* (Priority 3);
- *Gymnanthera cunninghamii* (Priority 3);
- *Heliotropium murinum* (Priority 3);
- *Triodia chichesterensis* (Priority 3); and
- *Ptilotus mollis* (Priority 4).

5.2.4 Introduced Species

Fifteen introduced flora species were recorded from the survey area, two of which represented weeds of national significance (WoNS) (**Calotropis procerus* and **Parkinsonia aculeata*) (see Table 5.4, Figure 5.2 and Appendix 10). Site HPL130 had the highest number of introduced species with 11 different introduced taxa recorded, three of which were recorded only at that site. This is most likely due to proximity to the river allowing for optimal conditions for the growth and dispersal of weeds, as well as routine cattle activity acting to further disperse these species.

Table 5.4: Summary of weed species recorded from the survey area.

Family	Species	Common Name	Status †	No. of Records (Broad Distribution)
Aizoaceae	* <i>Trianthema portulacastrum</i>	Giant Pigweed	-	One record from HPL130.
Amaranthaceae	* <i>Aerva javanica</i>	Kapok Bush	-	Nine records (seven from relevés and two opportunistic records).
Apocynaceae	* <i>Calotropis procera</i>	Calotrope	Declared Pest	Eight records (five from relevés and three opportunistic records).
Asteraceae	* <i>Sigesbeckia orientalis</i>	Indian Weed	-	One record from HPL130.
Euphorbiaceae	* <i>Euphorbia hirta</i>	Asthma Plant	-	One opportunistic record.
Fabaceae	* <i>Vachellia farnesiana</i>	Mimosa Bush	-	Five records (four from relevés and one opportunistic record).
	* <i>Indigofera oblongifolia</i>	-	-	Ten records (nine from relevés and one opportunistic record).
	* <i>Parkinsonia aculeata</i>	Parkinsonia	WoNS/Declared Pest	One record from HPL130.
Passifloraceae	* <i>Passiflora foetida</i> var. <i>hispida</i>	Stinking Passionflower	-	Five records (four from relevés and one opportunistic record).
Poaceae	* <i>Cenchrus ciliaris</i>	Buffel Grass	-	Nineteen records (18 from relevés and one opportunistic record).
	* <i>Cenchrus setiger</i>	Birdwood Grass	-	Five records, all from relevés.
	* <i>Cynodon dactylon</i>	Couch	-	Two records (one from HPL130 and one opportunistic record).
	* <i>Echinochloa colona</i>	Awnless Barnyard Grass	-	Two records from HPL130 and HPL133.
Papaveraceae	* <i>Argemone ochroleuca</i> subsp. <i>ochroleuca</i>	Mexican Poppy	-	Two records (one from HPL130 and one opportunistic record).
Solanaceae	* <i>Datura leichhardtii</i> subsp. <i>leichhardtii</i>	Native Thornapple	-	One opportunistic record.

† WoNS: Weed of National Significance.

The species recorded from the survey area are briefly described below:

- ***Aerva javanica (Kapok Bush)** is a perennial herb to low shrub that is widespread through the northern half of WA. It is particularly common in sandy soils, especially in coastal areas and disturbed sites. Kapok Bush was recorded at nine locations in the survey area, usually as scattered individuals but occasionally in more dense patches near disturbed areas.
- ***Argemone ochroleuca subsp. ochroleuca (Mexican Poppy)** is an annual herb that occurs in areas where water collects such as creek edges, riverbanks and roadsides. It has a very large range within WA, having been recorded as far south as Albany and as far north as Port Hedland. It is typically found near the coast, but is fairly widespread throughout inland habitats in the Pilbara region. Two records were made within the survey area; one opportunistic record and one record of scattered individuals from HPL130 on the banks of the De Grey River.
- ***Calotropis procera (Calotrope)** is a shrub or tree that grows in sandy and often clayey soils. This weed species is a Declared Pest in WA and is typically known as a Kimberley species, however there are also a number of records in the eastern Pilbara. There were eight records throughout the survey area from varying habitats but most often near permanent or ephemeral water sources.
- ***Cenchrus ciliaris (Buffel Grass)** is a perennial grass that was introduced by pastoralists as a fodder species. It is widespread throughout WA and is commonly found in association with drainage lines, floodplains, sandy coastal areas and disturbed sites (WA Herbarium 2023), where it may form dense tussock grasslands. This species has demonstrated allelopathic capacities, whereby it releases chemicals that inhibit the growth of other plants, and it competes aggressively and effectively with native flora species (Cheam 1984a, 1984b, Hussain et al. 2010). Buffel grass was recorded from 19 locations in the survey area. Dense populations were recorded in the degraded riverbanks of the De Grey River at HPL130, while scattered grazed plants were observed along the verge of the Great Northern Highway as well as most roads and drainages.
- ***Cenchrus setiger (Birdwood Grass)** is an erect perennial tussock grass that occurs in similar habitats to Buffel Grass (creeklines, floodplains and sandy coastal areas). Birdwood Grass was recorded from five locations in the survey area, in each case occurring with **C. ciliaris*, mostly in degraded riparian areas with high cattle activity.
- ***Cynodon dactylon (Couch)** is a rhizomatous (or stoloniferous), prostrate perennial, grass-like or herb, 0.05-0.3 m high. Grows in sand, loam and clay soils. Two records came from within the survey area; one opportunistic and the other at HPL130 on the banks of the De Grey River.
- ***Datura leichhardtii subsp. leichhardtii (Native Thornapple)** is a robust annual herb that has been recorded from the Pilbara, Gascoyne and Carnarvon bioregions. A single record was opportunistically collected in the survey area.
- ***Echinochloa colona (Awnless Barnyard Grass)** is a tufted annual grass growing near watercourses and swamps. It is very widespread in the Pilbara and Kimberley and has also been recorded around Perth. Two records came from within the survey area, both recorded near the De Grey River in highly degraded habitat.
- ***Euphorbia hirta (Asthma Plant)** is an annual herb that grows along watercourses. The majority of the vouchered records are from the Kimberley, however there are several records in the Pilbara, including one southeast of Port Hedland. A single opportunistic record came from within the survey area.
- ***Indigofera oblongifolia** is an erect spreading shrub, growing on clay-based and alluvial soils in coastal areas and roadsides. It occurs along the northern coast of WA between Karratha and Broome. Ten records came from within the survey area, one opportunistic and nine from relevés, with the highest densities being sites near the De Grey River or other minor drainages.

- ****Parkinsonia aculeata* (Parkinsonia)** is a spiny shrub or tree that grows in sandy or clayey soils, often along watercourses. This weed species is a WoNS and a Declared Pest in WA. It is quite widespread throughout northern WA, occurring as far west as Exmouth and east into the Northern Territory and Queensland. A single record came from site HPL130 on the banks of the De Grey River.
- ****Passiflora foetida* var. *hispida* (Stinking Passionflower)** is a woody climber that grows in coastal areas, as well as on river and creek banks. Many of the records in WA are from the Kimberley, but it is also recorded sporadically in the Pilbara. Five records came from the survey area, one opportunistic and four from relevés near low lying or riparian areas, including HPL130 on the banks of the De Grey River.
- ****Sigesbeckia orientalis* (Indian Weed)** is an erect annual herb growing over limestone or granite in rocky gullies, limestone ranges and creek beds. All current records in the Pilbara are from south of Millstream Chichester National Park, but it is recorded quite commonly in the southern Pilbara. A single record came from site HPL130 on the banks of the De Grey River.
- ****Trianthema portulacastrum* (Giant Pigweed)** is an annual herb that has been recorded in northern Australia from the Pilbara to the Kimberley (WA Herbarium 2023). A single plant of this species was recorded from site HPL130 on the banks of the De Grey River.
- ****Vachellia farnesiana* (Mimosa Bush)** is an erect, spreading, thicket-forming shrub, growing in low lying areas, river and creek banks and disturbed sites. This species is widespread in the Pilbara and is known from many bioregions in WA and other states. Five records came from the survey area, one opportunistic and four from relevés near low lying or riparian areas, including HPL130 on the banks of the De Grey River.

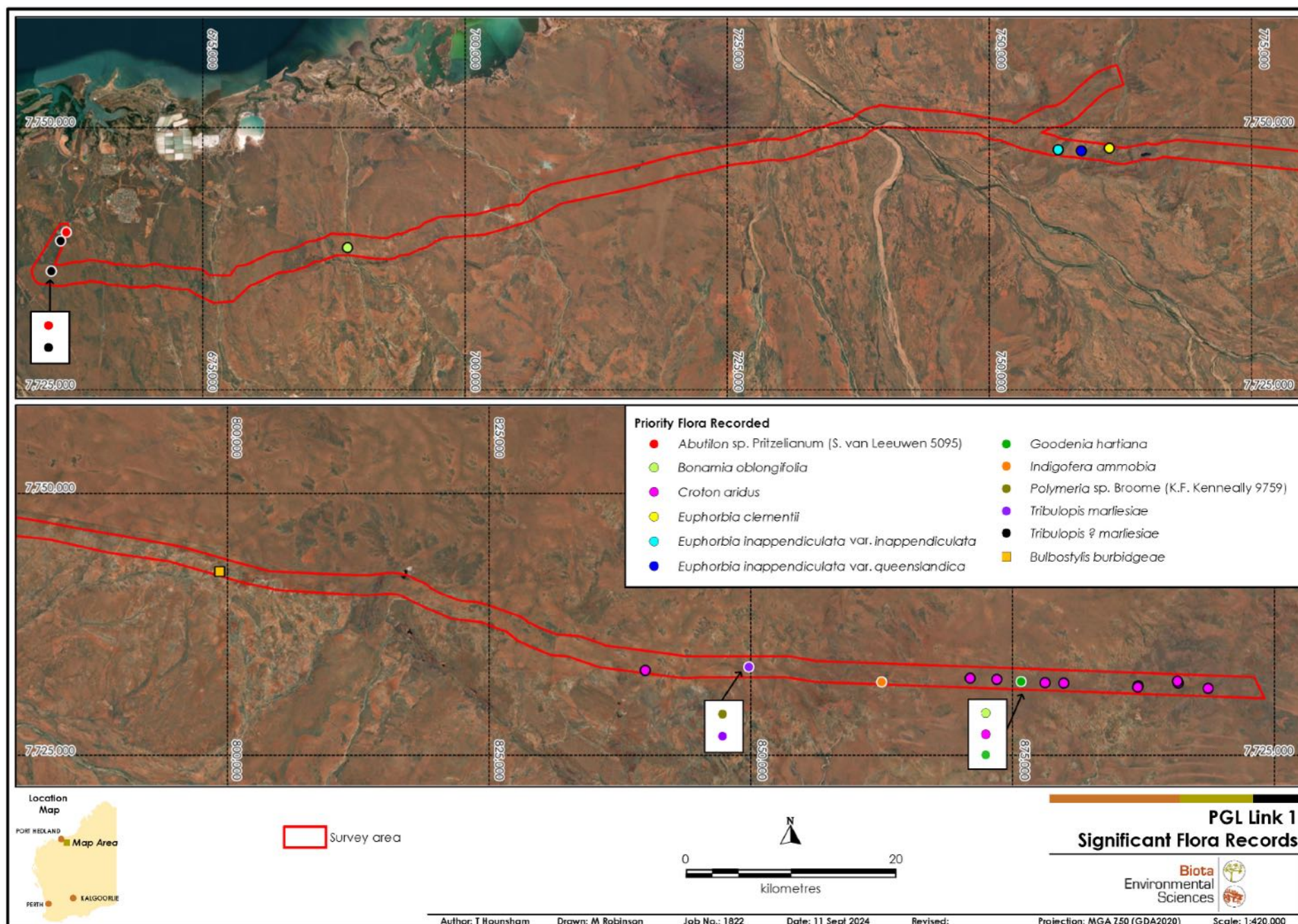


Figure 5.1: Locations of significant flora recorded from the survey area.

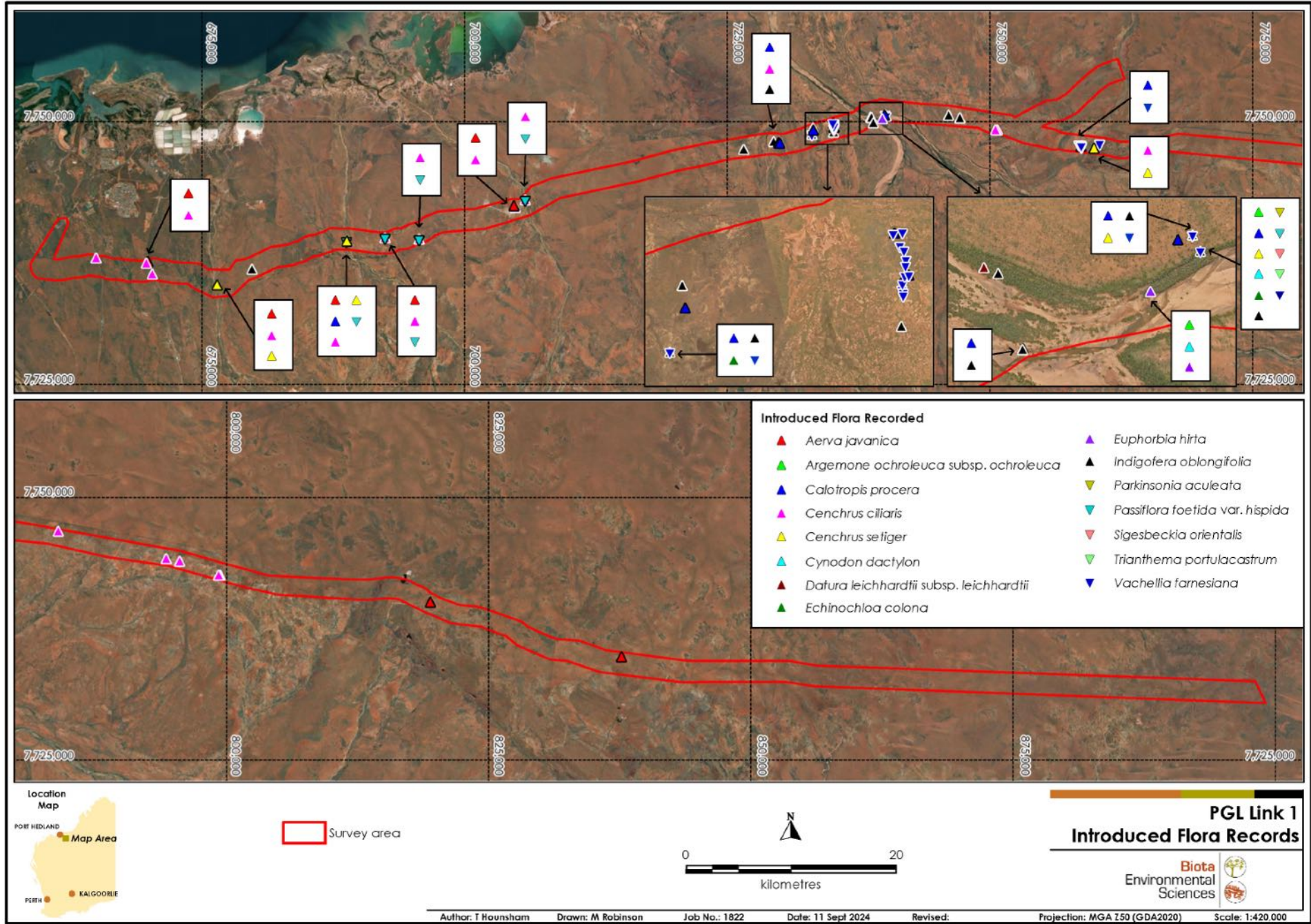


Figure 5.2: Locations of introduced flora recorded from the survey area.



5.3 Fauna Habitats



Ten fauna habitats were identified within the survey area:



- Acacia shrubland on spinifex sandplain;
- Granite boulders;
- Gorges and gullies;
- Claypan;
- Minor/moderate drainage line;
- Low stony rises;
- Rocky outcrops;
- Major drainage line;
- Cleared areas; and
- Sand dunes.



Fauna habitats are described further below in Table 5.5 and mapped in Appendix 12. Acacia shrubland on spinifex sandplain was the dominant habitat recorded, accounting for over 65% of the survey area (Table 5.5).



Table 5.5: Fauna habitats of the survey area.

Habitat	Area (ha) and proportion	Description	Photo
Acacia shrubland on spinifex sandplain	32,679.0 (65.3%)	Open <i>Acacia</i> shrubland with some denser patches and scattered <i>Corymbia</i> and <i>Eucalyptus victrix</i> , including <i>A. stellaticeps</i> , <i>A. ancistrocarpa</i> , <i>A. monticola</i> , over hummock grasslands of spinifex (<i>Triodia</i> spp.) on sandplain. This habitat may be used by species such as Bilby and Brush-tailed Mulgara where sandy soils are preferable for burrows. Bilby also have a strong association with particular species of <i>Acacia</i> that host root-dwelling larvae, which form a major food resource for the species in the Pilbara. Spectacled Hare-wallabies may utilise areas that support large spinifex hummocks.	
Granite boulders	3,836.2 (7.7%)	Granite boulders with scattered <i>Corymbia</i> spp. and <i>Acacia</i> spp. over open <i>Triodia</i> hummock grassland. Species such as the Northern Quoll, Ghost Bat, Pilbara Leafnosed Bat that require cavities and caves may utilise this habitat.	

Habitat	Area (ha) and proportion	Description	Photo
Gorges and gullies	3,000.6 (5.5%)	Gorges, gullies, large breakaways and associated footslopes. <i>Corymbia hamersleyana</i> low open woodland over <i>Acacia</i> spp., over <i>Triodia</i> grassland. Species such as the Northern Quoll, Ghost Bat and Pilbara Leaf-nosed Bat that require cavities and caves may utilise this habitat. Pilbara Olive Python may utilise crevices and pools that occur in this habitat.	
Claypan	2,902.3 (5.8%)	<i>Triodia</i> hummock and tussock grasslands on clay. This habitat may be suitable for the Short-tailed Mouse.	

Habitat	Area (ha) and proportion	Description	Photo
Minor/moderate drainage line	2,630.6 (5.3%)	<p>Minor to moderate drainage lines and floodplains fringed with low eucalypts (<i>Eucalyptus victrix</i>, <i>Corymbia flavescentis</i>) and <i>Lysiphyllum cunninghamii</i> over sparse shrubland and tussock grassland.</p> <p>Drainage lines provide suitable foraging and nesting habitat for most species including bats and avifauna, and movement corridors for species such as Northern Quoll. Pilbara Olive Pythons are likely to utilise pools of water.</p>	
Low stony rises	2,474.23 (4.9%)	<p>Rocky undulating plains, rises and slopes with small outcrops. Mixed <i>Acacia</i> tall shrubland with some scattered <i>Corymbia</i>; <i>Grevillea wickhamii</i>, <i>Triodia epactia</i>, and open tussock grasses. Western-Pebble-mound Mouse utilise this habitat.</p>	

Habitat	Area (ha) and proportion	Description	Photo
Rocky outcrops	993.5 (1.8%)	Breakaways and large complex rocky outcropping and, vegetated with <i>Corymbia</i> spp., mixed <i>Acacia</i> spp., <i>Triodia epactia</i> and scattered tussock grasses. Species such as the Northern Quoll, Ghost Bat, Pilbara Leafnosed Bat that require cavities and caves may utilise this habitat.	
Major drainage line	919.0 (1.8%)	Major drainage lines fringed by eucalypts (<i>Eucalyptus camaldulensis</i> , <i>E. victrix</i>), <i>Melaleuca argentea</i> over tall shrubland and open <i>Triodia</i> grassland. Drainage lines provide suitable foraging and nesting habitat for most species including bats and avifauna, and movement corridors for species such as Northern Quoll. Pilbara Olive Pythons are likely to utilise pools of water. Areas of higher clay content may be suitable for Short-tailed Mouse.	

Habitat	Area (ha) and proportion	Description	Photo
Cleared areas	601.3 (1.2%)	Mining, disturbances or cleared areas. Some man-made structures such as dams are likely to be used by bat and avifauna species.	
Sand dunes	20.9 (0.1%)	<i>Corymbia</i> low open woodland over <i>Acacia</i> tall shrubland and open grassland on sand dunes. This habitat may be used by species such as Bilby and Brush-tailed Mulgara where sandy soils are preferable for burrows.	

5.4 Vertebrate Fauna

A total of 121 vertebrate fauna species were recorded in the survey area during the field survey, comprising 24 mammals (including 11 bat species), 73 birds, 23 reptiles and one amphibian (Table 5.6, Appendix 13). Four introduced fauna species were recorded; the Dingo (*Canis familiaris*), Feral Domestic Cat (*Felis catus*), Camel (*Camelus dromedarius*) and European Cattle (*Bos primigenius taurus*).

Table 5.6: Vertebrate fauna species recorded during field survey.

Fauna Group	Number of Species ¹	Significant Species
Mammals	24	
• Native terrestrial	(9)	
• Introduced terrestrial	(4)	5
• Native bats	(11)	
Birds	73	0
Reptiles	23	0
Amphibians	1	0
Total	121	5

The five significant fauna species recorded were Northern Quoll (*Dasyurus hallucatus*), Bilby (*Macrotis lagotis*), Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia* Pilbara form), Brush-tailed Mulgara (*Dasymercus blythi*) and Western Pebble-mound Mouse (*Pseudomys chapmani*) (see Section 5.4.1).

Scats potentially belonging to the Black-footed Rock-wallaby (*Petrogale lateralis lateralis*) (Endangered under both the EPBC Act and the BC Act) were also recorded from suitable habitat for the species at four locations within the survey area. These were sent to Helix Molecular Solutions for DNA extraction and sequencing to confirm species identity. This molecular analysis confirmed that none of the scats that were sequenced belonged to Black-footed Rock-wallaby (see Appendix 14).

5.4.1 Significant Vertebrate Fauna Recorded

Each significant species recorded during the field survey is discussed below, with records mapped in Figure 5.3.

5.4.1.1 Northern Quoll (*Dasyurus hallucatus*)

The Northern Quoll is listed as Endangered under both the EPBC Act and the BC Act.

The species formerly occurred across much of northern Australia but is now restricted to six main areas. Two of these areas are in WA: the northwest Kimberley and the Pilbara regions (Braithwaite and Griffiths 1994). Northern Quolls are most abundant in open, rocky habitats and also commonly utilise gorges, breakaways, and hills, particularly for denning (Baker and Gynther 2023). They also occur along drainage lines, where adjacent plains and vegetated areas provide habitats for foraging and dispersal of young (Baker and Gynther 2023). Populations fluctuate on both annual and inter-annual cycles, driven by both the reproductive biology of the species and longer-term cycles in response to regional stochastic processes such as rainfall, fire and related changes of prey populations (How et al. 2009).

A single individual was observed during a night spotting survey, and tracks and scats were found at multiple locations within the survey area (Table 5.7, Plate 5.68). Individuals were also recorded on motion cameras at three locations within the survey area (Plate 5.69). Records were predominately from within the Gorges and gullies habitat (Figure 5.3). The study area has also been well surveyed for Northern Quoll in the past; over 170 records were returned from within the survey area during the desktop study, with many hundreds more from the wider study area. Although recorded at both the

eastern and western extents of the survey area, records of the species are spatially restricted and clustered in those habitat types typical of Northern Quoll such as rocky gorges, breakaways and hills.

Table 5.7: Northern Quoll records from the survey area.

Site	Date	Latitude	Longitude	Fauna Habitat	Notes
Secondary evidence					
L1FA041DS	05/05/2024			Low stony rises	Probable track
L1FA043DS	03/05/2024			Low stony rises	Probable track
L1FA043DS	03/05/2024			Low stony rises	Probable track
L1FA070DS	04/05/2024			Granite boulders	Probable track
L1FA102N	12/05/2024			Gorges and gullies	Scat
L1FA102N	16/05/2024			Gorges and gullies	Scat
L1FA102N	12/05/2024			Gorges and gullies	Observation
L1FA103DS	06/05/2024			Gorges and gullies	Scat
Motion camera records					
L1FA043MC	07/05/2024			Low stony rises	1 detection
L1FA103MC	09/05/2024			Gorges and gullies	7 detections
	10/05/2024				6 detections
	11/05/2024				2 detections

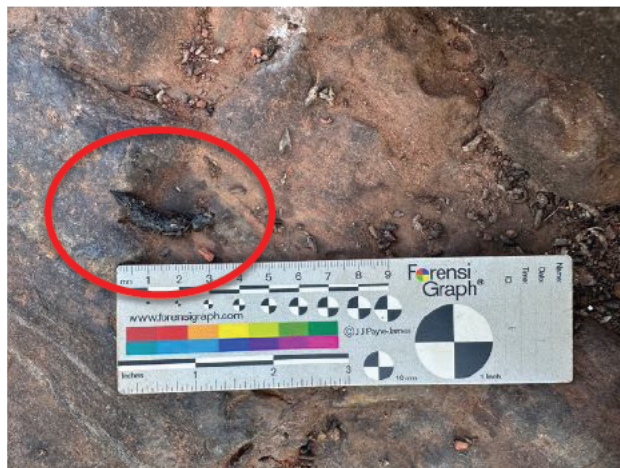


Plate 5.68: Northern Quoll scat from L1FA103DS (circled in red).



Plate 5.69: Northern Quoll on motion camera at L1FA103MC.

5.4.1.2 Bilby (*Macrotis lagotis*)

The Bilby is listed as Vulnerable under both the EPBC Act and the BC Act.

The species formerly occurred in a wide range of semi-arid and arid habitats across over 70% of the Australian mainland; however, it has declined markedly and now occupies less than 20% of its former range (Department of the Environment 2014). In WA, there are disjunct populations in the Gibson Desert, south-western Kimberley, inland areas of the Pilbara and northern Great Sandy Desert (Friend 1990), and reintroduced populations at Peron Peninsula, Mount Gibson, and the Matuwa Indigenous Protected Area (DCCEE 2023). Extant populations occur in a variety of habitats, usually on landforms of low topographic relief and light to medium soils. In the Pilbara, the species prefers areas suitable for burrowing where the substrate comprises sand, soil, sandy clay or sandy gravel (DBCA 2017), though it is also known from atypical stony gravelly areas (M. Dziminski, DBCA, pers. comm.). Additionally, the Bilby demonstrates strong association with particular species of *Acacia* that host root-dwelling larvae, which form a major food resource for the species in the Pilbara (DBCA 2017).

Bilby were recorded from one site in the survey area (L1FA095DS) from secondary evidence, including tracks, diggings and defunct burrows (Table 5.8, Figure 5.3, Plate 5.70 and Plate 5.71). Although no Bilby was observed or recorded on motion cameras, suitable habitat exists for this

species in the Acacia shrubland on spinifex sandplain across a large part of the survey area (over 65%).

The desktop study found that Bilbies have been previously recorded in the survey area eight times, though these records are over 20 years old. However, many records (250+) occur evenly distributed throughout the study area, with some being as recent as 2022.

Table 5.8: Bilby records from the survey and contextual area.

Site	Date	Latitude	Longitude	Fauna Habitat	Notes
Survey area					
L1FA095DS	12/05/2024			Acacia shrubland on spinifex sandplain	Track
L1FA095DS	12/05/2024			Acacia shrubland on spinifex sandplain	Diggings
L1FA095DS	12/05/2024			Acacia shrubland on spinifex sandplain	Defunct burrow
L1FA095DS	12/05/2024			Acacia shrubland on spinifex sandplain	Diggings
L1FA095DS	12/05/2024			Acacia shrubland on spinifex sandplain	Defunct burrow
L1FA095DS	12/05/2024			Acacia shrubland on spinifex sandplain	Diggings
Outside the survey area					
L1FA018DS	04/05/2024			Sand Dunes	Multiple old burrows, and many diggings at base of sand dune
L1FAOpp	11/05/2024			Acacia shrubland on spinifex sandplain	Defunct burrow observed during chopper survey



Plate 5.70: Defunct Bilby burrow.



Plate 5.71: Bilby track.

5.4.1.3 Pilbara Leaf-nosed Bat (*Rhinonictoris aurantia* Pilbara Form)

The Pilbara Leaf-nosed Bat is listed as Vulnerable under both the EPBC Act and BC Act.

It is a sub-population of the Orange Leaf-nosed Bat that is endemic to the Pilbara and Ashburton regions of WA. The Pilbara population is isolated from the main tropical Orange Leaf-nosed Bat populations in the Kimberley, Northern Territory and Queensland by 400 km of unsuitable habitat in the Great Sandy Desert (Armstrong 2001).

The Pilbara Leaf-nosed Bat is semi-desert adapted and has specific roosting requirements, requiring roost sites in caves or mine adits with stable, very hot (28 – 32°C) and very humid (96 – 100%) microclimates (Churchill 2008). Caves deep enough to create this environment are relatively uncommon in the Pilbara (Baker and Gynther 2023), which limits the availability of

diurnal roosts for this species (Bat Call WA 2021b). Observed foraging habitat includes *Triodia* hummock grassland, sparse tree and shrub savannah, and riparian vegetation along drainage lines (Duncan et al. 1999).

Pilbara Leaf-nosed Bat calls were detected on ultrasonic recorders from two potential foraging sites during the survey (Table 5.9). The larger volume and timing of calls recorded at L1FA60Bat (Table 5.9, Figure 5.3), with first calls just over one hour after sunset and last over one hour before sunrise, suggest that this site is in closer proximity to a roost than L1FA63Bat.

Table 5.9: Pilbara Leaf-nosed Bat records from the survey area.

Site	Latitude	Longitude	Date	Notes
L1FA060Bat	[REDACTED]	[REDACTED]	09/05/2024	107 detections, first at 1840, last at 0416
			10/05/2024	123 detections, first at 1835, last at 0454
			11/05/2024	97 detections, first at 1837, last at 0330
L1FA063Bat	[REDACTED]	[REDACTED]	03/05/2024	17 detections, first at 2004, last at 0028
			04/05/2024	17 detections, first at 1914, last at 0251
			05/05/2024	14 detections, first at 1856, last at 0430

5.4.1.4 Brush-tailed Mulgara *Dasycercus blythi*

The Brush-tailed Mulgara is listed as a Priority 4 species by the DBCA.

The species occurs from south-western Queensland across the Simpson, Tanami and Great Sandy Deserts of southern and central Northern Territory, through central WA. It typically occurs in spinifex grasslands on sandplains and sandy swales between low dunes but is also known to inhabit gibber (rock and pebble covered flat plains). It is closely associated with gently sloping to flat topographic positions rather than steep-sided sand ridges (Pavey et al. 2011). Within WA, the species has a widespread distribution including the Gascoyne, Murchison, Pilbara and some of the central deserts (Ric How, pers. comm., 2012).

No direct evidence of this species was recorded during the survey (i.e. individuals recorded on camera or observed). Probable secondary evidence of Brush-tailed Mulgara was recorded at eight locations within the survey area during the current survey, including tracks, burrows and diggings, predominately within the Acacia shrubland on spinifex sandplain habitat.

Although burrows and tracks of small dasyurids can be difficult to distinguish between species (Plate 5.72 and Plate 5.73), the desktop study also returned numerous records (250+) in the western third of the study area, and a single previous record was returned from within the survey area in 2012, supporting the conclusion that the secondary evidence recorded during the current survey belongs to Brush-tailed Mulgara.

Table 5.10: Brush-tailed Mulgara records from the survey area.

Site	Date	Latitude	Longitude	Fauna Habitat	Notes
L1FA045DS	06/05/2024	[REDACTED]	[REDACTED]	Low stony rises	Burrow
L1FA054DS	09/05/2024			Acacia shrubland on spinifex sandplain	Burrow
L1FA134DS	05/05/2024			Minor/moderate drainage line	Probable diggings
L1FA134DS	05/05/2024			Minor/moderate drainage line	Probable track
L1FA181DS	03/05/2024			Acacia shrubland on spinifex sandplain	Probable track
L1FA181DS	03/05/2024			Acacia shrubland on spinifex sandplain	Probable diggings
L1FA181DS	04/05/2024			Acacia shrubland on spinifex sandplain	Burrow

Site	Date	Latitude	Longitude	Fauna Habitat	Notes
L1FA181DS	04/05/2024			Acacia shrubland on spinifex sandplain	Burrow



Plate 5.72: Brush-tailed Mulgara burrow from L1FA181DS.



Plate 5.73: Probable Brush-tailed Mulgara track from L1FA181DS.

5.4.1.5 Western Pebble-mound Mouse (*Pseudomys chapmani*)

The Western Pebble-mound Mouse is listed as a Priority 4 species by the DBCA.

Previously described as endemic to the central and eastern parts of the Pilbara (Menkhorst and Knight 2011), it is now known to occur much more widely across the entire Pilbara region and into the Gascoyne (ALA 2024), where it is commonly found on stony hillsides with hummock grasslands (Menkhorst and Knight 2011). The species is well known for the extensive mounds of small stones it constructs, which are the most obvious indication of the species' occurrence in an area. Mounds are most common on spurs and gentle slopes where suitably sized stones are present (Baker and Gynther 2023).

No direct evidence of this species was recorded during the survey (i.e. individuals recorded on camera or observed). However, secondary evidence of the species' presence in the survey area in the form of both active and inactive pebble mounds was recorded during the current survey, predominately on Low stony rise habitat (Table 5.11; Plate 5.74 to Plate 5.75; Figure 5.3).

Table 5.11: Western Pebble-mound Mouse records from the survey area.

Site	Date	Latitude	Longitude	Fauna Habitat	Notes
L1FA030DS	03/05/2024			Low stony rises	Defunct mound
L1FA051DS	05/05/2024			Low stony rises	Active mound
L1FA060DS	06/05/2024			Rocky outcrops	Defunct mound
L1FA102N	08/05/2024			Gorges and gullies	Defunct mound
L1FA148DS	06/05/2024			Low stony rises	Active mound
L1FA148DS	06/05/2024			Low stony rises	Active mound
L1FA148DS	06/05/2024			Low stony rises	Defunct mound
L1FA148DS	06/05/2024			Low stony rises	Defunct mound
L1FA148DS	06/05/2024			Low stony rises	Defunct mound
L1FAOpp	04/05/2024			Low stony rises	Defunct mound
L1FAOpp	05/05/2024			Low stony rises	Active mound
L1FAOpp	07/05/2024			Low stony rises	Defunct mound
L1FAOpp	08/05/2024			Low stony rises	Defunct mound



Plate 5.74: Active Western Pebble-mound Mouse mound from L1FA148DS.



Plate 5.75: Defunct Western Pebble-mound Mouse mound from L1FA148DS.

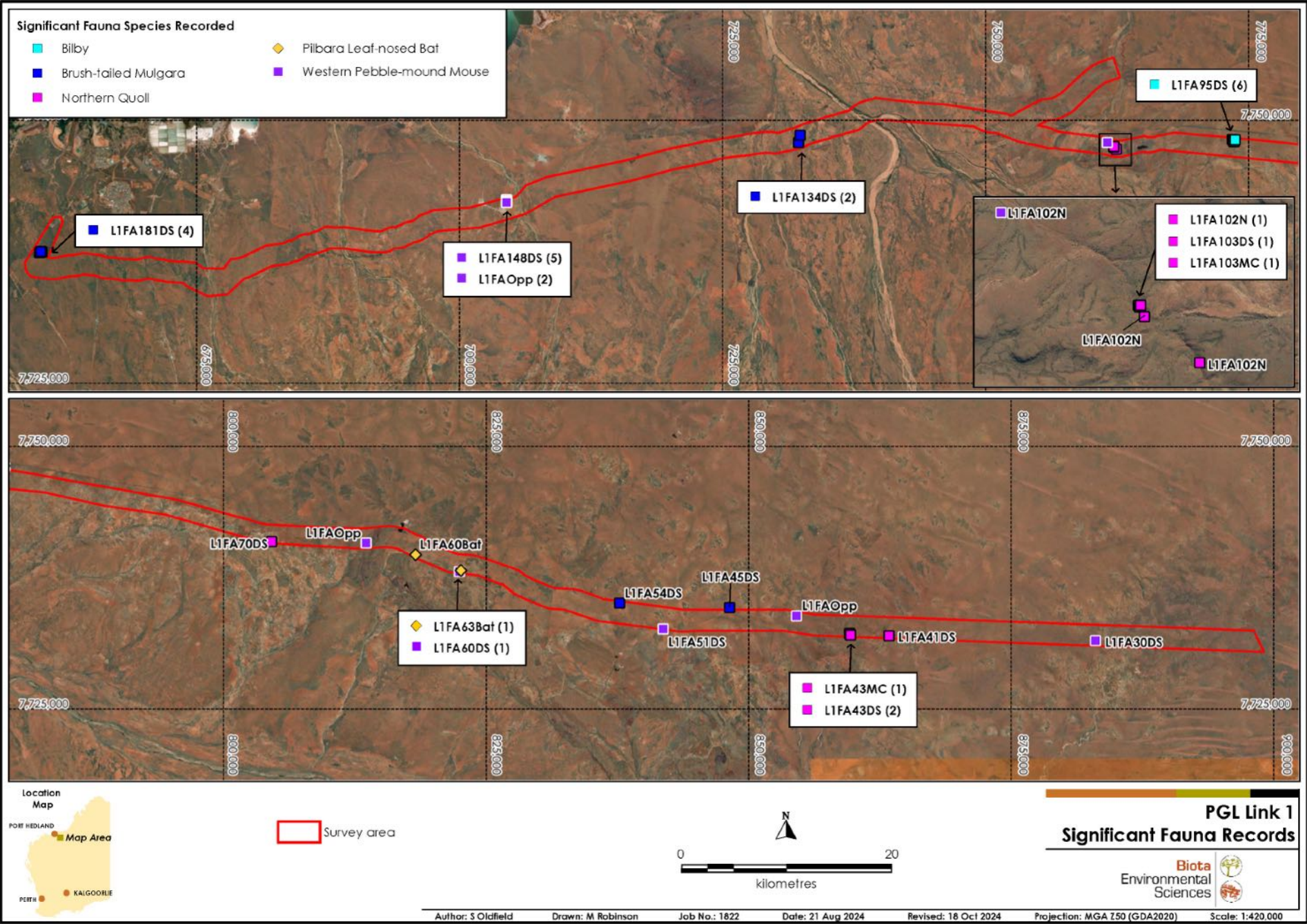


Figure 5.3: Significant fauna recorded during the survey.

5.4.2 Other Significant Species Likely to Occur

Eight other significant vertebrate fauna species were considered likely to occur, or have been previously recorded, in the survey area (Appendix 8, Sections 5.4.2.1 to 5.4.2.8).

5.4.2.1 Ghost Bat (*Macroderma gigas*)

The Ghost Bat is listed as Vulnerable under both the EPBC Act and the BC Act.

Ghost Bats previously occurred across most of inland and northern Australia, but are now restricted to the tropical and subtropical north of the continent (Churchill 2008). The distribution of this species is fragmented, with each population showing some genetic differentiation (Armstrong and Wilmer 2004). Ghost Bats occur in a broad range of habitats, with distribution influenced by the availability of suitable caves for roost sites, and are known to forage over areas up to 60 ha (Churchill 2008). Scat material from the Ghost Bat is quite distinctive and can be used to identify temporary roosts or feeding sites. Feeding sites are also usually readily identifiable based on the accumulation of discarded remains of prey animals (van Dyck and Strahan 2008).

No Ghost Bats were recorded during the survey, but the species has been recorded within the survey area in the past on five occasions, and additional times within the wider study area. The survey area falls within the published distributions for the species (e.g. Churchill 2008, Menkhorst and Knight 2011) and potentially suitable foraging habitat exists within the survey area across most habitat types, so it is likely to occur. Although some smaller caves were identified in the survey area, no suitable roosting habitat was identified, so the occurrence of Ghost Bat is likely to be dependent on the proximity of suitable roost sites in the areas outside of the survey area.

5.4.2.2 Grey Falcon (*Falco hypoleucos*)

The Grey Falcon is listed as Vulnerable both the EPBC Act and the BC Act.

The species is sparsely distributed across much of arid inland and northern Australia, occurring mainly on lightly wooded plains and along major watercourses (Johnstone et al. 2013). Breeding usually takes place in taller trees such as river red gums, or on isolated man-made structures such as communications towers.

The Grey Falcon was not recorded during the current survey but there are 12 previous records from the study area, with one being as close as 1 km from the survey area boundary. All habitats within the survey area are likely to be suitable for foraging for the species, with waterholes along major drainage lines or in man-made dams, and other features that attract aggregations of birds likely to be particularly attractive. Taller trees along the major drainage lines also offer potentially suitable breeding opportunities. Hence, we consider the species is likely to occur in the survey area.

5.4.2.3 Pilbara Olive Python (*Liasis olivaceus barroni*)

The Pilbara Olive Python is listed as Vulnerable under both the EPBC Act and BC Act.

It is a distinct subspecies of the Olive Python (which is found across northern Australia). The distribution of the *barroni* subspecies roughly coincides with the Pilbara bioregion, with a seemingly disjunct population around Mount Augustus in the Gascoyne region (DSEWPac 2012). Preferred habitat for the Pilbara Olive Python includes rocky areas such as gorges, escarpments, and rocky outcrops, and it is most-readily found close to pools (DAWE 2020). This is likely a function of its increased detectability around pools, rather than a distinct preference for them, as individuals have large home ranges (between 88 ha and 449 ha) and radio-tracking data shows they often reside significant distances from water (Tutt et al. 2004, Biota, unpublished data). They shelter and ambush prey from caves, crevasses, beneath boulders, rocks and vegetation, underwater, and in trees (Bush and Maryan 2011, Biota, unpublished data).

No direct evidence of this species was recorded during the survey (i.e. individuals trapped, recorded on camera or observed), but suitable habitat is present throughout the survey area in the gorges and gullies and rocky outcrops, and drainage line habitat type. Pilbara Olive Pythons are considered likely to occur.

5.4.2.4 Peregrine Falcon (*Falco peregrinus*)

The Peregrine Falcon is listed as Other Specially Protected Fauna under the BC Act.

It occurs almost Australia-wide, but is absent from most deserts and the Nullarbor Plain (Johnstone and Storr 1998). This species inhabits a wide range of habitats including forests, woodlands, wetlands and open country (Pizzey and Knight 2007). Individuals maintain large home ranges of up to 30 km², and nest in recesses of cliff faces, tree hollows and along rivers (Johnstone and Storr 1998).

No Peregrine Falcon were recorded during the survey but there are nine previous records of the species from the study area, with the most recent being in 2012. The survey areas falls within the published distribution for the species (Menkhorst et al. 2017), and all habitats within the survey area are likely to be suitable for foraging, with areas supporting aggregations of other birds likely to be particularly attractive. Taller trees along major drainage lines may also be suitable for nesting though rocky ledges (not present in the survey areas) are likely to be preferable. The Peregrine Falcon is therefore likely to occur within the survey area.

5.4.2.5 Pacific Swift (*Apus pacificus*)

The Pacific Swift (previously known as the Fork-tailed Swift) is listed as Migratory under both the EPBC Act and BC Act.

It occurs as a non-breeding migrant across much of Australia from September to April, particularly in the northern half of the continent. In general, the species is most common closer to the coast, but occurs over much of the Pilbara and Kimberley. In Australia, the species is entirely aerial in habit, foraging for flying insects and even sleeping on the wing. It is highly mobile, often occurring in association with unsettled weather and low pressure systems (Johnstone and Storr 1998).

Pacific Swifts were not recorded during the survey but the desktop study returned seven previous records from within the wider study area, the most recent being in 2022.

5.4.2.6 Oriental Pratincole (*Glareola maldivarum*)

The Oriental Pratincole is listed as Migratory under both the EPBC Act and BC Act.

The species is a non-breeding migrant to Australia and is typically present from October to May, with the largest numbers present from December to March (Johnstone and Storr 1998, Sitters et al. 2004). The Oriental Pratincole often uses broadly similar foraging habitats to the Oriental Plover, including short-grassed or bare plains, bare wetland margins. However, Oriental Pratincoles take most of their insect prey aerially (Johnstone and Storr 1998), and so will forage over a wider range of open habitat types, and occasionally over more wooded areas. Oriental Pratincole will also use tidal mudflats, beaches, sewage ponds and freshwater wetland areas, primarily for roosting during the heat of the day. They are mobile in response to conditions, and disperse across inland northern Australia during the wet season, occasionally gathering in exceptionally high numbers (Sitters et al. 2004).

Oriental Pratincoles were not recorded during the survey, which is not unexpected given the survey timing was after the largest numbers have typically left Australia for the migratory season. Thirty-two previous records have come from the study area, only one of which was from within Acacia shrubland on spinifex sandplain habitat within the survey area. Suitable foraging habitat exists across most of the habitats of the survey area, primarily in airspace over these habitats. Suitable roosting or loafing habitat also exists around the man-made dams, and in more open parts of the drainage line habitats. Hence, we consider that the species is likely to occur in the survey area as a wet season migrant, primarily from December to March.

5.4.2.7 Australian [Gull-billed] Tern *Gelochelidon [nilotica] macrotarsa*

The Gull-billed Tern is listed as Migratory under both the EPBC Act and BC Act.

However, there are two populations of Gull-billed Tern in Australia; a resident population, *G. [nilotica] macrotarsa* and a migratory population *G. nilotica affinis*. Most authorities now

recognise the resident Australian population as a distinct species, the Australian [Gull-billed] Tern, based on differences in plumage, structure, ecology and genetics (Rogers et al. 2005). The Australian [Gull-billed] Tern is still listed as Migratory under the EPBC Act due to a lag in updating the taxonomy of the species. Australian [Gull-billed] Terns are nomadic and occur widely across Australia, including both coastal and inland areas, but generally remain within Australia. They breed colonially on inland wetlands, and forage over sheltered coastal and inland wetlands, and over open grassland and bare ground (Johnstone and Storr 1998).

No Australian [Gull-billed] Terns were recorded during the current survey. Forty-seven previous records of the species were identified from the study area, one of which was from within the survey area in Acacia shrubland on spinifex sandplain habitat. However, the survey areas fall within the published distribution for the species (Menkhorst et al. 2017) and potentially suitable foraging habitat occurs in the major drainage lines habitat type and in man-made dams, so the species is likely to occur as a foraging visitor.

5.4.2.8 Caspian Tern (*Hydroprogne caspia*)

The Caspian Tern is listed as Migratory under both the BC and EPBC Acts.

It has a wide global distribution, and occurs around much of the Australian coastline, as well as inland in association with larger water bodies (Johnstone and Storr 1998, Menkhorst et al. 2017). Preferred habitat includes sheltered coasts and estuaries, and larger inland wetlands including large rivers, fresh and saline lakes, and temporary wetlands (Menkhorst et al. 2017). In WA, breeding occurs primarily on islands, with a few records from mainland coasts and the shores of large saline lakes (Johnstone and Storr 1998).

No Caspian Terns were observed within the survey area. Numerous previous records are known from the desktop study area, one of which is from within the survey area in Minor/moderate drainage line habitat. The major drainage line habitat represents potentially suitable habitat when extensive surface water is present.

5.4.3 Significant Species That May Occur

A further 10 significant species may occur in the survey area (Appendix 8, Sections 5.4.3.2 to 5.4.3.7).

5.4.3.1 Black-footed Rock-wallaby *Petrogale lateralis lateralis*

The Black-footed Rock-wallaby is listed as Endangered under both the EPBC Act and BC Act.

The Black-footed Rock-wallaby was formally widespread although patchily distributed, but populations have greatly declined and they are now confined to small patches of suitable habitat in central and southern WA (Threatened Species Scientific Committee 2016). Isolated populations now only occur in the Calvert Range, Cape Range, Avon Wheatbelt, Barrow Island, and Salisbury Island, as well as some scattered reintroduced populations. Rockpiles and other rocky habitat are primary habitat for the Black-footed Rock-Wallaby, providing shelter in the form of caves, cliffs and boulder screes during the day. Habitat critical to survival requires sufficient cave and crevice development to provide shelter from extremes of temperatures and predators (Menkhorst and Knight 2011).

While molecular analysis confirmed that the sequenced macropod scats from the survey area were not attributable to for Black-footed Rock Wallaby (Section 5.4.1; Appendix 14), suitable habitat for the species was present. This included occurrences of Granite boulders habitat approximately 80 km west-southwest of a recently discovered population of the species (Biota 2022a) and it may occur in the survey area. The granite boulder habitat found in 7.7% of the survey area (Section 5.3) is the most suitable for these species if it is present, though the gorges and gullies and rocky outcrops habitats are also suitable.

5.4.3.2 Spectacled Hare-wallaby (*Lagorchestes conspicillatus*)

The Spectacled Hare-wallaby is listed as Priority 4 by the DBCA.

There are scattered records of this species from the Kimberley and Pilbara regions of WA. It has declined in numbers over most of its range, including drastic declines in the mainland Pilbara region (Ingleby 1991, Burbidge and Johnson 2008). While abundant on Barrow Island, it was eliminated from the Montebello group of islands (located just to the north of Barrow Island) prior to 1950, most likely as a result of predation by feral cats (Burbidge and Main 1971). Individuals are mostly solitary, but sometimes feed in groups up to three (van Dyck and Strahan 2008), and occupy home ranges of about 1.77 km² (McCosker 1997).

The Spectacled Hare-wallaby was not recorded during the survey, but it can be hard to detect and is most commonly recorded incidentally when flushed from its daytime shelter in spinifex hummocks. Some parts of the survey area supported large spinifex hummocks, and there are four previous records from the wider study area, so it may occur.

5.4.3.3 Dampierland Plain Slider (*Lerista separanda*)

The Dampierland Plain Slider (*Lerista separanda*) is listed as a Priority 2 species by the DBCA.

The species prefers sandy substrates, including coastal areas and inland sand dunes and plains (Wilson and Swan 2021). There are 17 previous records from the study area, predominately from the eastern end. The sand dune habitat present in the survey area may represent suitable habitat.

5.4.3.4 Short-tailed Mouse (*Leggadina lakedownensis*)

The Short-tailed Mouse is listed as Priority 4 by the DBCA.

Prior to 1997, only two specimens of this species had been collected, however the number of records of this species has increased substantially since this time (Cooper et al. 2003). In WA, its distribution encompasses the Pilbara and Kimberley regions (Menkhorst and Knight 2011) although NatureMap records also place it within the Great Sandy Desert. Regional records suggest that the primary mainland habitat comprises areas of cracking clay and adjacent habitats. However, other sources provide a more diverse picture of habitat utilisation that includes areas of open tussock and hummock grassland, *Acacia* shrubland and savannah woodland, sandy soils as well as cracking clays (Aplin et al. 2016) as well as hilltops (Dr Peter Kendrick, pers. comm.) and sandy coastal areas (Biota, unpublished data). Population sizes appear to vary dramatically by season.

The Short-tailed Mouse was not recorded during the survey and no previous records from the survey area were identified in the desktop study. There have however been 17 records from within the wider study area and the areas of claypan habitat in the survey area may be suitable.

5.4.3.5 White-winged Tern (*Chlidonias leucopterus*)

The White-winged Tern is listed as Migratory under both the BC and EPBC Acts.

The species breeds in Asia and is a summer migrant to Australia from October to April-May (Menkhorst et al. 2017). They can occur in suitable habitat across most of Australia but are more common in the north of the country. Preferred habitats include coastal and inland freshwater wetlands, estuaries, sheltered seas, salt lakes and samphire, as well as flooded grasslands (Johnstone and Storr 1998).

The White-winged Tern was not recorded during the current survey. There are 45 previous records from within the study area, but there are no previous records from the survey area. Suitable habitat for the species exists in the major drainage line habitat, so the species may occur as a non-breeding visitor (primarily September to May).

5.4.3.6 Glossy Ibis (*Plegadis falcinellus*)

The Glossy Ibis is listed as Migratory under the BC and EPBC Acts.

They are widely distributed globally but within WA are primarily found in well-watered flatlands of the Kimberley and Swan Coastal Plain (Johnstone and Storr 1998). They are common in the Kimberley during and after the wet season, occasionally occurring in large numbers of up to 4,000 (Johnstone and Storr 1998). Preferred habitat includes shallow freshwater wetlands and adjacent flats, river pools, and flooded samphire (Johnstone and Storr 1998).

The Glossy Ibis was not recorded during the current survey, but there are 17 previous records from the wider study area. Some potentially suitable habitat exists within the survey area in the man-made dam and major drainage line habitat type and the species may periodically occur.

5.4.3.7 Other Migratory Shorebirds

In addition to the shorebirds discussed separately above, four other species of Migratory-listed shorebird may occur in the survey area, all of which are listed under both the BC Act and EPBC Act:

- Oriental Plover (*Anarhynchus veredus*);
- Little Curlew (*Numenius minutus*);
- Common Sandpiper (*Actitis hypoleucos*); and
- Common Greenshank (*Tringa nebularia*) – BC Act and EPBC Act Endangered, as well as Migratory.

These species are non-breeding migrants to Australia and will use shallows and margins of a variety of freshwater wetlands. None were recorded during the current survey, however numerous records were identified from the wider study area. Some areas of potentially suitable habitat exist major drainage lines habitat type and in the man-made dams, so these species may occur in the survey area, most likely as occasional passage visitors between August and May.

5.5 Potential SRE Invertebrate Fauna

5.5.1 Habitats Likely to Support SREs

Ten fauna habitats were identified and mapped based on the approach outlined in Section 3.7.2 in combination with on-ground habitat assessment and consideration of the ecological niches relevant to SRE fauna. Table 5.12 describes the microhabitats likely to support SRE species within each of the broader fauna habitat units of the survey area.

Based on the review of spatial data and ground-truthing in contextual areas, the SRE fauna habitats identified are not confined to the survey area and extend contiguously beyond, reducing the likelihood that any species would be restricted in distribution to the survey area.

Table 5.12: Microhabitats likely to support SRE species.

Fauna Habitat	SRE Microhabitat Description
Acacia shrubland on spinifex sandplain	Accumulations of leaf litter, areas of clayey soils, mature <i>Triodia</i> spp. Hummocks.
Granite boulders	Mature <i>Triodia</i> hummocks, leaf litter accumulations, granite outcrops.
Gorges and gullies	Accumulations of leaf litter, areas of clayey soils, mature <i>Triodia</i> spp. Hummocks.
Claypan	Extensive areas of high clay content soils.
Minor/moderate drainage line	Leaf litter accumulations, areas of high clay-content soils on floodplains.
Low stony rises	Sandy/stony soils, accumulations of leaf litter.
Rocky outcrops	Accumulations of leaf litter
Major drainage line	Floodplains of high clay content soils, permanent pools.
Cleared areas	Nil.
Sand dunes	Nil.

5.5.2 Mygalomorph Spiders

Eleven mygalomorph spiders were collected during the field survey, each preliminarily assigned to the family Anamidæ. All individuals were dug from burrows, with burrow morphology falling into one of three categories; sock (Plate 5.76, Plate 5.77), hooded (Plate 5.78, Plate 5.79) or open-hole (Plate 5.80, Plate 5.81).

Table 5.13: Mygalomorph spiders collected during the current survey.

Specimen ID	Burrow Morphology	Landform	Date Collected	Latitude	Longitude
M20240504.L1FA02SRE_SS-01	Open-hole	Floodplain	04/05/2024		
M20240505.L1FA12SRE_SS-01	Hooded	Floodplain	05/05/2024		
M20240506.L1FA15SRE_SS-01	Open-hole	Colluvial plain	06/05/2024		
M20240510.L1FA148SRE_SO-01	Hooded	Floodplain	10/05/2024		
M20240510.L1FA148SRE_SO-02	Hooded	Floodplain	10/05/2024		
M20240510.L1FA148SRE_SO-03	Open-hole	Floodplain	10/05/2024		
M20240511.L1FA29SRE_SS-01	Hooded	Bank	11/05/2024		
M20240512.L1FA32SRE_SS-01	Sock	Floodplain	12/05/2024		
M20240512.L1FA32SRE_SS-02	Sock	Floodplain	12/05/2024		
M20240512.L1FA32SRE_SS-03	Sock	Floodplain	12/05/2024		
M20240512.L1FA32SRE_SS-04	Sock	Floodplain	12/05/2024		



Plate 5.76: Sock burrow morphology (pre-exposure)
(M20240512.L1FA32SRE_SS-03).

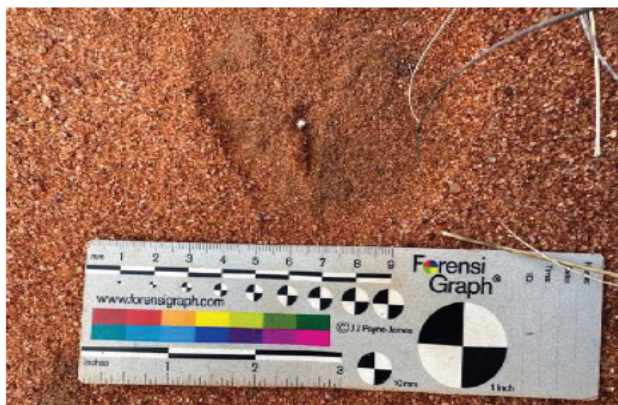


Plate 5.77: Sock burrow morphology (post-exposure)
(M20240512.L1FA32SRE_SS-03).



Plate 5.78: Hooded burrow morphology
M20240511.L1FA29SRE_SS-01).

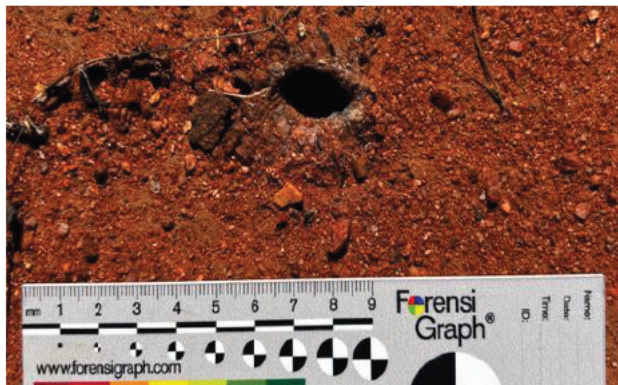


Plate 5.79: Hooded burrow morphology
(M20240510.L1FA148SRE_SO-01).

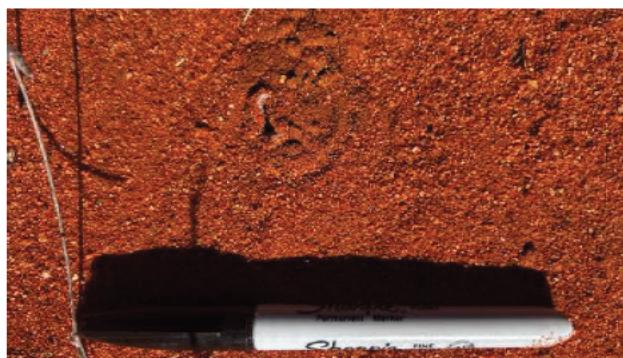


Plate 5.80: Open-hole burrow morphology
(M20240504.L1FA02SRE_SS-01).

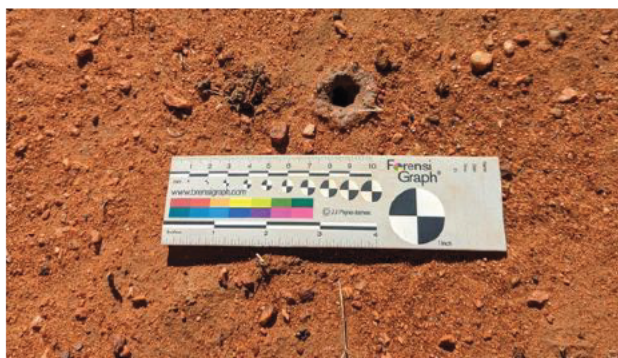


Plate 5.81: Open-hole burrow morphology
(M20240510.L1FA148SRE_SO-03).

5.5.3 Camaenid Snails

Camaenidae (land, air-breathing snails) were collected from six sites within the survey area, with microhabitats including under rocks beneath trees and shrubs and within *Triodia* hummocks in or near drainage lines. Morphological distinctions between the collected specimens were few and minor (Plate 5.82 to Plate 5.87).

Table 5.14: Camaenid snails collected during the current survey.

Specimen ID	Number Collected	Microhabitat	Date Collected	Latitude	Longitude
G20240503.L1FA06SRE_SS-01	2	Under rocks	03/05/2024	-20.32776938	119.4233584
G20240503.L1FA05SRE_SS-01	1	Under rocks	03/05/2024	-20.34139812	119.4151279
G20240504.L1FA10SRE_SS-01	1	Under <i>Triodia</i>	04/05/2024	-20.40613885	119.9195151
G20240507.L1FA21SRE_SS-01	7	Under <i>Triodia</i>	07/05/2024	-20.40254022	119.8983293
G20240507.L1FA22SRE_SS-01	1	Under <i>Triodia</i>	07/05/2024	-20.37543545	119.7920622
G20240508.L1FA23SRE_SS-01	4	Under <i>Triodia</i>	08/05/2024	-20.28110414	119.5105625



Plate 5.82: Specimen G20240503.L1FA06SRE_SS-01.

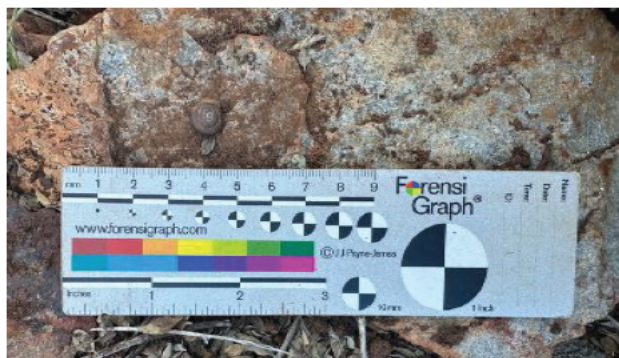


Plate 5.83: Specimen G20240503.L1FA05SRE_SS-01.



Plate 5.84: Specimen G20240504.L1FA10SRE_SS-01.



Plate 5.85: Specimen G20240507.L1FA21SRE_SS-01.



Plate 5.86: Specimen G20240507.L1FA22SRE_SS-01.



Plate 5.87: Specimen G20240508.L1FA23SRE_SS-01.

5.5.4 Scorpions and Pseudoscorpions

Two buthid scorpions (Family Buthidae) were collected during the survey (Table 5.15). The first was collected during a targeted SRE search under a rock beneath a *Triodia* hummock (Plate 5.88), the second was found wandering on the ground surface within a gorge during a night survey. Two pseudoscorpions were collected from the same site (rocky hill slope) in the survey area (Table 5.15).

Table 5.15: Buthid scorpions and pseudoscorpions collected during the current survey.

Specimen ID ¹	Number Collected	Microhabitat	Date Collected	Latitude	Longitude
S20240504.L1FA10SRE_SS-01	1	Under <i>Triodia</i>	04/05/2024		
S20240508.L1FA18SRE_SS-01	1	Rocky gorge	08/05/2024		
P20240503.L1FA05SRE_SS-01	2	Under rocks	03/05/2024		

¹ Prefix S denotes Buthid scorpion; Prefix P denotes pseudoscorpion.



Plate 5.88: Specimen S20240504.L1FA10SRE_SS-01.

5.5.5 Isopods and Centipedes

Isopods were collected from six sites, and centipedes were collected from three sites in the survey area (Table 5.16).

Table 5.16: Isopods and centipedes collected during the current survey.

Specimen ID ¹	Number Collected	Microhabitat	Date	Latitude	Longitude
I20240510.L1FA09SRE_SS-01	1	Under rocks	10/05/2024		
I20240504.L1FA10SRE_SS-01	3	Under rocks	04/05/2024		
I20240508.L1FA18SRE_SS-01	1	Gorge	08/05/2024		
I20240508.L1FA18SRE_SS-02	1	Gorge	08/05/2024		
I20240512.L1FA18SRE_SS-01	5	Gorge	12/05/2024		
I20240511.L1FA04SRE_MM-01	1	Rocky hill slope	13/05/2024		
C20240504.L1FA09SRE_SS-01	1	Under rocks	04/05/2024		
C20240507.L1FA18SRE_SS-01	1	Under rocks	07/05/2024		
C20240510.L1FA28SRE_SS-01	1	Under <i>Triodia</i>	10/05/2024		

¹Prefix I denotes isopod; Prefix C denotes centipede.

5.5.6 Selenopids

One Selenopid spider was collected from one site in the survey area from Granite Boulders habitat, under sheeting rock (Table 5.16).

Table 5.17: Selenopids collected during the current survey.

Specimen ID	Number Collected	Microhabitat	Date Collected	Latitude	Longitude
A20240504.L1FA10SRE_SS-01	1	Under rocks	04/05/2024		

6.0 Discussion and Conclusions

6.1 Vegetation

A total of 24 vegetation types were mapped in the survey area over six broad landforms, all of which are typical of the bioregion (Section 5.1). The vegetation of the survey area was primarily in Very Good to Excellent or Excellent condition (72%). Only 4.5% of the survey area was considered to be in Poor to Good condition and these areas were mainly associated with drainage lines and floodplains, being somewhat degraded through cattle grazing and weed invasion (Section 5.1.4). The survey area therefore contained a substantial amount of largely intact native vegetation.

None of the vegetation types in the survey area represented any significant ecological communities, however the riparian vegetation types D1 and D2 (the De Grey River and its tributaries) are considered as having a high potential to be GDEs or GDV due to the phreatophytic species *Eucalyptus camaldulensis*, *Eucalyptus victrix* and *Melaleuca argentea* being dominant. While all native vegetation is considered to have intrinsic value, vegetation types D1 and D2 were of elevated significance.

6.2 Flora

A total of 420 native flora species from 148 genera and 51 families were recorded in the survey area, as well as 15 introduced species (including two WoNS) (Section 5.2.4). No Threatened flora were recorded from the survey area and none are expected to occur. A total of 11 Priority listed species were recorded from the survey area (Section 5.2.2 and Figure 5.1).

The Priority species recorded comprised:

1. *Goodenia hartiana* (P2) – recorded at one location;
2. *Abutilon* sp. Pritzelianum (S. van Leeuwen 5095) (P3) – recorded at two locations;
3. *Bonamia oblongifolia* (P3) – recorded at two locations;
4. *Croton aridus* (P3) – recorded at 12 locations;
5. *Euphorbia clementii* (P3) – recorded at one location;
6. *Euphorbia inappendiculata* var. *inappendiculata* (P3) – recorded at one location;
7. *Euphorbia inappendiculata* var. *queenslandica* (P3) – recorded at one location;
8. *Indigofera ammobia* (P3) – recorded at one location;
9. *Polymeria* sp. Broome (K.F. Kenneally 9759) – recorded at one location;
10. *Tribulopsis marliesiae* (P3) – recorded at one location; and
11. *Bulbostylis burbridgeae* (P3) – recorded at one location.

An additional 15 Priority flora species have the potential to occur, and many of these would only be recorded following good rainfall, particularly those associated with clay plains habitats.

Two weeds of significance were recorded in the survey area:

1. **Calotropis procera* (Declared Pest) – recorded from eight locations across varying habitats but most often near permanent or ephemeral water sources; and
2. **Parkinsonia aculeata* (WoNS and Declared Pest) – recorded from one location on the bank of the De Grey River.

6.3 Vertebrate Fauna

A total of 10 fauna habitats were identified within the survey area, all of which are typical of the bioregion and are not considered to be significant.

During the survey, five significant fauna species were recorded: Northern Quoll (*Dasyurus hallucatus*), Bilby (*Macrotis lagotis*), Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia* Pilbara form), Brush-tailed Mulgara (*Dasycercus blythi*) and Western pebble-mound Mouse (*Pseudomys chapmani*). Overall, a total of 121 vertebrate fauna species were recorded in the survey area during the field survey, comprising 24 mammals (including 11 bat species), 73 birds, 23 reptiles, and one amphibian.

Likelihood of occurrence assessments based on the desktop study results and an assessment of habitats undertaken during the field survey indicated that a further eight significant vertebrate species are likely to occur in the survey area, while another 10 may occur.

6.4 SRE Invertebrate Fauna

Potential SRE species recorded within the survey area comprised 11 mygalomorph spiders, 17 camaenid snail, two buthid scorpions, two pseudoscorpions, 12 isopods, three centipedes and one Selenopid spider.

Eight habitat types were identified that may support SRE species during the current survey that contain various microhabitats that are prospective for SRE fauna. These include accumulations of leaf litter, areas of clayey soils, mature *Triodia* spp. Hummocks, granite outcrops, sandy/stony soils and permanent pools. None of the potential SRE habitats were identified as being isolated to the survey area and appear to be continuous throughout the locality.

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Appendix 1

Framework for Conservation Significance Ranking of Communities and Species in WA



A. Categories for Threatened and Priority Ecological Communities

A1. Categories and Criteria for Threatened Ecological Communities under the BC Act

Division 2

Subdivision 1 — Threatened ecological communities

27. Listing of threatened ecological communities

- (1) The Minister may, by order, list an ecological community as a threatened ecological community in one of the following categories —
 - (a) critically endangered ecological community;
 - (b) endangered ecological community;
 - (c) vulnerable ecological community.
- (2) An ecological community is not eligible for listing as a threatened ecological community if it is a collapsed ecological community.
- (3) When deciding whether or not to list an ecological community as a threatened ecological community or to amend or repeal such a listing, the Minister must have regard only to matters relating to the survival of the ecological community.
- (4) An order made under subsection (1) may describe or identify an ecological community by reference to a map or plan held in the Department.
- (5) Section 258 applies to an order made under subsection (1).

28. Criteria for categorisation as critically endangered ecological community

An ecological community is eligible for listing in the category of critically endangered ecological community at a particular time if, at that time —

- (a) it is facing an extremely high risk of becoming eligible for listing as a collapsed ecological community in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines; and
- (b) listing in that category is otherwise in accordance with the ministerial guidelines.

29. Criteria for categorisation as endangered ecological community

An ecological community is eligible for listing in the category of endangered ecological community at a particular time if, at that time —

- (a) it is not a critically endangered ecological community; and
- (b) it is facing a very high risk of becoming eligible for listing as a collapsed ecological community in the near future, as determined in accordance with criteria set out in the ministerial guidelines; and
- (c) listing in that category is otherwise in accordance with the ministerial guidelines.

30. Criteria for categorisation as vulnerable ecological community

An ecological community is eligible for listing in the category of vulnerable ecological community at a particular time if, at that time —

- (a) it is not a critically endangered ecological community or an endangered ecological community; and
- (b) it is facing a high risk of becoming eligible for listing as a collapsed ecological community in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines; and
- (c) listing in that category is otherwise in accordance with the ministerial guidelines.

Subdivision 2 — Collapsed ecological communities**31. Listing of collapsed ecological communities**

- (1) The Minister may, by order, list an ecological community as a collapsed ecological community.
- (2) Section 258 applies to an order made under subsection (1).

32. Criteria for listing as collapsed ecological community

An ecological community is eligible for listing as a collapsed ecological community at a particular time if, at that time —

- (a) there is no reasonable doubt that the last occurrence of the ecological community has collapsed; or
- (b) the ecological community has been so extensively modified throughout its range that no occurrence of it is likely to recover —
 - (i) its species composition or structure; or
 - (ii) its species composition and structure.

33. Rediscovered ecological communities

If a collapsed ecological community is discovered in a state that no longer makes it eligible for listing as a collapsed ecological community, it is to be regarded as a threatened ecological community for the purposes of this Act until —

- (a) it is listed as a threatened ecological community; or
- (b) the Minister declares, by instrument published in the Gazette, that it is not to be so listed.

A2. Categories and Criteria for Priority Ecological Communities (DEC 2010)

Possible threatened ecological communities that do not meet survey criteria or that are not adequately defined are added to the DBCA Priority Ecological Community Lists under Priorities 1, 2 and 3. These three categories are ranked in order of priority for survey and/or definition of the community, and evaluation of conservation status, so that consideration can be given to their declaration as threatened ecological communities. Ecological Communities that are adequately known, and are rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list, are placed in Priority 4. These ecological communities require regular monitoring. Conservation Dependent ecological communities are placed in Priority 5.

Priority One: Poorly-known ecological communities

Ecological communities 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. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.

Priority Two: Poorly-known ecological communities

Communities that are known from few small occurrences, all or most of which are actively managed for conservation (e.g. within national parks, conservation parks, nature reserves, State forest, unallocated Crown land, water reserves, etc.) and not under imminent threat of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.

Priority Three: Poorly known ecological communities

- (i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or:

- (ii) communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or;
- (iii) communities made up of large, and/or widespread occurrences, that may or not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, and inappropriate fire regimes.

Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them.

Priority Four: Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring.

- (a) Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These communities are usually represented on conservation lands.
- (b) Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.
- (c) Ecological communities that have been removed from the list of threatened communities during the past five years.

Priority Five: Conservation Dependent ecological communities

Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

B. Categories for Flora and Fauna Species

B1. Western Australian BC Act, and Priority Species Classification

In Western Australia, 'Threatened', 'Extinct' and 'Specially Protected' fauna and flora species are protected under the *Biodiversity Conservation Act 2016* (the BC Act), making it an offence to take or disturb these species without Ministerial approval. The definition of 'take' is broad, and includes killing, injuring, harvesting or capturing fauna, and gathering, cutting, destroying, harvesting or damaging flora.

Such species are classified within a framework of several categories.

Species of the highest significance are designated as Threatened species and are protected under sections 19(1)(a), 19(1)(b) and 19(1)(c) of the BC Act. Species are listed within one of three categories:

- Critically endangered (CR), Endangered (EN), or Vulnerable (V), representing those species listed in Schedules 1 to 3 respectively of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* or the *Wildlife Conservation (Rare Flora) Notice 2018*.

Presumed extinct species are protected under sections 24 and 25 of the BC Act and are listed in one of two categories:

- Extinct (EX), representing those species listed in Schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* or the *Wildlife Conservation (Rare Flora) Notice 2018*; or
- Extinct in the wild (EW); there are currently no listed species under this category.

Specially protected species are protected under section 13(1) of the BC Act, and include species of special conservation interest, migratory species, cetaceans, species subject to international agreement, or species otherwise in need of special protection. Of these:

- Migratory species (MI) are those listed under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*;

- Species of special conservation interest (conservation dependent fauna) (CD) are those listed under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*; and
- Other specially protected fauna (OS) are those listed under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*;

In addition to the species formally designated as protected under the BC Act, the WA Department of Biodiversity, Conservation and Attractions (DBCA) also maintains a list of 'Priority species'.

Species that appear to be rare or threatened, but for which there is insufficient information to properly evaluate their significance, are assigned to one of three Priority categories (Priority 1 to Priority 3), while species that are adequately known but require regular monitoring are assigned to Priority 4.

Note that of the above classifications, only 'Threatened', 'Extinct' and 'Specially Protected' species have statutory standing. The Priority flora and fauna classifications are employed by the WA DBCA to manage and classify their database of species considered potentially rare or at risk, but these categories have no legislative status.

Further explanations of the categories is provided in more detail in the following pages.

CONSERVATION CATEGORY DEFINITIONS

for Western Australian Ecological Communities

GENERAL DEFINITIONS

An **ecological community** is a naturally occurring assemblage of organisms that occurs in a particular habitat, as defined in the *Biodiversity Conservation Act 2016* (BC Act). Ecological communities may comprise various life forms including plants, animals and microorganisms.

Note: The scale at which ecological communities are defined will often depend on the level of detail in the information source, therefore no particular scale is specified.

A **threatened ecological community** (TEC) means an ecological community that is listed under section 27(1) of the BC Act as a critically endangered, endangered or vulnerable ecological community, or is a rediscovered ecological community to be regarded as a threatened ecological community under section 33 of the BC Act.

An **assemblage** is a defined group of biological entities.

Habitat, as defined in the BC Act, means the biophysical medium or media —

- a) occupied (continuously, periodically or occasionally) by an organism or group of organisms, or
- b) once occupied (continuously, periodically or occasionally) by an organism, or group of organisms, and into which organisms of that kind have the potential to be reintroduced.

An **occurrence** is a discrete example of an ecological community, separated from other examples of the same community by more than 20 metres with, for example: a different ecological community, a sealed road, a building, a water body (for terrestrial communities), or a terrestrial body (for aquatic communities). There is no minimum size of an occurrence of a threatened or priority ecological community. By ensuring that every discrete occurrence is recognised and recorded, future changes in status can be readily monitored.

Adequately surveyed is defined as an ecological community that has been searched for thoroughly in most likely habitats, by relevant experts.

Community structure is defined as the spatial organisation, construction and arrangement of the biological elements comprising a biological assemblage. For example, the vegetation structure (e.g., *Eucalyptus salmonophloia* woodland over scattered small shrubs over dense herbs) or the trophic structure in a faunal assemblage (e.g., dominance by feeders on detritus as distinct from feeders on live plants).

To **modify** an occurrence of an ecological community, as defined in section 44 of the BC Act, means to take action that results in —

- (a) the modification of the occurrence of the threatened ecological community to such an extent that the occurrence is unlikely to recover —
 - (i) its species composition or structure; or
 - (ii) its species composition and structure; or
- (b) the destruction of the occurrence of the threatened ecological community.

Destruction of an occurrence of an ecological community means modification such that reestablishment of ecological processes, species composition or community structure within the range of variability exhibited by the original community is unlikely within the foreseeable future even with positive human intervention.

Modification and destruction are difficult concepts to quantify, and their application will be determined by scientific judgement. Refer to the document [Guidance note – Modification of an occurrence of a threatened ecological community](#) for more information on what constitutes modification and how to determine whether an action is likely to modify an occurrence of a threatened ecological community.

Threatening process means a process that threatens, or may threaten, the survival, abundance or evolutionary development of a native species or ecological community, as defined under the BC Act. Examples of some of the continuing threatening processes in Western Australia include: vegetation clearance; competition and land degradation by introduced fauna; dieback caused by the root-rot fungus (*Phytophthora cinnamomi*); competition and displacement of native plants by introduced flora; hydrological changes (declining groundwater levels); drying climate, fire regimes that cause declines in biodiversity; direct human exploitation and disturbance of ecological communities.

Restoration is defined as returning an ecological community to its pre-disturbance or natural state in terms of abiotic conditions, community structure and species composition.

Rehabilitation is defined as the re-establishment of ecological attributes in a damaged ecological community although the community will remain modified.

LISTED ECOLOGICAL COMMUNITIES

Assessment of the conservation status of ecological communities is carried out in accordance with the BC Act listing criteria and the requirements of [Ministerial Guideline Number 1](#) and [Ministerial Guideline Number 4](#) that adopt the use of the International Union for Conservation of Nature (IUCN) [Red List of Ecosystems Categories and Criteria](#).

CO Collapsed ecological communities

An ecological community listed by order of the Minister as collapsed under section 31(1) of the BC Act. As determined by criteria set out in section 32 of the BC Act, an ecological community is eligible for listing as a collapsed ecological community at a particular time if, at that time —

- (a) there is no reasonable doubt that the last occurrence of the ecological community has collapsed; or
- (b) the ecological community has been so extensively modified throughout its range that no occurrence of it is likely to recover —
 - (i) its species composition or structure; or
 - (ii) its species composition and structure.

CR Critically endangered ecological communities

A threatened ecological community listed in the category of critically endangered under section 27(1)(a) of the BC Act, as determined by criteria set out in section 28 of the BC Act and the ministerial guidelines. A critically endangered ecological community faces an extremely high risk of becoming eligible for listing as a collapsed ecological community in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines.

Examples of use:

- 'Assemblages of the organic springs and mound springs of the Mandora Marsh area' is listed as a critically endangered threatened ecological community under the *Biodiversity Conservation Act 2016*.
- 'Assemblages of the organic springs and mound springs of the Mandora Marsh area' is listed as critically endangered under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table – column heading: BC Act; row text: CR.

EN Endangered ecological communities

A threatened ecological community listed in the category of endangered ecological community under section 27(1)(b) of the BC Act, as determined by criteria set out in section 29 of the BC Act and the ministerial guidelines. A threatened ecological community faces a very high risk of becoming eligible for listing as a collapsed ecological community in the near future, as determined in accordance with criteria set out in the ministerial guidelines.

Examples of use:

- 'Herb rich shrublands in clay pans (floristic community type 8 as originally described in Gibson *et al.* (1994))' is listed as an endangered threatened ecological community under the *Biodiversity Conservation Act 2016*.
- 'Herb rich shrublands in clay pans (floristic community type 8 as originally described in Gibson *et al.* (1994))' is listed as endangered under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table – column heading: BC Act; row text: EN.

VU Vulnerable ecological communities

A threatened ecological community listed in the category of vulnerable ecological community under section 27(1)(c) of the BC Act, as determined by criteria set out in section 30 of the BC Act and the ministerial guidelines. A vulnerable ecological community faces a high risk of becoming eligible for listing as a collapsed ecological community in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines.

Examples of use:

- 'Calothamnus graniticus subsp. graniticus heaths on south west coastal granites' is listed as a vulnerable threatened ecological community under the *Biodiversity Conservation Act 2016*.
- 'Calothamnus graniticus subsp. graniticus heaths on south west coastal granites' is listed as vulnerable under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table – column heading: BC Act; row text: VU.

PRIORITY ECOLOGICAL COMMUNITIES

Priority is not a listing category under the BC Act. The Priority Ecological Communities list is maintained by the department and is published on the department's website.

All fauna and flora that may be present in an ecological community are protected in WA following the provisions in Part 10 of the BC Act. The protection applies even when these species occur in an ecological community that is not listed as threatened, and regardless of land tenure (State managed land (Crown land), private land, or Commonwealth land).

Possible threatened ecological communities that do not meet survey criteria or are not adequately defined to enable listing are added to the department's [Priority Ecological Communities for Western Australia list](#) under priority 1, 2 or 3. Ecological communities that are adequately known and not threatened but rare, near threatened, or have recently been removed from the threatened list are placed in priority 4. Conservation dependent ecological communities are placed in priority 5.

P1 Priority 1: Poorly known ecological communities – very few occurrences, very restricted distribution

Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤ 5 occurrences or a total area of ≤ 100 ha). Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g., within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.

Examples of use:

- 'Banded Ironstone Hills with *Dryandra arborea*' is listed as a Priority 1 ecological community by the Department of Biodiversity, Conservation and Attractions.
- 'Banded Ironstone Hills with *Dryandra arborea*' is listed as Priority 1 on the DBCA Priority Ecological Communities List.
- Listing reference in a table – column heading: DBCA; row text: P1.

P2 Priority 2: Poorly known ecological communities – few occurrences, restricted distribution

Communities that are known from few occurrences with a restricted distribution (generally ≤ 10 occurrences or a total area of ≤ 200 ha). At least some occurrences are not believed to be under immediate threat (within approximately 10 years) of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.

Examples of use:

- 'Aquatic invertebrate communities of peat swamps' is listed as a Priority 2 ecological community by the Department of Biodiversity, Conservation and Attractions.
- 'Aquatic invertebrate communities of peat swamps' is listed as Priority 2 on the DBCA Priority Ecological Communities List.
- Listing reference in a table – column heading: DBCA; row text: P2.

P3 Priority 3: Poorly known ecological communities – inadequately surveyed or not well defined

Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them. This category includes three sub-categories:

- (i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation.
- (ii) Communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat (within approximately 10 years).
- (iii) Communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, inappropriate fire regimes, clearing, hydrological change, etc.

Examples of use:

- 'Assemblages of gypsum dunes of the central and southern wheatbelt' is listed as a Priority 3(iii) ecological community by the Department of Biodiversity, Conservation and Attractions.
- 'Assemblages of gypsum dunes of the central and southern wheatbelt' is listed as Priority 3(iii) on the DBCA Priority Ecological Communities List.
- Listing reference in a table – column heading: DBCA; row text: P3(iii).

P4 Priority 4: Adequately known ecological communities – rare, near threatened, or recently removed from the threatened list

Ecological communities that are adequately known and either rare but not threatened, near threatened, or have recently been removed from the threatened list. These communities require regular monitoring.

- (i) Rare: ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These communities are usually represented on conservation lands.
- (ii) Near threatened: ecological communities that are considered to have been adequately surveyed and that do not qualify as conservation dependent, but that are close to qualifying for a higher threat category.
- (iii) Ecological communities that have been removed from the list of threatened communities during the past five years.

Examples of use:

- 'Nimalaica (Nimalarragun) claypan and associated wetland assemblages' is listed as a Priority 4(ii) ecological community by the Department of Biodiversity, Conservation and Attractions.
- 'Nimalaica (Nimalarragun) claypan and associated wetland assemblages' is listed as Priority 4(ii) on the DBCA Priority Ecological Communities List.
- Listing reference in a table: column heading: DBCA, row text: P4(ii).

P5 Priority 5: 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.

CONSERVATION CODES

For Western Australian Fauna and Flora

Threatened, Extinct and Specially Protected fauna or flora¹ are species² which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such.

The *Wildlife Conservation (Specially Protected Fauna) Notice 2018* and the *Wildlife Conservation (Rare Flora) Notice 2018* have been transitioned under regulations 170, 171 and 172 of the *Biodiversity Conservation Regulations 2018* to be the lists of Threatened, Extinct and Specially Protected species³ under Part 2 of the *Biodiversity Conservation Act 2016*.

Categories of Threatened, Extinct and Specially Protected fauna and flora are:

T **Threatened species**

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is the species of fauna that are listed as critically endangered, endangered or vulnerable threatened species.

Threatened flora is the species of flora that are listed as critically endangered, endangered or vulnerable threatened species.

The assessment of the conservation status of threatened species is in accordance with the BC Act listing criteria and the requirements of Ministerial Guideline (Number 1) and Ministerial Guideline (Number 2) that adopts the use of the International Union for Conservation of Nature (IUCN) Red List of Threatened Species Categories and Criteria⁴, and is based on the national distribution of the species.

CR **Critically endangered species**

Threatened species considered to be “*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines.

Examples of use:

- The western ringtail possum (*Pseudocheirus occidentalis*) is listed as a critically endangered threatened species under the *Biodiversity Conservation Act 2016*.
- Western ringtail possum is listed as critically endangered under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table: column heading: BC Act, row text: CR.

EN **Endangered species**

Threatened species considered to be “*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines.

Examples of use:

- *Caladenia hopperiana* is listed as an endangered threatened species under the *Biodiversity Conservation Act 2016*.
- *Caladenia hopperiana* is listed as endangered under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table: column heading: BC Act, row text: EN.

VU Vulnerable species

Threatened species considered to be “*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines.

Examples of use:

- The forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) is listed as a vulnerable threatened species under the *Biodiversity Conservation Act 2016*.
- Forest red-tailed black cockatoo is listed as vulnerable under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table: column heading: BC Act, row text: VU.

Extinct species

Listed by order of the Minister as extinct under section 23(1) of the BC Act as extinct or extinct in the wild.

EX Extinct species

Species where “*there is no reasonable doubt that the last member of the species has died*”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Examples of use:

- *Acacia kingiana* is listed as an extinct species under the *Biodiversity Conservation Act 2016*.
- *Acacia kingiana* is listed as extinct under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table: column heading: BC Act, row text: EX.

EW Extinct in the wild species

Species that “*is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no fauna or flora species listed as extinct in the wild.

SP 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.

MI Migratory species

Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Migratory species include birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA)⁵, China (CAMBA)⁶ or The Republic of Korea (ROKAMBA)⁷, and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention)⁸, 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.

Examples of use:

- The wedge-tailed shearwater (*Ardenna pacifica*) is listed as a specially protected migratory species under the *Biodiversity Conservation Act 2016*.
- Wedge-tailed shearwater is listed as migratory under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table: column heading: BC Act, row text: MI.

CD Species of special conservation interest (conservation dependent)

Species of special conservation need that are 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).

Currently only fauna are listed as species of special conservation interest.

Examples of use:

- The wambenger, south-western brush-tailed phascogale (*Phascogale tapoatafa wambenger*) is listed as a specially protected species of special conservation interest under the *Biodiversity Conservation Act 2016*.
- Wambenger, south-western brush-tailed phascogale, is listed as conservation dependent under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table: column heading: BC Act, row text: CD.

OS Species otherwise in need of special protection (other specially protected)

Species 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).

Currently only fauna are listed as species otherwise in need of special protection.

Examples of use:

- The dugong (*Dugong dugon*) is listed as a specially protected species otherwise in need of special protection under the *Biodiversity Conservation Act 2016*.
- Dugon is listed as other specially protected fauna under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table: column heading: BC Act, row text: OS.

P Priority species

Priority is not a listing category under the BC Act.

All fauna and flora are protected in WA following the provisions in Part 10 of the BC Act. The protection applies even when a species is not listed as threatened or specially protected, and regardless of land tenure (State managed land (Crown land), private land, or Commonwealth land).

Species that may possibly be threatened species that do not meet the criteria for listing under the BC Act because of insufficient survey 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 prioritisation for survey and evaluation of conservation status so that consideration can be given to potential listing as threatened.

Species that are adequately known, meet criteria for near threatened, or are rare but not threatened, or that have been recently removed from the threatened species list or conservation dependent or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of priority status 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.

1 Priority 1: Poorly-known species - known from few locations, none on conservation lands

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, for example, 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 for threatened listing and appear to be under immediate threat from known threatening processes. These species are in urgent need of further survey.

Examples of use:

- *Borya stenophylla* is listed as a Priority 1 species by the Department of Biodiversity, Conservation and Attractions.
- *Borya stenophylla* is listed as Priority 1 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P1.

2 Priority 2: Poorly-known species - known from few locations, some on conservation lands

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, for example, 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 for threatened listing and appear to be under threat from known threatening processes. These species are in urgent need of further survey.

Examples of use:

- *Caladenia nivalis* is listed as a Priority 2 species by the Department of Biodiversity, Conservation and Attractions.
- *Caladenia nivalis* is listed as Priority 2 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P2.

3 Priority 3: Poorly-known species - known from several locations

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. These species need further survey.

Examples of use:

- *Acacia nitidula* is listed as a Priority 3 species by the Department of Biodiversity, Conservation and Attractions.
- *Acacia nitidula* is listed as Priority 3 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P3.

4 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 a conservation dependent specially protected species.

(c) Species that have been removed from the list of threatened species or lists of conservation dependent or other specially protected species, during the past five years for reasons other than taxonomy.

(d) Other species in need of monitoring.

Examples of use:

- *Banksia aculeata* is listed as a Priority 4 species by the Department of Biodiversity, Conservation and Attractions.
- *Banksia aculeata* is listed as Priority 4 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P4.

¹ The definition of flora includes algae, fungi, and lichens.

² Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

³ Schedules are not referred to when stating the listing status of threatened, extinct or specially protected species under the BC Act. See the examples provided under each listing category.

⁴ Western Australia has assigned species to threat categories using the *IUCN Red List of Threatened Species Categories and Criteria* since 1996 (referencing all criteria). At the national level, threatened species listings under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) reference only some of the IUCN criteria (<http://www.environment.gov.au/biodiversity/threatened/nominations/forms-and-guidelines>).

⁵ JAMBA - first included in the WA migratory species list in 1980.

⁶ CAMBA - first included in the WA migratory species list in 2010.

⁷ ROKAMBA - first included in the WA migratory species list in 2010.

⁸ Bonn Convention (Birds) - first included in the WA migratory species list in 2015.

B2. Commonwealth Environment Protection and Biodiversity Conservation Act 1999

Many of the species that are specially protected at State level are also listed as Threatened species at the Federal level, as one of the Matters of National Environmental Significance (MNES) identified under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). These may be classified as 'critically endangered', 'endangered', 'vulnerable' or 'lower risk', consistent with IUCN categories:

- **Critically Endangered (CR):** a taxon is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future.
- **Endangered (EN):** a taxon is Endangered when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future.
- **Vulnerable (VU):** a taxon is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future.
- **Lower Risk (LR):** a taxon is Lower Risk when it has been evaluated, does not satisfy the criteria for any of the categories Critically Endangered, Endangered or Vulnerable. Taxa included in the Lower Risk category can be separated into three subcategories:

Conservation Dependent (CD). Taxa which are the focus of a continuing taxon-specific or habitat-specific conservation program targeted towards the taxon in question, the cessation of which would result in the taxon qualifying for one of the threatened categories above within a period of five years.

Near Threatened (NT). Taxa which do not qualify for Conservation Dependent, but which are close to qualifying for Vulnerable.

Least Concern (LC). Taxa which do not qualify for Conservation Dependent or Near Threatened.

In addition, numerous **Migratory (MI)** species are listed as MNES under the EPBC Act (some of which are also listed as Threatened). Migratory species are those animals that migrate to Australia and its external territories, or pass through or over Australian waters during their annual migrations. The list of migratory species consists of those species listed under the following international conventions:

Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention);

China-Australia Migratory Bird Agreement (CAMBA);

Japan-Australia Migratory Bird Agreement (JAMBA); and,

Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA).

Marine (MA) species are also protected under the EPBC Act, and are listed to ensure the long-term conservation of the species. Marine species include all Australian sea snakes, seals, crocodiles, dugongs, marine turtles, seahorses and seabirds that naturally occur in the Commonwealth marine area.

Under the terms of the EPBC Act, an action (e.g. a project or development) is required to be referred to the Australian Government Environment Minister for approval if it has, will have, or is likely to have, a significant impact on an MNES. The term 'action' includes projects and developments subsequent to commencement of the Act, however there are a number of exemptions (e.g. projects in Commonwealth areas). According to Department of the Environment (2013), a 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts.

References:

Department of the Environment (2013). Matters of National Environmental Significance - Significant Impact Guidelines 1.1 *Environment Protection and Biodiversity Conservation Act 1999*. Department of the Environment, Canberra, Australia.

Taxon	Class	Cons	Kingdom
<i>Acanthagenys rufogularis</i>	Bird		Animalia
<i>Acanthiza chrysorrhoa</i>	Bird		Animalia
<i>Acanthophis pyrrhus</i>	Reptile		Animalia
<i>Acanthophis wellsei</i>	Reptile		Animalia
<i>Accipiter cirrocephalus</i>	Bird		Animalia
<i>Accipiter fasciatus</i>	Bird		Animalia
<i>Accipiter fasciatus subsp. fasciatus</i>	Bird		Animalia
<i>Acrocephalus australis</i>	Bird		Animalia
<i>Actitis hypoleucos</i>	Bird	MI	Animalia
<i>Aegotheles cristatus</i>	Bird		Animalia
<i>Aipysurus laevis</i>	Reptile		Animalia
<i>Amphibolurus gilberti</i>	Reptile		Animalia
<i>Amphibolurus longirostris</i>	Reptile		Animalia
<i>Amytornis striatus</i>	Bird		Animalia
<i>Anas gracilis</i>	Bird		Animalia
<i>Anas rhynchos</i>	Bird		Animalia
<i>Anas superciliosa</i>	Bird		Animalia
<i>Anhinga melanogaster</i>	Bird		Animalia
<i>Anhinga melanogaster subsp. novaehollandiae</i>	Bird		Animalia
<i>Anhinga novaehollandiae</i>	Bird		Animalia
<i>Anilius ammodytes</i>	Reptile		Animalia
<i>Antaresia perthensis</i>	Reptile		Animalia
<i>Antaresia stimsoni</i>	Reptile		Animalia
<i>Antaresia stimsoni subsp. stimsoni</i>	Reptile		Animalia
<i>Antechinomys laniger</i>	Mammal		Animalia
<i>Anthus australis</i>	Bird		Animalia
<i>Anthus australis subsp. australis</i>	Bird		Animalia
<i>Apus pacificus</i>	Bird	MI	Animalia
<i>Aquila audax</i>	Bird		Animalia
<i>Aquila morphnoides</i>	Bird		Animalia
<i>Ardea alba</i>	Bird		Animalia
<i>Ardea alba subsp. modesta</i>	Bird		Animalia
<i>Ardea garzetta</i>	Bird		Animalia
<i>Ardea garzetta subsp. nigripes</i>	Bird		Animalia
<i>Ardea ibis</i>	Bird		Animalia
<i>Ardea intermedia</i>	Bird		Animalia
<i>Ardea modesta</i>	Bird		Animalia
<i>Ardea novaehollandiae</i>	Bird		Animalia
<i>Ardea pacifica</i>	Bird		Animalia
<i>Ardeotis australis</i>	Bird		Animalia
<i>Arenaria interpres</i>	Bird	MI	Animalia
<i>Arenaria interpres subsp. interpres</i>	Bird		Animalia
<i>Artamus cinereus</i>	Bird		Animalia
<i>Artamus cinereus subsp. melanops</i>	Bird		Animalia
<i>Artamus cyanopterus</i>	Bird		Animalia

Taxon	Class	Cons	Kingdom
<i>Artamus leucogaster</i>	Bird		Animalia
<i>Artamus leucorhynchus</i>	Bird		Animalia
<i>Artamus leucorhynchus</i> subsp. <i>leucopygialis</i>	Bird		Animalia
<i>Artamus minor</i>	Bird		Animalia
<i>Artamus personatus</i>	Bird		Animalia
<i>Artamus superciliosus</i>	Bird		Animalia
<i>Aspidites melanocephalus</i>	Reptile		Animalia
<i>Aspidites ramsayi</i>	Reptile		Animalia
<i>Aythya australis</i>	Bird		Animalia
<i>Barnardius zonarius</i>	Bird		Animalia
<i>Bos taurus</i>	Mammal		Animalia
<i>Brachyuophis approximans</i>	Reptile		Animalia
<i>Brachyuophis fasciolatus</i> subsp. <i>fasciatus</i>	Reptile		Animalia
<i>Burhinus grallarius</i>	Bird		Animalia
<i>Butorides striata</i>	Bird		Animalia
<i>Butorides striatus</i>	Bird		Animalia
<i>Cacatua roseicapilla</i>	Bird		Animalia
<i>Cacatua roseicapilla</i> subsp. <i>assimilis</i>	Bird		Animalia
<i>Cacatua sanguinea</i>	Bird		Animalia
<i>Cacatua sanguinea</i> subsp. <i>westralensis</i>	Bird		Animalia
<i>Cacomantis pallidus</i>	Bird		Animalia
<i>Calidris acuminata</i>	Bird	MI	Animalia
<i>Calidris alba</i>	Bird	MI	Animalia
<i>Calidris canutus</i>	Bird	EN	Animalia
<i>Calidris canutus</i> subsp. <i>rogersi</i>	Bird		Animalia
<i>Calidris ferruginea</i>	Bird	CR	Animalia
<i>Calidris fuscicollis</i>	Bird		Animalia
<i>Calidris melanotos</i>	Bird	MI	Animalia
<i>Calidris ruficollis</i>	Bird	MI	Animalia
<i>Calidris subminuta</i>	Bird	MI	Animalia
<i>Calidris tenuirostris</i>	Bird	CR	Animalia
<i>Calyptorhynchus banksii</i>	Bird		Animalia
<i>Camelus dromedarius</i>	Mammal		Animalia
<i>Canis dingo</i>	Mammal		Animalia
<i>Canis familiaris</i>	Mammal		Animalia
<i>Canis familiaris dingo</i>	Mammal		Animalia
<i>Canis lupus</i>	Mammal		Animalia
<i>Canis lupus</i> subsp. <i>dingo</i>	Mammal		Animalia
<i>Canis lupus</i> subsp. <i>familiaris</i>	Mammal		Animalia
<i>Capra hircus</i>	Mammal		Animalia
<i>Carlia munda</i>	Reptile		Animalia
<i>Carlia triacantha</i>	Reptile		Animalia
<i>Centropus phasianinus</i>	Bird		Animalia
<i>Certhionyx niger</i>	Bird		Animalia
<i>Certhionyx variegatus</i>	Bird		Animalia

Taxon	Class	Cons	Kingdom
<i>Chaerephon jobensis</i>	Mammal		Animalia
<i>Chalinolobus gouldii</i>	Mammal		Animalia
<i>Charadrius leschenaultii</i>	Bird	VU	Animalia
<i>Charadrius melanops</i>	Bird		Animalia
<i>Charadrius mongolus</i>	Bird	EN	Animalia
<i>Charadrius mongolus</i> subsp. <i>mongolus</i>	Bird		Animalia
<i>Charadrius ruficapillus</i>	Bird		Animalia
<i>Charadrius veredus</i>	Bird	MI	Animalia
<i>Chelonia mydas</i>	Reptile	VU	Animalia
<i>Chelonia</i> sp.	Reptile		Animalia
<i>Chenonetta jubata</i>	Bird		Animalia
<i>Cheramoeca leucosterna</i>	Bird		Animalia
<i>Cheramoeca leucosternus</i>	Bird		Animalia
<i>Chlidonias leucopterus</i>	Bird	MI	Animalia
<i>Chroicocephalus novaehollandiae</i>	Bird		Animalia
<i>Chrysococcyx basalis</i>	Bird		Animalia
<i>Chrysococcyx osculans</i>	Bird		Animalia
<i>Cincloramphus cruralis</i>	Bird		Animalia
<i>Cincloramphus mathewsi</i>	Bird		Animalia
<i>Cinclosoma castaneothorax</i>	Bird		Animalia
<i>Circus approximans</i>	Bird		Animalia
<i>Circus assimilis</i>	Bird		Animalia
<i>Circus</i> sp.	Bird		Animalia
<i>Cladorhynchus leucocephalus</i>	Bird		Animalia
<i>Climacteris melanura</i>	Bird		Animalia
<i>Climacteris melanura</i> subsp. <i>wellsi</i>	Bird		Animalia
<i>Colluricincla harmonica</i>	Bird		Animalia
<i>Colluricincla harmonica</i> subsp. <i>brunnea</i>	Bird		Animalia
<i>Colluricincla harmonica</i> subsp. <i>rufiventris</i>	Bird		Animalia
<i>Columba livia</i>	Bird		Animalia
<i>Coracina novaehollandiae</i>	Bird		Animalia
<i>Coracina novaehollandiae</i> subsp. <i>subpallida</i>	Bird		Animalia
<i>Corvus bennetti</i>	Bird		Animalia
<i>Corvus coronoides</i>	Bird		Animalia
<i>Corvus orru</i>	Bird		Animalia
<i>Corvus orru</i> subsp. <i>ceciliae</i>	Bird		Animalia
<i>Coturnix pectoralis</i>	Bird		Animalia
<i>Coturnix ypsilophora</i>	Bird		Animalia
<i>Coturnix ypsilophora</i> subsp. <i>australis</i>	Bird		Animalia
<i>Cracticus nigrogularis</i>	Bird		Animalia
<i>Cracticus tibicen</i>	Bird		Animalia
<i>Cracticus torquatus</i>	Bird		Animalia
<i>Crenadactylus ocellatus</i> subsp. <i>horni</i>	Reptile		Animalia
<i>Cryptoblepharus buchananii</i>	Reptile		Animalia
<i>Cryptoblepharus plagiocephalus</i>	Reptile		Animalia

Taxon	Class	Cons	Kingdom
<i>Cryptoblepharus ustulatus</i>	Reptile		Animalia
<i>Ctenophorus caudicinctus</i>	Reptile		Animalia
<i>Ctenophorus caudicinctus</i> subsp. <i>caudicinctus</i>	Reptile		Animalia
<i>Ctenophorus isolepis</i>	Reptile		Animalia
<i>Ctenophorus isolepis</i> subsp. <i>gularis</i>	Reptile		Animalia
<i>Ctenophorus isolepis</i> subsp. <i>isolepis</i>	Reptile		Animalia
<i>Ctenophorus nuchalis</i>	Reptile		Animalia
<i>Ctenophorus reticulatus</i>	Reptile		Animalia
<i>Ctenotus angusticeps</i>	Reptile	P3	Animalia
<i>Ctenotus brooksi</i>	Reptile		Animalia
<i>Ctenotus calurus</i>	Reptile		Animalia
<i>Ctenotus duricola</i>	Reptile		Animalia
<i>Ctenotus duricola/piankai</i>	Reptile		Animalia
<i>Ctenotus dux</i>	Reptile		Animalia
<i>Ctenotus grandis</i>	Reptile		Animalia
<i>Ctenotus grandis</i> subsp. <i>titan</i>	Reptile		Animalia
<i>Ctenotus hanloni</i>	Reptile		Animalia
<i>Ctenotus helenae</i>	Reptile		Animalia
<i>Ctenotus nasutus</i>	Reptile		Animalia
<i>Ctenotus pantherinus</i>	Reptile		Animalia
<i>Ctenotus pantherinus</i> subsp. <i>ocellifer</i>	Reptile		Animalia
<i>Ctenotus piankai</i>	Reptile		Animalia
<i>Ctenotus quattuordecimlineatus</i>	Reptile		Animalia
<i>Ctenotus rubicundus</i>	Reptile		Animalia
<i>Ctenotus rufescens</i>	Reptile		Animalia
<i>Ctenotus rutilans</i>	Reptile		Animalia
<i>Ctenotus saxatilis</i>	Reptile		Animalia
<i>Ctenotus schomburgkii</i>	Reptile		Animalia
<i>Ctenotus serventyi</i>	Reptile		Animalia
<i>Cuculus pallidus</i>	Bird		Animalia
<i>Cyclodomorphus melanops</i>	Reptile		Animalia
<i>Cyclodomorphus melanops</i> subsp. <i>melanops</i>	Reptile		Animalia
<i>Cyclorana australis</i>	Amphi		Animalia
<i>Cyclorana maini</i>	Amphi		Animalia
<i>Cygnus atratus</i>	Bird		Animalia
<i>Dacelo leachii</i>	Bird		Animalia
<i>Dacelo leachii</i> subsp. <i>leachii</i>	Bird		Animalia
<i>Daphoenositta chrysoptera</i>	Bird		Animalia
<i>Dasycercus blythi</i>	Mammal	P4	Animalia
<i>Dasycercus cristicauda</i>	Mammal	P4	Animalia
<i>Dasycercus</i> sp.	Mammal		Animalia
<i>Dasykaluta rosamondae</i>	Mammal		Animalia
<i>Dasykaluta rosemondiae</i>	Mammal		Animalia
<i>Dasyurus hallucatus</i>	Mammal		Animalia
<i>Dasyurus hallucatus</i>	Mammal	EN	Animalia

Taxon	Class	Cons	Kingdom
<i>Delma borea</i>	Reptile		Animalia
<i>Delma butleri</i>	Reptile		Animalia
<i>Delma desmosa</i>	Reptile		Animalia
<i>Delma elegans</i>	Reptile		Animalia
<i>Delma haroldi</i>	Reptile		Animalia
<i>Delma nasuta</i>	Reptile		Animalia
<i>Delma pax</i>	Reptile		Animalia
<i>Delma sp.</i>	Reptile		Animalia
<i>Delma tincta</i>	Reptile		Animalia
<i>Demansia psammophis</i>	Reptile		Animalia
<i>Demansia psammophis</i> subsp. <i>cupreiceps</i>	Reptile		Animalia
<i>Demansia psammophis</i> subsp. <i>psammophis</i>	Reptile		Animalia
<i>Demansia rufescens</i>	Reptile		Animalia
<i>Demansia torquata</i>	Reptile		Animalia
<i>Dendrocygna arcuata</i>	Bird		Animalia
<i>Dendrocygna eytoni</i>	Bird		Animalia
<i>Dicaeum hirundinaceum</i>	Bird		Animalia
<i>Diplodactylus conspicillatus</i>	Reptile		Animalia
<i>Diplodactylus laevis</i>	Reptile		Animalia
<i>Diplodactylus savagei</i>	Reptile		Animalia
<i>Diplodactylus</i> sp 'Pilbara'	Reptile		Animalia
<i>Diplodactylus stenodactylus</i>	Reptile		Animalia
<i>Diporiphora paraconvergens</i>	Reptile		Animalia
<i>Diporiphora pindan</i>	Reptile		Animalia
<i>Diporiphora valens</i>	Reptile		Animalia
<i>Diporiphora vescus</i>	Reptile		Animalia
<i>Diporiphora winneckeii</i>	Reptile		Animalia
<i>Dromaius novaehollandiae</i>	Bird		Animalia
<i>Dugong dugon</i>	Mammal	OS	Animalia
<i>Egernia cygnitos</i>	Reptile		Animalia
<i>Egernia depressa</i>	Reptile		Animalia
<i>Egernia epsisolus</i>	Reptile		Animalia
<i>Egernia striata</i>	Reptile		Animalia
<i>Egretta garzetta</i>	Bird		Animalia
<i>Egretta novaehollandiae</i>	Bird		Animalia
<i>Egretta sacra</i>	Bird		Animalia
<i>Elanus axillaris</i>	Bird		Animalia
<i>Elanus caeruleus</i>	Bird		Animalia
<i>Elanus caeruleus</i> subsp. <i>axillaris</i>	Bird		Animalia
<i>Eseyornis melanops</i>	Bird		Animalia
<i>Emblema pictum</i>	Bird		Animalia
<i>Eolophus roseicapillus</i>	Bird		Animalia
<i>Eopsaltria pulverulenta</i>	Bird		Animalia
<i>Ephalophis greyae</i>	Reptile		Animalia
<i>Ephippiorhynchus asiaticus</i>	Bird		Animalia

Taxon	Class	Cons	Kingdom
<i>Ephippiorhynchus asiaticus</i> subsp. <i>australis</i>	Bird		Animalia
<i>Epthianura aurifrons</i>	Bird		Animalia
<i>Epthianura tricolor</i>	Bird		Animalia
<i>Equus caballus</i>	Mammal		Animalia
<i>Eremiascincus fasciolatus</i>	Reptile		Animalia
<i>Eremiascincus isolepis</i>	Reptile		Animalia
<i>Eremiascincus musivus</i>	Reptile		Animalia
<i>Eremiascincus pallidus</i>	Reptile		Animalia
<i>Eremiascincus richardsonii</i>	Reptile		Animalia
<i>Eremiornis carteri</i>	Bird		Animalia
<i>Eretmochelys imbricata</i> subsp. <i>bissa</i>	Reptile		Animalia
<i>Erythronyx cinctus</i>	Bird		Animalia
<i>Esacus magnirostris</i>	Bird		Animalia
<i>Esacus neglectus</i>	Bird		Animalia
<i>Eurostopodus argus</i>	Bird		Animalia
<i>Falco berigora</i>	Bird		Animalia
<i>Falco berigora</i> subsp. <i>berigora</i>	Bird		Animalia
<i>Falco cenchroides</i>	Bird		Animalia
<i>Falco cenchroides</i> subsp. <i>cenchröides</i>	Bird		Animalia
<i>Falco hypoleucos</i>	Bird	VU	Animalia
<i>Falco longipennis</i>	Bird		Animalia
<i>Falco peregrinus</i>	Bird	OS	Animalia
<i>Felis catus</i>	Mammal		Animalia
<i>Fordonia leucobalia</i>	Reptile		Animalia
<i>Fregata ariel</i>	Bird	MI	Animalia
<i>Fulica atra</i>	Bird		Animalia
<i>Fulica atra</i> subsp. <i>australis</i>	Bird		Animalia
<i>Furina ornata</i>	Reptile		Animalia
<i>Gallinago megala</i>	Bird	MI	Animalia
<i>Gallinago stenura</i>	Bird	MI	Animalia
<i>Gallirallus philippensis</i>	Bird		Animalia
<i>Gallirallus philippensis</i> subsp. <i>mellori</i>	Bird		Animalia
<i>Gavicalis virescens</i>	Bird		Animalia
<i>Gehyra 'fenestra'</i>	Reptile		Animalia
<i>Gehyra pilbara</i>	Reptile		Animalia
<i>Gehyra punctata</i>	Reptile		Animalia
<i>Gehyra purpurascens</i>	Reptile		Animalia
<i>Gehyra sp.</i>	Reptile		Animalia
<i>Gehyra variegata</i>	Reptile		Animalia
<i>Gehyra variegata/purpurascens</i>	Reptile		Animalia
<i>Gelochelidon nilotica</i>	Bird	MI	Animalia
<i>Gelochelidon nilotica</i> subsp. <i>affinis</i>	Bird		Animalia
<i>Geopelia cuneata</i>	Bird		Animalia
<i>Geopelia humeralis</i>	Bird		Animalia
<i>Geopelia placida</i>	Bird		Animalia

Taxon	Class	Cons	Kingdom
<i>Geopelia striata</i>	Bird		Animalia
<i>Geopelia striata</i> subsp. <i>placida</i>	Bird		Animalia
<i>Geophaps plumifera</i>	Bird		Animalia
<i>Gerygone fusca</i>	Bird		Animalia
<i>Gerygone fusca</i> subsp. <i>fusca</i>	Bird		Animalia
<i>Gerygone tenebrosa</i>	Bird		Animalia
<i>Glareola maldivarum</i>	Bird	MI	Animalia
<i>Grallina cyanoleuca</i>	Bird		Animalia
<i>Grus rubicunda</i>	Bird		Animalia
<i>Haematopus fuliginosus</i>	Bird		Animalia
<i>Haematopus longirostris</i>	Bird		Animalia
<i>Haliaeetus leucogaster</i>	Bird		Animalia
<i>Haliastur indus</i>	Bird		Animalia
<i>Haliastur sphenurus</i>	Bird		Animalia
<i>Hamirostra melanosternon</i>	Bird		Animalia
<i>Hemidactylus frenatus</i>	Reptile		Animalia
<i>Heteromunia pectoralis</i>	Bird		Animalia
<i>Heteronotia binoei</i>	Reptile		Animalia
<i>Heteronotia spelea</i>	Reptile		Animalia
<i>Hieraaetus morphnoides</i>	Bird		Animalia
<i>Himantopus himantopus</i>	Bird		Animalia
<i>Hirundo ariel</i>	Bird		Animalia
<i>Hirundo neoxena</i>	Bird		Animalia
<i>Hirundo nigricans</i>	Bird		Animalia
<i>Hirundo rustica</i>	Bird	MI	Animalia
<i>Hirundo rustica</i> subsp. <i>gutturalis</i>	Bird		Animalia
<i>Hydrelaps darwiniensis</i>	Reptile		Animalia
<i>Hydrophis elegans</i>	Reptile		Animalia
<i>Hydrophis stokesii</i>	Reptile		Animalia
<i>Hydroprogne caspia</i>	Bird	MI	Animalia
<i>Lagorchestes conspicillatus</i> subsp. <i>leichardti</i>	Mammal	P4	Animalia
<i>Lagostrophus fasciatus</i> subsp. <i>fasciatus</i>	Mammal	VU	Animalia
<i>Lalage tricolor</i>	Bird		Animalia
<i>Larus novaehollandiae</i>	Bird		Animalia
<i>Leggadina lakedownensis</i>	Mammal	P4	Animalia
<i>Lerista aff bipes</i>	Reptile		Animalia
<i>Lerista bipes</i>	Reptile		Animalia
<i>Lerista clara</i>	Reptile		Animalia
<i>Lerista ips</i>	Reptile		Animalia
<i>Lerista jacksoni</i>	Reptile		Animalia
<i>Lerista muelleri</i>	Reptile		Animalia
<i>Lerista separanda</i>	Reptile	P2	Animalia
<i>Lerista sp.</i>	Reptile		Animalia
<i>Lerista verhmens</i>	Reptile		Animalia
<i>Lialis burtonis</i>	Reptile		Animalia

Taxon	Class	Cons	Kingdom
<i>Liasis olivaceus</i> subsp. <i>barroni</i>	Reptile	VU	Animalia
<i>Lichenostomus keartlandi</i>	Bird		Animalia
<i>Lichenostomus penicillatus</i>	Bird		Animalia
<i>Lichenostomus plumulus</i>	Bird		Animalia
<i>Lichenostomus virescens</i>	Bird		Animalia
<i>Lichmera indistincta</i>	Bird		Animalia
<i>Lichmera indistincta</i> subsp. <i>indistincta</i>	Bird		Animalia
<i>Limicola falcinellus</i>	Bird	MI	Animalia
<i>Limicola falcinellus</i> subsp. <i>sibiricus</i>	Bird		Animalia
<i>Limnodromus semipalmatus</i>	Bird	MI	Animalia
<i>Limnodynastes spenceri</i>	Amphi		Animalia
<i>Limosa lapponica</i>	Bird	MI	Animalia
<i>Limosa lapponica</i> subsp. <i>menzbieri</i>	Bird	CR	Animalia
<i>Limosa limosa</i>	Bird	MI	Animalia
<i>Liopholis striata</i>	Reptile		Animalia
<i>Litoria caerulea</i>	Amphi		Animalia
<i>Litoria rothii</i>	Amphi		Animalia
<i>Litoria rubella</i>	Amphi		Animalia
<i>Lophognathus gilberti</i>	Reptile		Animalia
<i>Lophognathus longirostris</i>	Reptile		Animalia
<i>Lophoictinia isura</i>	Bird		Animalia
<i>Lucasium 'woodwardi'</i>	Reptile		Animalia
<i>Lucasium stenodactylum</i>	Reptile		Animalia
<i>Lucasium wombeyi</i>	Reptile		Animalia
<i>Macroderma gigas</i>	Mammal	VU	Animalia
<i>Macropus robustus</i>	Mammal		Animalia
<i>Macropus robustus</i> subsp. <i>erubescens</i>	Mammal		Animalia
<i>Macropus robustus</i> subsp. <i>isabellinus</i>	Mammal		Animalia
<i>Macropus rufus</i>	Mammal		Animalia
<i>Macrotis lagotis</i>	Mammal	VU	Animalia
<i>Malacorhynchus membranaceus</i>	Bird		Animalia
<i>Malurus lamberti</i>	Bird		Animalia
<i>Malurus lamberti</i> subsp. <i>assimilis</i>	Bird		Animalia
<i>Malurus leucopterus</i>	Bird		Animalia
<i>Malurus leucopterus</i> subsp. <i>leuconotus</i>	Bird		Animalia
<i>Malurus splendens</i>	Bird		Animalia
<i>Manorina flavigula</i>	Bird		Animalia
<i>Megalurus cruralis</i>	Bird		Animalia
<i>Melanodryas cucullata</i>	Bird		Animalia
<i>Melithreptus gularis</i>	Bird		Animalia
<i>Melithreptus gularis</i> subsp. <i>laetior</i>	Bird		Animalia
<i>Melopsittacus undulatus</i>	Bird		Animalia
<i>Menetia greyii</i>	Reptile		Animalia
<i>Menetia surda</i>	Reptile		Animalia
<i>Menetia surda</i> subsp. <i>surda</i>	Reptile		Animalia

Taxon	Class	Cons	Kingdom
<i>Merops ornatus</i>	Bird		Animalia
<i>Microcarbo melanoleucos</i>	Bird		Animalia
<i>Milvus migrans</i>	Bird		Animalia
<i>Milvus migrans subsp. affinis</i>	Bird		Animalia
<i>Mirafra javanica</i>	Bird		Animalia
<i>Moloch horridus</i>	Reptile		Animalia
<i>Morethia ruficauda</i>	Reptile		Animalia
<i>Morethia ruficauda subsp. exquisita</i>	Reptile		Animalia
<i>Morethia ruficauda subsp. ruficauda</i>	Reptile		Animalia
<i>Mormopterus (Ozimops) cobourgianus</i>	Mammal		Animalia
<i>Mormopterus loriae</i>	Mammal		Animalia
<i>Mormopterus loriae subsp. cobourgiana</i>	Mammal		Animalia
<i>Motacilla flava subsp. simillima</i>	Bird		Animalia
<i>Mus musculus</i>	Mammal		Animalia
<i>Natator depressus</i>	Reptile	VU	Animalia
<i>Neobatrachus aquilonius</i>	Amphi		Animalia
<i>Neobatrachus sutor</i>	Amphi		Animalia
<i>Neochmia ruficauda</i>	Bird		Animalia
<i>Neochmia ruficauda subsp. subclaescens</i>	Bird		Animalia
<i>Nephurus laevis</i>	Reptile		Animalia
<i>Nephurus levis</i>	Reptile		Animalia
<i>Nephurus levis subsp. pilbarensis</i>	Reptile		Animalia
<i>Ningui timealeyi</i>	Mammal		Animalia
<i>Ninox connivens</i>	Bird		Animalia
<i>Ninox novaeseelandiae</i>	Bird		Animalia
<i>Notaden nicholli</i>	Amphi		Animalia
<i>Notomys alexis</i>	Mammal		Animalia
<i>Notoscincus ornatus</i>	Reptile		Animalia
<i>Notoscincus ornatus subsp. ornatus</i>	Reptile		Animalia
<i>Numenius madagascariensis</i>	Bird	CR	Animalia
<i>Numenius minutus</i>	Bird	MI	Animalia
<i>Numenius phaeopus</i>	Bird	MI	Animalia
<i>Nycticorax caledonicus</i>	Bird		Animalia
<i>Nycticorax caledonicus subsp. hilli</i>	Bird		Animalia
<i>Nyctophilus arnhemensis</i>	Mammal		Animalia
<i>Nyctophilus geoffroyi</i>	Mammal		Animalia
<i>Nyctophilus geoffroyi subsp. pallescens</i>	Mammal		Animalia
<i>Nymphicus hollandicus</i>	Bird		Animalia
<i>Oceanites oceanicus</i>	Bird	MI	Animalia
<i>Ocyphaps lophotes</i>	Bird		Animalia
<i>Oedura fimbria</i>	Reptile		Animalia
<i>Oedura marmorata</i>	Reptile		Animalia
<i>Onychoprion anaethetus</i>	Bird	MI	Animalia
<i>Oreoica gutturalis</i>	Bird		Animalia
<i>Oryctolagus cuniculus</i>	Mammal		Animalia

Taxon	Class	Cons	Kingdom
<i>Osphranter robustus</i>	Mammal		Animalia
<i>Ozimops cobourgianus</i>	Mammal		Animalia
<i>Pachycephala lanioides</i>	Bird		Animalia
<i>Pachycephala melanura</i>	Bird		Animalia
<i>Pachycephala melanura subsp. melanura</i>	Bird		Animalia
<i>Pachycephala rufiventris</i>	Bird		Animalia
<i>Pandion cristatus</i>	Bird	MI	Animalia
<i>Pandion haliaetus</i>	Bird		Animalia
<i>Pandion haliaetus subsp. cristatus</i>	Bird		Animalia
<i>Pardalotus rubricatus</i>	Bird		Animalia
<i>Pardalotus striatus</i>	Bird		Animalia
<i>Pardalotus striatus subsp. murchisoni</i>	Bird		Animalia
<i>Passer montanus</i>	Bird		Animalia
<i>Pelecanus conspicillatus</i>	Bird		Animalia
<i>Peneoenanthe pulverulenta</i>	Bird		Animalia
<i>Petrochelidon ariel</i>	Bird		Animalia
<i>Petrochelidon nigricans</i>	Bird		Animalia
<i>Petrogale rothschildi</i>	Mammal		Animalia
<i>Petroica goodenovii</i>	Bird		Animalia
<i>Phalacrocorax carbo</i>	Bird		Animalia
<i>Phalacrocorax melanoleucos</i>	Bird		Animalia
<i>Phalacrocorax sulcirostris</i>	Bird		Animalia
<i>Phalacrocorax varius</i>	Bird		Animalia
<i>Phalaropus lobatus</i>	Bird	MI	Animalia
<i>Phaps chalcoptera</i>	Bird		Animalia
<i>Phaps elegans</i>	Bird		Animalia
<i>Phaps histrionica</i>	Bird		Animalia
<i>Philemon citreogularis</i>	Bird		Animalia
<i>Philomachus pugnax</i>	Bird	MI	Animalia
<i>Planigale ingrami</i>	Mammal		Animalia
<i>Planigale maculata</i>	Mammal		Animalia
<i>Planigale Mt Tom Price (WAM)</i>	Mammal		Animalia
<i>Planigale Sp.1 (WAM)</i>	Mammal		Animalia
<i>Platalea flavipes</i>	Bird		Animalia
<i>Platalea regia</i>	Bird		Animalia
<i>Platycercus spurius</i>	Bird		Animalia
<i>Platycercus zonarius</i>	Bird		Animalia
<i>Platyplectrum spenceri</i>	Amphi		Animalia
<i>Plegadis falcinellus</i>	Bird	MI	Animalia
<i>Pluvialis fulva</i>	Bird	MI	Animalia
<i>Pluvialis squatarola</i>	Bird	MI	Animalia
<i>Podargus strigoides</i>	Bird		Animalia
<i>Podiceps cristatus</i>	Bird		Animalia
<i>Pogona minor</i>	Reptile		Animalia
<i>Pogona minor subsp. minima</i>	Reptile	VU	Animalia

Taxon	Class	Cons	Kingdom
<i>Pogona minor</i> subsp. <i>minor</i>	Reptile		Animalia
<i>Pogona minor</i> subsp. <i>mitchelli</i>	Reptile		Animalia
<i>Poliocephalus poliocephalus</i>	Bird		Animalia
<i>Pomatostomus superciliosus</i>	Bird		Animalia
<i>Pomatostomus temporalis</i>	Bird		Animalia
<i>Porphyrio porphyrio</i>	Bird		Animalia
<i>Porzana fluminea</i>	Bird		Animalia
<i>Porzana tabuensis</i>	Bird		Animalia
<i>Proablepharus reginae</i>	Reptile		Animalia
<i>Pseudantechinus macdonnellensis</i>	Mammal		Animalia
<i>Pseudantechinus roryi</i>	Mammal		Animalia
<i>Pseudantechinus woolleyae</i>	Mammal		Animalia
<i>Pseudechis australis</i>	Reptile		Animalia
<i>Pseudomys chapmani</i>	Mammal	P4	Animalia
<i>Pseudomys delicatulus</i>	Mammal		Animalia
<i>Pseudomys desertor</i>	Mammal		Animalia
<i>Pseudomys hermannsburgensis</i>	Mammal		Animalia
<i>Pseudomys nanus</i>	Mammal		Animalia
<i>Pseudonaja mengdeni</i>	Reptile		Animalia
<i>Pseudonaja modesta</i>	Reptile		Animalia
<i>Pseudonaja nuchalis</i>	Reptile		Animalia
<i>Pteropus scapulatus</i>	Mammal		Animalia
<i>Ptilonorhynchus guttatus</i>	Bird		Animalia
<i>Ptilonorhynchus maculatus</i>	Bird		Animalia
<i>Ptilonorhynchus maculatus</i> subsp. <i>guttatus</i>	Bird		Animalia
<i>Ptilotula keartlandi</i>	Bird		Animalia
<i>Ptilotula penicillata</i>	Bird		Animalia
<i>Ptilotula penicillatus</i>	Bird		Animalia
<i>Pygopus nigriceps</i>	Reptile		Animalia
<i>Ramphotyphlops ammodytes</i>	Reptile		Animalia
<i>Ramphotyphlops braminus</i>	Reptile		Animalia
<i>Ramphotyphlops grypus</i>	Reptile		Animalia
<i>Ramphotyphlops hamatus</i>	Reptile		Animalia
<i>Ramphotyphlops pilbarensis</i>	Reptile		Animalia
<i>Ramphotyphlops</i> sp.	Reptile		Animalia
<i>Rattus rattus</i>	Mammal		Animalia
<i>Recurvirostra novaehollandiae</i>	Bird		Animalia
<i>Rhinonictes aurantia</i>	Mammal	P4	Animalia
<i>Rhinonictes aurantia</i> (Pilbara form)	Mammal		Animalia
<i>Rhinonictes aurantia</i> (Pilbara)	Mammal	VU	Animalia
<i>Rhinonictes aurantius</i>	Mammal		Animalia
<i>Rhipidura albiscapa</i>	Bird		Animalia
<i>Rhipidura leucophrys</i>	Bird		Animalia
<i>Rhipidura leucophrys</i> subsp. <i>leucophrys</i>	Bird		Animalia
<i>Rhipidura phasiana</i>	Bird		Animalia

Taxon	Class	Cons	Kingdom
<i>Rhynchoedura ornata</i>	Reptile		Animalia
<i>Saccolaimus flaviventris</i>	Mammal		Animalia
<i>Scotorepens greyii</i>	Mammal		Animalia
<i>Simoselaps anomalus</i>	Reptile		Animalia
<i>Smicrornis brevirostris</i>	Bird		Animalia
<i>Sminthopsis macroura</i>	Mammal		Animalia
<i>Sminthopsis youngsoni</i>	Mammal		Animalia
<i>Sousa chinensis</i>	Mammal		Animalia
<i>Sterna albifrons</i> subsp. <i>sinensis</i>	Bird		Animalia
<i>Sterna bengalensis</i>	Bird		Animalia
<i>Sterna caspia</i>	Bird		Animalia
<i>Sterna hirundo</i>	Bird	MI	Animalia
<i>Sterna hybrida</i>	Bird		Animalia
<i>Sterna hybrida</i> subsp. <i>javanica</i>	Bird		Animalia
<i>Sterna leucoptera</i>	Bird		Animalia
<i>Sterna nereis</i>	Bird		Animalia
<i>Sterna nilotica</i>	Bird		Animalia
<i>Sterna nilotica</i> subsp. <i>macrotarsa</i>	Bird		Animalia
<i>Sternula albifrons</i>	Bird	MI	Animalia
<i>Stiltia isabella</i>	Bird		Animalia
<i>Stipiturus ruficeps</i>	Bird		Animalia
<i>Strophurus ciliaris</i>	Reptile		Animalia
<i>Strophurus ciliaris</i> subsp. <i>aberrans</i>	Reptile		Animalia
<i>Strophurus ciliaris</i> subsp. <i>ciliaris</i>	Reptile		Animalia
<i>Strophurus elderi</i>	Reptile		Animalia
<i>Strophurus jeanae</i>	Reptile		Animalia
<i>Sugomel niger</i>	Bird		Animalia
<i>Suta fasciata</i>	Reptile		Animalia
<i>Suta punctata</i>	Reptile		Animalia
<i>Tachybaptus novaehollandiae</i>	Bird		Animalia
<i>Tachybaptus novaehollandiae</i> subsp. <i>novaehollandiae</i>	Bird		Animalia
<i>Tachyglossus aculeatus</i>	Mammal		Animalia
<i>Tadarida australis</i>	Mammal		Animalia
<i>Taeniopygia guttata</i>	Bird		Animalia
<i>Taeniopygia guttata</i> subsp. <i>castanotis</i>	Bird		Animalia
<i>Taphozous georgianus</i>	Mammal		Animalia
<i>Taphozous hilli</i>	Mammal		Animalia
<i>Thalasseus bengalensis</i>	Bird		Animalia
<i>Thalasseus bergii</i>	Bird	MI	Animalia
<i>Threskiornis molucca</i>	Bird		Animalia
<i>Threskiornis spinicollis</i>	Bird		Animalia
<i>Tiliqua multifasciata</i>	Reptile		Animalia
<i>Todiramphus chloris</i>	Bird		Animalia
<i>Todiramphus chloris</i> subsp. <i>pilbara</i>	Bird		Animalia
<i>Todiramphus pyrrhopygia</i>	Bird		Animalia

Taxon	Class	Cons	Kingdom
<i>Todiramphus pyrrhopygius</i>	Bird		Animalia
<i>Todiramphus sanctus</i>	Bird		Animalia
<i>Todiramphus sanctus</i> subsp. <i>sanctus</i>	Bird		Animalia
<i>Tribonyx ventralis</i>	Bird		Animalia
<i>Tringa brevipes</i>	Bird	MI & P4	Animalia
<i>Tringa cinerea</i>	Bird		Animalia
<i>Tringa glareola</i>	Bird	MI	Animalia
<i>Tringa hypoleucos</i>	Bird		Animalia
<i>Tringa nebularia</i>	Bird	MI	Animalia
<i>Tringa stagnatilis</i>	Bird	MI	Animalia
<i>Turnix pyrrhothorax</i>	Bird		Animalia
<i>Turnix velox</i>	Bird		Animalia
<i>Tursiops aduncus</i>	Mammal		Animalia
<i>Tursiops</i> sp.	Mammal		Animalia
<i>Tyto alba</i>	Bird		Animalia
<i>Tyto alba</i> subsp. <i>delicatula</i>	Bird		Animalia
<i>Tyto delicatula</i>	Bird		Animalia
<i>Uperoleia glandulosa</i>	Amphi		Animalia
<i>Uperoleia micromeles</i>	Amphi		Animalia
<i>Uperoleia russelli</i>	Amphi		Animalia
<i>Uperoleia saxatilis</i>	Amphi		Animalia
<i>Uperoleia talpa</i>	Amphi		Animalia
<i>Vanellus miles</i>	Bird		Animalia
<i>Vanellus tricolor</i>	Bird		Animalia
<i>Varanus acanthurus</i>	Reptile		Animalia
<i>Varanus brevicauda</i>	Reptile		Animalia
<i>Varanus bushi</i>	Reptile		Animalia
<i>Varanus eremius</i>	Reptile		Animalia
<i>Varanus giganteus</i>	Reptile		Animalia
<i>Varanus gilleni</i>	Reptile		Animalia
<i>Varanus gouldii</i>	Reptile		Animalia
<i>Varanus panoptes</i>	Reptile		Animalia
<i>Varanus panoptes</i> subsp. <i>rubidus</i>	Reptile		Animalia
<i>Varanus pilbarensis</i>	Reptile		Animalia
<i>Varanus tristis</i>	Reptile		Animalia
<i>Vespadelus finlaysoni</i>	Mammal		Animalia
<i>Vulpes vulpes</i>	Mammal		Animalia
<i>Xenus cinereus</i>	Bird	MI	Animalia
<i>Zosterops luteus</i>	Bird		Animalia
<i>Zyomys argurus</i>	Mammal		Animalia
<i>Abutilon amplum</i>	Dicot		Plantae
<i>Abutilon fraseri</i>	Dicot		Plantae
<i>Abutilon indicum</i>	Dicot		Plantae
<i>Abutilon indicum</i> var. <i>australiense</i>	Dicot		Plantae
<i>Abutilon lepidum</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Abutilon macrum</i>	Dicot		Plantae
<i>Abutilon otocarpum</i>	Dicot		Plantae
<i>Abutilon oxycarpum</i> subsp. <i>Prostrate</i> (A.A. Mitchell PRP 1266)	Dicot		Plantae
<i>Abutilon</i> sp. <i>Dioicum</i> (A.A. Mitchell PRP 1618)	Dicot		Plantae
<i>Abutilon</i> sp. <i>Pilbara</i> (W.R. Barker 2025)	Dicot		Plantae
<i>Abutilon</i> sp. <i>Pritzelianum</i> (S. van Leeuwen 5095)	Dicot	P3	Plantae
<i>Acacia acradenia</i>	Dicot		Plantae
<i>Acacia adoxa</i> var. <i>adoxo</i>	Dicot		Plantae
<i>Acacia adoxa</i> var. <i>subglabra</i>	Dicot		Plantae
<i>Acacia ampliceps</i>	Dicot		Plantae
<i>Acacia ampliceps</i> x <i>sclerosperma</i> subsp. <i>sclerosperma</i>	Dicot		Plantae
<i>Acacia anaticeps</i>	Dicot		Plantae
<i>Acacia ancistrocarpa</i>	Dicot		Plantae
<i>Acacia ancistrocarpa</i> x <i>orthocarpa</i>	Dicot		Plantae
<i>Acacia arida</i>	Dicot		Plantae
<i>Acacia arida</i> / <i>orthocarpa</i>	Dicot		Plantae
<i>Acacia bivenosa</i>	Dicot		Plantae
<i>Acacia bivenosa</i> x <i>sclerosperma</i> subsp. <i>sclerosperma</i>	Dicot		Plantae
<i>Acacia colei</i>	Dicot		Plantae
<i>Acacia colei</i> var. <i>colei</i>	Dicot		Plantae
<i>Acacia colei</i> var. <i>ileocarpa</i>	Dicot		Plantae
<i>Acacia coriacea</i>	Dicot		Plantae
<i>Acacia coriacea</i> subsp. <i>pendens</i>	Dicot		Plantae
<i>Acacia dictyophleba</i>	Dicot		Plantae
<i>Acacia drepanocarpa</i> subsp. <i>drepanocarpa</i>	Dicot		Plantae
<i>Acacia elachantha</i> (Golden hairy variant)	Dicot		Plantae
<i>Acacia eriopoda</i>	Dicot		Plantae
<i>Acacia eriopoda</i> x <i>tumida</i> var. <i>pilbarensis</i>	Dicot		Plantae
<i>Acacia glaucocaesia</i>	Dicot		Plantae
<i>Acacia hilliana</i>	Dicot		Plantae
<i>Acacia hilliana</i> x <i>stellaticeps</i>	Dicot		Plantae
<i>Acacia inaequilatera</i>	Dicot		Plantae
<i>Acacia ligulata</i>	Dicot		Plantae
<i>Acacia maitlandii</i>	Dicot		Plantae
<i>Acacia melleodora</i>	Dicot		Plantae
<i>Acacia monticola</i>	Dicot		Plantae
<i>Acacia monticola</i> x <i>tumida</i> var. <i>pilbarensis</i>	Dicot		Plantae
<i>Acacia orthocarpa</i>	Dicot		Plantae
<i>Acacia platycarpa</i>	Dicot		Plantae
<i>Acacia ptychophylla</i>	Dicot		Plantae
<i>Acacia pyrifolia</i> var. <i>morrisonii</i>	Dicot		Plantae
<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>	Dicot		Plantae
<i>Acacia retivenea</i> subsp. <i>clandestina</i>	Dicot		Plantae
<i>Acacia robeorum</i>	Dicot		Plantae
<i>Acacia sabulosa</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>	Dicot		Plantae
<i>Acacia sericophylla</i>	Dicot		Plantae
<i>Acacia</i> sp.	Dicot		Plantae
<i>Acacia</i> sp. Nalgi (N.T. Burbidge 1317)	Dicot		Plantae
<i>Acacia</i> sp. Ripon Hills (B.R. Maslin 8460)	Dicot		Plantae
<i>Acacia sphaerostachya</i>	Dicot		Plantae
<i>Acacia spondylophylla</i>	Dicot		Plantae
<i>Acacia stellaticeps</i>	Dicot		Plantae
<i>Acacia synchronicia</i>	Dicot		Plantae
<i>Acacia trachycarpa</i>	Dicot		Plantae
<i>Acacia trachycarpa</i> x <i>tumida</i> var. <i>pilbarensis</i>	Dicot		Plantae
<i>Acacia translucens</i>	Dicot		Plantae
<i>Acacia trudgeniana</i>	Dicot		Plantae
<i>Acacia tumida</i> var. <i>kulparn</i>	Dicot		Plantae
<i>Acacia tumida</i> var. <i>pilbarensis</i>	Dicot		Plantae
<i>Acacia tumida</i> var. <i>tumida</i>	Dicot		Plantae
<i>Achyranthes aspera</i>	Dicot		Plantae
<i>Adriana tomentosa</i>	Dicot		Plantae
<i>Adriana tomentosa</i> var. <i>tomentosa</i>	Dicot		Plantae
<i>Aegiceras corniculatum</i>	Dicot		Plantae
<i>Aerva javanica</i>	Dicot		Plantae
<i>Aeschynomene indica</i>	Dicot		Plantae
<i>Albizia lebbeck</i>	Dicot		Plantae
<i>Alternanthera angustifolia</i>	Dicot		Plantae
<i>Alternanthera denticulata</i>	Dicot		Plantae
<i>Alternanthera nana</i>	Dicot		Plantae
<i>Alternanthera nodiflora</i>	Dicot		Plantae
<i>Aluta maisonneuvei</i>	Dicot		Plantae
<i>Alysicarpus muelleri</i>	Dicot		Plantae
<i>Amaranthus induratus</i>	Dicot		Plantae
<i>Amaranthus interruptus</i>	Dicot		Plantae
<i>Amaranthus pallidiflorus</i>	Dicot		Plantae
<i>Amaranthus</i> sp.	Dicot		Plantae
<i>Amaranthus</i> sp. (Silent Grove) RJC 6532)	Dicot		Plantae
<i>Amaranthus undulatus</i>	Dicot		Plantae
<i>Ammannia baccifera</i>	Dicot		Plantae
<i>Ammannia muelleri</i>	Dicot		Plantae
<i>Ammannia multiflora</i>	Dicot		Plantae
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	Monocot		Plantae
<i>Amphipogon sericeus</i>	Monocot		Plantae
<i>Amyema preissii</i>	Dicot		Plantae
<i>Amyema sanguinea</i> var. <i>pulchra</i>	Dicot		Plantae
<i>Amyema sanguinea</i> var. <i>sanguinea</i>	Dicot		Plantae
<i>Amyema villiflora</i> subsp. <i>villiflora</i>	Dicot		Plantae
<i>Androcalva loxophylla</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Andropogon gayanus</i>	Monocot		Plantae
<i>Argemone ochroleuca</i>	Dicot		Plantae
<i>Argemone ochroleuca</i> subsp. <i>ochroleuca</i>	Dicot		Plantae
<i>Aristida contorta</i>	Monocot		Plantae
<i>Aristida holathera</i>	Monocot		Plantae
<i>Aristida holathera</i> var. <i>holathera</i>	Monocot		Plantae
<i>Aristida hygrometrica</i>	Monocot		Plantae
<i>Aristida inaequiglumis</i>	Monocot		Plantae
<i>Aristida latifolia</i>	Monocot		Plantae
<i>Astrebla pectinata</i>	Monocot		Plantae
<i>Atalaya hemiglauca</i>	Dicot		Plantae
<i>Atriplex bunburyana</i>	Dicot		Plantae
<i>Atriplex eremitis</i>	Dicot	P1	Plantae
<i>Atriplex semilunaris</i>	Dicot		Plantae
<i>Austrobryonia pilbarensis</i>	Dicot		Plantae
<i>Avicennia marina</i>	Dicot		Plantae
<i>Avicennia marina</i> subsp. <i>marina</i>	Dicot		Plantae
<i>Basilicum polystachyon</i>	Dicot		Plantae
<i>Bauhinia cunninghamii</i>	Dicot		Plantae
<i>Bergia ammannioides</i>	Dicot		Plantae
<i>Bergia henshallii</i>	Dicot		Plantae
<i>Bergia pedicellaris</i>	Dicot		Plantae
<i>Bergia perennis</i>	Dicot		Plantae
<i>Bergia perennis</i> subsp. <i>obtusifolia</i>	Dicot		Plantae
<i>Bergia perennis</i> subsp. <i>perennis</i>	Dicot		Plantae
<i>Bergia trimera</i>	Dicot		Plantae
<i>Blumea tenella</i>	Dicot		Plantae
<i>Boerhavia burbridgeana</i>	Dicot		Plantae
<i>Boerhavia coccinea</i>	Dicot		Plantae
<i>Boerhavia gardneri</i>	Dicot		Plantae
<i>Boerhavia paludosa</i>	Dicot		Plantae
<i>Boerhavia repleta</i>	Dicot		Plantae
<i>Bonamia alatisemina</i>	Dicot		Plantae
<i>Bonamia erecta</i>	Dicot		Plantae
<i>Bonamia linearis</i>	Dicot		Plantae
<i>Bonamia media</i>	Dicot		Plantae
<i>Bonamia oblongifolia</i>	Dicot	P3	Plantae
<i>Bonamia pannosa</i>	Dicot		Plantae
<i>Bonamia pilbarensis</i>	Dicot		Plantae
<i>Bonamia rosea</i>	Dicot		Plantae
<i>Bonamia</i> sp.	Dicot		Plantae
<i>Bothriochloa ewartiana</i>	Monocot		Plantae
<i>Bougainvillea glabra</i>	Dicot		Plantae
<i>Brachyachne convergens</i>	Monocot		Plantae
<i>Bruguiera exaristata</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Buchnera linearis</i>	Dicot		Plantae
<i>Bulbostylis barbata</i>	Monocot		Plantae
<i>Bulbostylis burbridgeae</i>	Monocot	P4	Plantae
<i>Bulbostylis turbinata</i>	Monocot		Plantae
<i>Byblis filifolia</i>	Dicot		Plantae
<i>Byblis liniflora</i>	Dicot		Plantae
<i>Byblis</i> sp.	Dicot		Plantae
<i>Cajanus cinereus</i>	Dicot		Plantae
<i>Cajanus marmoratus</i>	Dicot		Plantae
<i>Cajanus pubescens</i>	Dicot		Plantae
<i>Calandrinia pentavalvis</i>	Dicot		Plantae
<i>Calandrinia ptychosperma</i>	Dicot		Plantae
<i>Calandrinia pumila</i>	Dicot		Plantae
<i>Calandrinia quadrivalvis</i>	Dicot		Plantae
<i>Calandrinia</i> sp. Pinga (T.R. Lally TRL 722)	Dicot		Plantae
<i>Calandrinia stagnensis</i>	Dicot		Plantae
<i>Calandrinia strophiolata</i>	Dicot		Plantae
<i>Calandrinia tepperiana</i>	Dicot		Plantae
<i>Calotis hispidula</i>	Dicot		Plantae
<i>Calotis plumulifera</i>	Dicot		Plantae
<i>Calotis porphyroglossa</i>	Dicot		Plantae
<i>Calytrix carinata</i>	Dicot		Plantae
<i>Canavalia rosea</i>	Dicot		Plantae
<i>Capparis spinosa</i> subsp. <i>nummularia</i>	Dicot		Plantae
<i>Carissa lanceolata</i>	Dicot		Plantae
<i>Cassytha capillaris</i>	Dicot		Plantae
<i>Cassytha filiformis</i>	Dicot		Plantae
<i>Cenchrus ciliaris</i>	Monocot		Plantae
<i>Cenchrus setaceus</i>	Monocot		Plantae
<i>Cenchrus setiger</i>	Monocot		Plantae
<i>Centaurium clementii</i>	Dicot		Plantae
<i>Centipeda minima</i>	Dicot		Plantae
<i>Centipeda minima</i> subsp. <i>macrocephala</i>	Dicot		Plantae
<i>Centipeda minima</i> subsp. <i>minima</i>	Dicot		Plantae
<i>Centrolepis banksii</i>	Monocot		Plantae
<i>Ceriops australis</i>	Dicot		Plantae
<i>Ceriops tagal</i>	Dicot		Plantae
<i>Cheilanthes brownii</i>	Fern		Plantae
<i>Cheilanthes lasiophylla</i>	Fern		Plantae
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	Fern		Plantae
<i>Chenopodium auricomum</i>	Dicot		Plantae
<i>Chloris barbata</i>	Monocot		Plantae
<i>Chloris pectinata</i>	Monocot		Plantae
<i>Chloris pumilio</i>	Monocot		Plantae
<i>Chloris virgata</i>	Monocot		Plantae

Taxon	Class	Cons	Kingdom
<i>Chrysocephalum apiculatum</i> subsp. <i>pilbarens</i>	Dicot		Plantae
<i>Chrysopogon fallax</i>	Monocot		Plantae
<i>Citrullus amarus</i>	Dicot		Plantae
<i>Citrullus colocynthis</i>	Dicot		Plantae
<i>Cleome oxalidea</i>	Dicot		Plantae
<i>Cleome uncifera</i>	Dicot		Plantae
<i>Cleome uncifera</i> subsp. <i>uncifera</i>	Dicot		Plantae
<i>Cleome viscosa</i>	Dicot		Plantae
<i>Clerodendrum tomentosum</i> var. <i>lanceolatum</i>	Dicot		Plantae
<i>Clerodendrum tomentosum</i> var. <i>tomentosum</i>	Dicot		Plantae
<i>Clitoria ternatea</i>	Dicot		Plantae
<i>Coccinia grandis</i>	Dicot		Plantae
<i>Codonocarpus cotinifolius</i>	Dicot		Plantae
<i>Commelina ensifolia</i>	Monocot		Plantae
<i>Convolvulus clementii</i>	Dicot		Plantae
<i>Conyza bonariensis</i>	Dicot		Plantae
<i>Conyza parva</i>	Dicot		Plantae
<i>Corchorus carnarvonensis</i>	Dicot		Plantae
<i>Corchorus elachocarpus</i>	Dicot		Plantae
<i>Corchorus incanus</i>	Dicot		Plantae
<i>Corchorus incanus</i> subsp. <i>incanus</i>	Dicot		Plantae
<i>Corchorus laniflorus</i>	Dicot		Plantae
<i>Corchorus lasiocarpus</i>	Dicot		Plantae
<i>Corchorus parviflorus</i>	Dicot		Plantae
<i>Corchorus sidoides</i>	Dicot		Plantae
<i>Corchorus sidoides</i> subsp. <i>sidoides</i>	Dicot		Plantae
<i>Corchorus sidoides</i> subsp. <i>vermicularis</i>	Dicot		Plantae
<i>Corchorus</i> sp.	Dicot		Plantae
<i>Corchorus</i> sp. Yarrie (J. Bull & D. Roberts CAL 01.05)	Dicot	P1	Plantae
<i>Corchorus tectus</i>	Dicot		Plantae
<i>Corchorus tridens</i>	Dicot		Plantae
<i>Corchorus trilocularis</i>	Dicot		Plantae
<i>Corchorus walcottii</i>	Dicot		Plantae
<i>Corymbia aspera</i>	Dicot		Plantae
<i>Corymbia candida</i>	Dicot		Plantae
<i>Corymbia candida</i> / <i>flavescens</i>	Dicot		Plantae
<i>Corymbia candida</i> subsp. <i>dipsodes</i>	Dicot		Plantae
<i>Corymbia candida</i> subsp. <i>laetifolia</i>	Dicot		Plantae
<i>Corymbia deserticola</i> subsp. <i>deserticola</i>	Dicot		Plantae
<i>Corymbia flavescens</i>	Dicot		Plantae
<i>Corymbia hamersleyana</i>	Dicot		Plantae
<i>Corymbia opaca</i>	Dicot		Plantae
<i>Corymbia zygophylla</i>	Dicot		Plantae
<i>Corynotheca asperata</i>	Monocot	P3	Plantae
<i>Corynotheca micrantha</i>	Monocot		Plantae

Taxon	Class	Cons	Kingdom
<i>Corynotheca pungens</i>	Monocot		Plantae
<i>Corynotheca</i> sp.	Monocot		Plantae
<i>Cressa australis</i>	Dicot		Plantae
<i>Crotalaria crispata</i>	Dicot		Plantae
<i>Crotalaria cunninghamii</i>	Dicot		Plantae
<i>Crotalaria cunninghamii</i> subsp. <i>sturtii</i>	Dicot		Plantae
<i>Crotalaria dissitiflora</i> subsp. <i>benthamiana</i>	Dicot		Plantae
<i>Crotalaria medicaginea</i>	Dicot		Plantae
<i>Crotalaria medicaginea</i> var. <i>neglecta</i>	Dicot		Plantae
<i>Crotalaria ramosissima</i>	Dicot		Plantae
<i>Crotalaria spectabilis</i> subsp. <i>spectabilis</i>	Dicot		Plantae
<i>Croton aridus</i>	Dicot	P3	Plantae
<i>Cucumis argenteus</i>	Dicot		Plantae
<i>Cucumis maderaspatanus</i>	Dicot		Plantae
<i>Cucumis melo</i>	Dicot		Plantae
<i>Cucumis melo</i> subsp. <i>agrestis</i>	Dicot		Plantae
<i>Cucumis</i> sp.	Dicot		Plantae
<i>Cucumis variabilis</i>	Dicot		Plantae
<i>Cucurbita pepo</i>	Dicot		Plantae
<i>Cullen cinereum</i>	Dicot		Plantae
<i>Cullen lachnostachys</i>	Dicot		Plantae
<i>Cullen leucanthum</i>	Dicot		Plantae
<i>Cullen leucochaïtes</i>	Dicot		Plantae
<i>Cullen martinii</i>	Dicot		Plantae
<i>Cullen pogonocarpum</i>	Dicot		Plantae
<i>Cullen stipulaceum</i>	Dicot		Plantae
<i>Cyanostegia cyanocalyx</i>	Dicot		Plantae
<i>Cyanthillium cinereum</i> var. <i>cinereum</i>	Dicot		Plantae
<i>Cylindropuntia imbricata</i>	Dicot		Plantae
<i>Cymbopogon ambiguus</i>	Monocot		Plantae
<i>Cymbopogon bombycinus</i>	Monocot		Plantae
<i>Cymbopogon obtectus</i>	Monocot		Plantae
<i>Cynanchum floribundum</i>	Dicot		Plantae
<i>Cynanchum viminale</i> subsp. <i>australe</i>	Dicot		Plantae
<i>Cynodon convergens</i>	Monocot		Plantae
<i>Cynodon dactylon</i>	Monocot		Plantae
<i>Cynodon radiatus</i>	Monocot		Plantae
<i>Cyperus bifax</i>	Monocot		Plantae
<i>Cyperus blakeanus</i>	Monocot		Plantae
<i>Cyperus bulbosus</i>	Monocot		Plantae
<i>Cyperus castaneus</i> var. <i>brevimucronatus</i>	Monocot		Plantae
<i>Cyperus concinnus</i>	Monocot		Plantae
<i>Cyperus conicus</i>	Monocot		Plantae
<i>Cyperus cunninghamii</i>	Monocot		Plantae
<i>Cyperus cunninghamii</i> subsp. <i>cunninghamii</i>	Monocot		Plantae

Taxon	Class	Cons	Kingdom
<i>Cyperus difformis</i>	Monocot		Plantae
<i>Cyperus gymnocaulos / vaginatus</i>	Monocot		Plantae
<i>Cyperus hesperius</i>	Monocot		Plantae
<i>Cyperus iria</i>	Monocot		Plantae
<i>Cyperus ixiocarpus</i>	Monocot		Plantae
<i>Cyperus macrostachyos</i>	Monocot		Plantae
<i>Cyperus microcephalus</i> subsp. <i>microcephalus</i>	Monocot		Plantae
<i>Cyperus microcephalus</i> subsp. <i>saxicola</i>	Monocot		Plantae
<i>Cyperus polystachyos</i>	Monocot		Plantae
<i>Cyperus pulchellus</i>	Monocot		Plantae
<i>Cyperus pygmaeus</i>	Monocot		Plantae
<i>Cyperus rigidellus</i>	Monocot		Plantae
<i>Cyperus squarrosus</i>	Monocot		Plantae
<i>Cyperus vaginatus</i>	Monocot		Plantae
<i>Dactyloctenium aegyptium</i>	Monocot		Plantae
<i>Dactyloctenium radulans</i>	Monocot		Plantae
<i>Dampiera candicans</i>	Dicot		Plantae
<i>Dampiera cinerea</i>	Dicot		Plantae
<i>Datura leichhardtii</i> subsp. <i>leichhardtii</i>	Dicot		Plantae
<i>Dentella asperata</i>	Dicot		Plantae
<i>Dentella minutissima</i>	Dicot		Plantae
<i>Desmodium campylocaulon</i>	Dicot		Plantae
<i>Desmodium filiforme</i>	Dicot		Plantae
<i>Desmodium muelleri</i>	Dicot		Plantae
<i>Desmodium scorpiurus</i>	Dicot		Plantae
<i>Desmodium</i> sp.	Dicot		Plantae
<i>Dichanthium fecundum</i>	Monocot		Plantae
<i>Dichanthium sericeum</i> subsp. <i>humilius</i>	Monocot		Plantae
<i>Dichanthium sericeum</i> subsp. <i>polystachyum</i>	Monocot		Plantae
<i>Dichrostachys spicata</i>	Dicot		Plantae
<i>Dicrastylis cordifolia</i>	Dicot		Plantae
<i>Dicrastylis doranii</i>	Dicot		Plantae
<i>Digitaria brownii</i>	Monocot		Plantae
<i>Digitaria ciliaris</i>	Monocot		Plantae
<i>Digitaria ctenantha</i>	Monocot		Plantae
<i>Diplachne fusca</i>	Monocot		Plantae
<i>Diplachne fusca</i> subsp. <i>fusca</i>	Monocot		Plantae
<i>Diplopeltis eriocarpa</i>	Dicot		Plantae
<i>Dissocarpus paradoxus</i>	Dicot		Plantae
<i>Distimake davenportii</i>	Dicot		Plantae
<i>Distimake dissectus</i> var. <i>dissectus</i>	Dicot		Plantae
<i>Dodonaea coriacea</i>	Dicot		Plantae
<i>Dolichandrone heterophylla</i>	Dicot		Plantae
<i>Dolichandrone occidentalis</i>	Dicot		Plantae
<i>Drosera burmanni</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Drosera finlaysoniana</i>	Dicot		Plantae
<i>Drosera indica</i>	Dicot		Plantae
<i>Duboisia hopwoodii</i>	Dicot		Plantae
<i>Dysphania melanocarpa</i> forma <i>leucocarpa</i>	Dicot		Plantae
<i>Dysphania plantaginella</i>	Dicot		Plantae
<i>Dysphania pumilio</i>	Dicot		Plantae
<i>Dysphania rhadinostachya</i>	Dicot		Plantae
<i>Dysphania rhadinostachya</i> subsp. <i>inflata</i>	Dicot		Plantae
<i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i>	Dicot		Plantae
<i>Dysphania sphaerosperma</i>	Dicot		Plantae
<i>Echinochloa colona</i>	Monocot		Plantae
<i>Ehretia saligna</i>	Dicot		Plantae
<i>Elacholoma hornii</i>	Dicot		Plantae
<i>Eleocharis atropurpurea</i>	Monocot		Plantae
<i>Eleocharis geniculata</i>	Monocot		Plantae
<i>Elytrophorus spicatus</i>	Monocot		Plantae
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Dicot		Plantae
<i>Enneapogon caeruleus</i>	Monocot		Plantae
<i>Enneapogon lindleyanus</i>	Monocot		Plantae
<i>Enneapogon pallidus</i>	Monocot		Plantae
<i>Enneapogon polyphyllus</i>	Monocot		Plantae
<i>Enneapogon purpurascens</i>	Monocot		Plantae
<i>Enneapogon robustissimus</i>	Monocot		Plantae
<i>Enteropogon ramosus</i>	Monocot		Plantae
<i>Eragrostis crateriformis</i>	Monocot	P3	Plantae
<i>Eragrostis cumingii</i>	Monocot		Plantae
<i>Eragrostis dielsii</i>	Monocot		Plantae
<i>Eragrostis elongata</i>	Monocot		Plantae
<i>Eragrostis eriopoda</i>	Monocot		Plantae
<i>Eragrostis exigua</i>	Monocot		Plantae
<i>Eragrostis falcata</i>	Monocot		Plantae
<i>Eragrostis fallax</i>	Monocot		Plantae
<i>Eragrostis leptocarpa</i>	Monocot		Plantae
<i>Eragrostis minor</i>	Monocot		Plantae
<i>Eragrostis olida</i>	Monocot		Plantae
<i>Eragrostis parviflora</i>	Monocot		Plantae
<i>Eragrostis pergracilis</i>	Monocot		Plantae
<i>Eragrostis pilosa</i>	Monocot		Plantae
<i>Eragrostis setifolia</i>	Monocot		Plantae
<i>Eragrostis speciosa</i>	Monocot		Plantae
<i>Eragrostis tenellula</i>	Monocot		Plantae
<i>Eragrostis xerophila</i>	Monocot		Plantae
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>	Dicot		Plantae
<i>Eremophila maculata</i> subsp. <i>filifolia</i>	Dicot	P1	Plantae
<i>Eriachne aristidea</i>	Monocot		Plantae

Taxon	Class	Cons	Kingdom
<i>Eriachne benthamii</i>	Monocot		Plantae
<i>Eriachne ciliata</i>	Monocot		Plantae
<i>Eriachne festucacea</i>	Monocot		Plantae
<i>Eriachne flaccida</i>	Monocot		Plantae
<i>Eriachne glauca</i>	Monocot		Plantae
<i>Eriachne glauca</i> var. <i>glauca</i>	Monocot		Plantae
<i>Eriachne helmsii</i>	Monocot		Plantae
<i>Eriachne lanata</i>	Monocot		Plantae
<i>Eriachne melicacea</i>	Monocot		Plantae
<i>Eriachne mucronata</i>	Monocot		Plantae
<i>Eriachne obtusa</i>	Monocot		Plantae
<i>Eriachne pulchella</i>	Monocot		Plantae
<i>Eriachne pulchella</i> subsp. <i>dominii</i>	Monocot		Plantae
<i>Eriachne pulchella</i> subsp. <i>pulchella</i>	Monocot		Plantae
<i>Eriachne</i> sp.	Monocot		Plantae
<i>Eriachne sulcata</i>	Monocot		Plantae
<i>Eriocaulon cinereum</i>	Monocot		Plantae
<i>Eriochloa procera</i>	Monocot		Plantae
<i>Eriochloa pseudoacrotricha</i>	Monocot		Plantae
<i>Erythrina vespertilio</i>	Dicot		Plantae
<i>Erythrophleum chlorostachys</i>	Dicot		Plantae
<i>Eucalyptus camaldulensis</i> subsp. <i>obtusa</i>	Dicot		Plantae
<i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i>	Dicot		Plantae
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	Dicot		Plantae
<i>Eucalyptus odontocarpa</i>	Dicot		Plantae
<i>Eucalyptus victrix</i>	Dicot		Plantae
<i>Eulalia aurea</i>	Monocot		Plantae
<i>Euphorbia alsiniflora</i>	Dicot		Plantae
<i>Euphorbia australis</i>	Dicot		Plantae
<i>Euphorbia australis</i> var. <i>australis</i>	Dicot		Plantae
<i>Euphorbia australis</i> var. <i>subtomentosa</i>	Dicot		Plantae
<i>Euphorbia biconvexa</i>	Dicot		Plantae
<i>Euphorbia bicovexa/coghlanii</i>	Dicot		Plantae
<i>Euphorbia boophthona</i>	Dicot		Plantae
<i>Euphorbia careyi</i>	Dicot		Plantae
<i>Euphorbia clementii</i>	Dicot	P3	Plantae
<i>Euphorbia coghlanii</i>	Dicot		Plantae
<i>Euphorbia drummondii</i>	Dicot		Plantae
<i>Euphorbia fitzroyensis</i>	Dicot		Plantae
<i>Euphorbia inappendiculata</i> var. <i>inappendiculata</i>	Dicot	P2	Plantae
<i>Euphorbia myrtoides</i>	Dicot		Plantae
<i>Euphorbia psilosperma</i>	Dicot		Plantae
<i>Euphorbia</i> sp.	Dicot		Plantae
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	Dicot		Plantae
<i>Euphorbia tirucalli</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Euphorbia trigonosperma</i>	Dicot		Plantae
<i>Euphorbia vaccaria</i> var. <i>vaccaria</i>	Dicot		Plantae
<i>Euphorbia wheeleri</i>	Dicot		Plantae
<i>Evolvulus alsinoides</i>	Dicot		Plantae
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	Dicot		Plantae
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	Dicot		Plantae
<i>Ficus aculeata</i>	Dicot		Plantae
<i>Ficus aculeata</i> var. <i>indecora</i>	Dicot		Plantae
<i>Ficus brachypoda</i>	Dicot		Plantae
<i>Ficus cerasicarpa</i>	Dicot		Plantae
<i>Ficus opposita</i>	Dicot		Plantae
<i>Ficus virens</i>	Dicot		Plantae
<i>Fimbristylis ammobia</i>	Monocot		Plantae
<i>Fimbristylis caespitosa</i>	Monocot		Plantae
<i>Fimbristylis dichotoma</i>	Monocot		Plantae
<i>Fimbristylis elegans</i>	Monocot		Plantae
<i>Fimbristylis littoralis</i>	Monocot		Plantae
<i>Fimbristylis microcarya</i>	Monocot		Plantae
<i>Fimbristylis neilsonii</i>	Monocot		Plantae
<i>Fimbristylis nuda</i>	Monocot		Plantae
<i>Fimbristylis oxystachya</i>	Monocot		Plantae
<i>Fimbristylis rara</i>	Monocot		Plantae
<i>Fimbristylis simulans</i>	Monocot		Plantae
<i>Fimbristylis</i> sp. H Kimberley Flora (Carr 3944 & Beauglehole 47722)	Monocot	P1	Plantae
<i>Fimbristylis</i> sp. Shay Gap (K.R. Newbey 10293)	Monocot	P1	Plantae
<i>Flaveria trinervia</i>	Dicot		Plantae
<i>Flueggea virosa</i>	Dicot		Plantae
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	Dicot		Plantae
<i>Frankenia ambita</i>	Dicot		Plantae
<i>Frankenia pauciflora</i>	Dicot		Plantae
<i>Fuirena ciliaris</i>	Monocot		Plantae
<i>Fuirena incrassata</i>	Monocot	P3	Plantae
<i>Glinus lotoides</i>	Dicot		Plantae
<i>Glinus oppositifolius</i>	Dicot		Plantae
<i>Glossostigma diandrum</i>	Dicot		Plantae
<i>Glycine canescens</i>	Dicot		Plantae
<i>Glycine</i> sp.	Dicot		Plantae
<i>Glycine tomentella</i>	Dicot		Plantae
<i>Gompholobium simplicifolium</i>	Dicot		Plantae
<i>Gomphrena affinis</i> subsp. <i>pilbarensis</i>	Dicot		Plantae
<i>Gomphrena canescens</i>	Dicot		Plantae
<i>Gomphrena canescens</i> subsp. <i>canescens</i>	Dicot		Plantae
<i>Gomphrena celosioides</i>	Dicot		Plantae
<i>Gomphrena cunninghamii</i>	Dicot		Plantae
<i>Gomphrena leptoclada</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Gomphrena leptoclada</i> subsp. <i>leptoclada</i>	Dicot		Plantae
<i>Gomphrena leptophylla</i>	Dicot	P3	Plantae
<i>Gomphrena pusilla</i>	Dicot	P2	Plantae
<i>Gomphrena sordida</i>	Dicot		Plantae
<i>Gonocarpus ephemerus</i>	Dicot		Plantae
<i>Goodenia armitiana</i>	Dicot		Plantae
<i>Goodenia azurea</i>	Dicot		Plantae
<i>Goodenia azurea</i> subsp. <i>hesperia</i>	Dicot		Plantae
<i>Goodenia forrestii</i>	Dicot		Plantae
<i>Goodenia hartiana</i>	Dicot	P2	Plantae
<i>Goodenia lamprosperma</i>	Dicot		Plantae
<i>Goodenia microptera</i>	Dicot		Plantae
<i>Goodenia muelleriana</i>	Dicot		Plantae
<i>Goodenia nuda</i>	Dicot	P4	Plantae
<i>Goodenia pascua</i>	Dicot		Plantae
<i>Goodenia scaevolina</i>	Dicot		Plantae
<i>Goodenia stobbsiana</i>	Dicot		Plantae
<i>Gossypium australe</i>	Dicot		Plantae
<i>Gossypium hirsutum</i>	Dicot		Plantae
<i>Gossypium robinsonii</i>	Dicot		Plantae
<i>Grevillea eriostachya</i>	Dicot		Plantae
<i>Grevillea pyramidalis</i>	Dicot		Plantae
<i>Grevillea pyramidalis</i> subsp. <i>leucadendron</i>	Dicot		Plantae
<i>Grevillea refracta</i> subsp. <i>refracta</i>	Dicot		Plantae
<i>Grevillea stenobotrya</i>	Dicot		Plantae
<i>Grevillea wickhamii</i>	Dicot		Plantae
<i>Grevillea wickhamii</i> subsp. <i>aprica</i>	Dicot		Plantae
<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	Dicot		Plantae
<i>Grevillea wickhamii</i> subsp. <i>macrodonta</i>	Dicot		Plantae
<i>Gymnanthera cunninghamii</i>	Dicot	P3	Plantae
<i>Gyrocarpus americanus</i>	Dicot		Plantae
<i>Gyrostemon tepperi</i>	Dicot		Plantae
<i>Hakea chordophylla</i>	Dicot		Plantae
<i>Hakea lorea</i>	Dicot		Plantae
<i>Hakea lorea</i> subsp. <i>lorea</i>	Dicot		Plantae
<i>Hakea macrocarpa</i>	Dicot		Plantae
<i>Hakea stenophylla</i>	Dicot		Plantae
<i>Halgania gustafsenii</i>	Dicot		Plantae
<i>Halgania solanacea</i>	Dicot		Plantae
<i>Halgania solanacea</i> var. Mt Doreen (G.M. Chippendale 4206)	Dicot		Plantae
<i>Halgania solanacea</i> var. <i>solanacea</i>	Dicot		Plantae
<i>Halodule uninervis</i>	Monocot		Plantae
<i>Haloragis gossei</i>	Dicot		Plantae
<i>Helichrysum luteoalbum</i>	Dicot		Plantae
<i>Heliotropium ammophilum</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Heliotropium chrysocarpum</i>	Dicot		Plantae
<i>Heliotropium conocarpum</i>	Dicot		Plantae
<i>Heliotropium crispatum</i>	Dicot		Plantae
<i>Heliotropium cunninghamii</i>	Dicot		Plantae
<i>Heliotropium curassavicum</i>	Dicot		Plantae
<i>Heliotropium diversifolium</i>	Dicot		Plantae
<i>Heliotropium europaeum</i>	Dicot		Plantae
<i>Heliotropium foliatum</i>	Dicot		Plantae
<i>Heliotropium heteranthum</i>	Dicot		Plantae
<i>Heliotropium murinum</i>	Dicot	P3	Plantae
<i>Heliotropium muticum</i>	Dicot	P3	Plantae
<i>Heliotropium ovalifolium</i>	Dicot		Plantae
<i>Heliotropium pachyphyllum</i>	Dicot		Plantae
<i>Heliotropium parviantrum</i>	Dicot	P1	Plantae
<i>Heliotropium skeleton</i>	Dicot		Plantae
<i>Heliotropium</i> sp.	Dicot		Plantae
<i>Heliotropium</i> sp. Ord River (W. Fitzgerald 1611)	Dicot		Plantae
<i>Heliotropium tenuifolium</i>	Dicot		Plantae
<i>Heliotropium transforme</i>	Dicot		Plantae
<i>Heliotropium vestitum</i>	Dicot		Plantae
<i>Hemichroa diandra</i>	Dicot		Plantae
<i>Heteropogon contortus</i>	Monocot		Plantae
<i>Hibiscus austrinus</i> var. <i>austrinus</i>	Dicot		Plantae
<i>Hibiscus brachychlaenus</i>	Dicot		Plantae
<i>Hibiscus burtonii</i>	Dicot		Plantae
<i>Hibiscus coatesii</i>	Dicot		Plantae
<i>Hibiscus goldsworthii</i>	Dicot		Plantae
<i>Hibiscus leptocladus</i>	Dicot		Plantae
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>	Dicot		Plantae
<i>Hibiscus sturtii</i> var. <i>platychlamys</i>	Dicot		Plantae
<i>Hibiscus verdcourtii</i>	Dicot		Plantae
<i>Hybanthus aurantiacus</i>	Dicot		Plantae
<i>Hybanthus enneaspermus</i> subsp. <i>enneaspermus</i>	Dicot		Plantae
<i>Hypertelis cerviana</i>	Dicot		Plantae
<i>Indigastrium parviflorum</i>	Dicot		Plantae
<i>Indigofera ammobia</i>	Dicot	P3	Plantae
<i>Indigofera boviparda</i>	Dicot		Plantae
<i>Indigofera boviparda</i> subsp. <i>boviparda</i>	Dicot		Plantae
<i>Indigofera colutea</i>	Dicot		Plantae
<i>Indigofera hirsuta</i>	Dicot		Plantae
<i>Indigofera hochstetteri</i>	Dicot		Plantae
<i>Indigofera linifolia</i>	Dicot		Plantae
<i>Indigofera linnaei</i>	Dicot		Plantae
<i>Indigofera monophylla</i>	Dicot		Plantae
<i>Indigofera oblongifolia</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Indigofera rugosa</i>	Dicot		Plantae
<i>Indigofera sessiliflora</i>	Dicot		Plantae
<i>Indigofera trita</i>	Dicot		Plantae
<i>Indigofera trita</i> subsp. <i>trita</i>	Dicot		Plantae
<i>Ipomoea coptica</i>	Dicot		Plantae
<i>Ipomoea costata</i>	Dicot		Plantae
<i>Ipomoea diamantinensis</i>	Dicot		Plantae
<i>Ipomoea muelleri</i>	Dicot		Plantae
<i>Ipomoea pes-caprae</i>	Dicot		Plantae
<i>Ipomoea pes-caprae</i> subsp. <i>brasiliensis</i>	Dicot		Plantae
<i>Ipomoea polymorpha</i>	Dicot		Plantae
<i>Iseilema dolichotrichum</i>	Monocot		Plantae
<i>Iseilema eremaeum</i>	Monocot		Plantae
<i>Iseilema membranaceum</i>	Monocot		Plantae
<i>Iseilema vaginiflorum</i>	Monocot		Plantae
<i>Isotropis atropurpurea</i>	Dicot		Plantae
<i>Jacksonia aculeata</i>	Dicot		Plantae
<i>Jacquemontia pannosa</i>	Dicot		Plantae
<i>Jacquemontia</i> sp.	Dicot		Plantae
<i>Jasminum didymum</i> subsp. <i>lineare</i>	Dicot		Plantae
<i>Jatropha gossypifolia</i>	Dicot		Plantae
<i>Josephinia eugeniae</i>	Dicot		Plantae
<i>Josephinia</i> sp.	Dicot		Plantae
<i>Josephinia</i> sp. Mt Edgar Station (N.T. Burbidge 1194)	Dicot		Plantae
<i>Keraudrenia velutina</i>	Dicot		Plantae
<i>Lamarckia aurea</i>	Monocot		Plantae
<i>Lawrenca viridigrisea</i>	Dicot		Plantae
<i>Lepidium muelleri-ferdinandii</i>	Dicot		Plantae
<i>Leptochloa digitata</i>	Monocot		Plantae
<i>Leptochloa fusca</i> subsp. <i>fusca</i>	Monocot		Plantae
<i>Leptochloa</i> sp.	Monocot		Plantae
<i>Leptopus decaisnei</i>	Dicot		Plantae
<i>Leptosema anomalum</i>	Dicot		Plantae
<i>Leucaena leucocephala</i>	Dicot		Plantae
<i>Lipocarpha microcephala</i>	Monocot		Plantae
<i>Lobelia amhemiaca</i>	Dicot		Plantae
<i>Lotus cruentus</i>	Dicot		Plantae
<i>Ludwigia perennis</i>	Dicot		Plantae
<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>	Dicot		Plantae
<i>Maireana villosa</i>	Dicot		Plantae
<i>Malvastrum americanum</i>	Dicot		Plantae
<i>Marsilea drummondii</i>	Fern		Plantae
<i>Marsilea exarata</i>	Fern		Plantae
<i>Marsilea hirsuta</i>	Fern		Plantae
<i>Marsilea</i> sp.	Fern		Plantae

Taxon	Class	Cons	Kingdom
<i>Melaleuca alsophila</i>	Dicot		Plantae
<i>Melaleuca argentea</i>	Dicot		Plantae
<i>Melaleuca glomerata</i>	Dicot		Plantae
<i>Melaleuca lasiandra</i>	Dicot		Plantae
<i>Melaleuca linophylla</i>	Dicot		Plantae
<i>Melhania oblongifolia</i>	Dicot		Plantae
<i>Melochia pyramidata</i>	Dicot		Plantae
<i>Microstachys chamaelea</i>	Dicot		Plantae
<i>Mimulus gracilis</i>	Dicot		Plantae
<i>Minuria</i> sp.	Dicot		Plantae
<i>Mirbelia viminalis</i>	Dicot		Plantae
<i>Mitrasacme connata</i>	Dicot		Plantae
<i>Mitrasacme exserta</i>	Dicot		Plantae
<i>Mollugo molluginea</i>	Dicot		Plantae
<i>Moringa oleifera</i>	Dicot		Plantae
<i>Muellerolimon salicorniaceum</i>	Dicot		Plantae
<i>Murdannia graminea</i>	Monocot		Plantae
<i>Myoporum montanum</i>	Dicot		Plantae
<i>Neobassia astrocarpa</i>	Dicot		Plantae
<i>Neptunia dimorphantha</i>	Dicot		Plantae
<i>Neptunia monosperma</i>	Dicot		Plantae
<i>Newcastelia cladotricha</i>	Dicot		Plantae
<i>Newcastelia spodioptricha</i>	Dicot		Plantae
<i>Nicotiana benthamiana</i>	Dicot		Plantae
<i>Nicotiana occidentalis</i> subsp. <i>obliqua</i>	Dicot		Plantae
<i>Nicotiana occidentalis</i> subsp. <i>occidentalis</i>	Dicot		Plantae
<i>Nicotiana rosulata</i> subsp. <i>rosulata</i>	Dicot		Plantae
<i>Nicotiana umbratica</i>	Dicot	P3	Plantae
<i>Notoleptopus decaisnei</i>	Dicot		Plantae
<i>Nymphoides indica</i>	Dicot		Plantae
<i>Oldenlandia crouchiana</i>	Dicot		Plantae
<i>Oldenlandia galioides</i>	Dicot		Plantae
<i>Oldenlandia pterospora</i>	Dicot		Plantae
<i>Operculina aequiseipala</i>	Dicot		Plantae
<i>Osbornia octodonta</i>	Dicot		Plantae
<i>Owenia reticulata</i>	Dicot		Plantae
<i>Panicum decompositum</i>	Monocot		Plantae
<i>Paraneurachne muelleri</i>	Monocot		Plantae
<i>Parkinsonia aculeata</i>	Dicot		Plantae
<i>Paspalidium clementii</i>	Monocot		Plantae
<i>Paspalidium jubiflorum</i>	Monocot		Plantae
<i>Paspalidium rarum</i>	Monocot		Plantae
<i>Paspalidium tabulatum</i>	Monocot		Plantae
<i>Paspalum fasciculatum</i>	Monocot		Plantae
<i>Passiflora foetida</i> var. <i>hispida</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Pentalepis trichodesmoides</i> subsp. <i>trichodesmoides</i>	Dicot		Plantae
<i>Peplidium aithocheilum</i>	Dicot		Plantae
<i>Peplidium muelleri</i>	Dicot		Plantae
<i>Peripleura virgata</i>	Dicot		Plantae
<i>Perotis rara</i>	Monocot		Plantae
<i>Petalostylis labicheoides</i>	Dicot		Plantae
<i>Phyllanthus aridus</i>	Dicot		Plantae
<i>Phyllanthus eremicus</i>	Dicot		Plantae
<i>Phyllanthus erwinii</i>	Dicot		Plantae
<i>Phyllanthus exilis</i>	Dicot		Plantae
<i>Phyllanthus maderaspatensis</i>	Dicot		Plantae
<i>Phyllanthus reticulatus</i>	Dicot		Plantae
<i>Phyllanthus</i> sp.	Dicot		Plantae
<i>Phyllanthus virgatus</i>	Dicot		Plantae
<i>Physalis angulata</i>	Dicot		Plantae
<i>Pimelea ammocharis</i>	Dicot		Plantae
<i>Pittosporum angustifolium</i>	Dicot		Plantae
<i>Pluchea dentex</i>	Dicot		Plantae
<i>Pluchea ferdinandi-muelleri</i>	Dicot		Plantae
<i>Pluchea longiseta</i>	Dicot		Plantae
<i>Pluchea rubelliflora</i>	Dicot		Plantae
<i>Pluchea tetranthera</i>	Dicot		Plantae
<i>Polycarpaea corymbosa</i>	Dicot		Plantae
<i>Polycarpaea corymbosa</i> var. <i>corymbosa</i>	Dicot		Plantae
<i>Polycarpaea holtzei</i>	Dicot		Plantae
<i>Polycarpaea involucrata</i>	Dicot		Plantae
<i>Polycarpaea longiflora</i>	Dicot		Plantae
<i>Polygala galeocephala</i>	Dicot		Plantae
<i>Polygala glaucifolia</i>	Dicot		Plantae
<i>Polygala saccopetala</i>	Dicot		Plantae
<i>Polygala</i> sp.	Dicot		Plantae
<i>Polymeria ambigua</i>	Dicot		Plantae
<i>Polymeria lanata</i>	Dicot		Plantae
<i>Polymeria mollis</i>	Dicot		Plantae
<i>Polymeria</i> sp.	Dicot		Plantae
<i>Portulaca australis</i>	Dicot		Plantae
<i>Portulaca conspicua</i>	Dicot		Plantae
<i>Portulaca cyclophylla</i>	Dicot		Plantae
<i>Portulaca decipiens</i>	Dicot		Plantae
<i>Portulaca digyna</i>	Dicot		Plantae
<i>Portulaca oleracea</i>	Dicot		Plantae
<i>Portulaca pilosa</i>	Dicot		Plantae
<i>Portulaca</i> sp.	Dicot		Plantae
<i>Potamogeton tricarinatus</i>	Monocot		Plantae
<i>Prosopis pallida</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Pseudognaphalium luteoalbum</i>	Dicot		Plantae
<i>Pseudoraphis spinescens</i>	Monocot		Plantae
<i>Pterocaulon intermedium</i>	Dicot		Plantae
<i>Pterocaulon serrulatum</i>	Dicot		Plantae
<i>Pterocaulon serrulatum</i> var. <i>velutinum</i>	Dicot		Plantae
<i>Pterocaulon sphacelatum</i>	Dicot		Plantae
<i>Pterocaulon sphaeranthoides</i>	Dicot		Plantae
<i>Ptilotus aervoides</i>	Dicot		Plantae
<i>Ptilotus appendiculatus</i>	Dicot		Plantae
<i>Ptilotus arthrolasius</i>	Dicot		Plantae
<i>Ptilotus astrolasius</i>	Dicot		Plantae
<i>Ptilotus auriculifolius</i>	Dicot		Plantae
<i>Ptilotus axillaris</i>	Dicot		Plantae
<i>Ptilotus calostachyus</i>	Dicot		Plantae
<i>Ptilotus divaricatus</i>	Dicot		Plantae
<i>Ptilotus exaltatus</i>	Dicot		Plantae
<i>Ptilotus fusiformis</i>	Dicot		Plantae
<i>Ptilotus gaudichaudii</i>	Dicot		Plantae
<i>Ptilotus gomphrenoides</i>	Dicot		Plantae
<i>Ptilotus helipteroides</i>	Dicot		Plantae
<i>Ptilotus incanus</i>	Dicot		Plantae
<i>Ptilotus macrocephalus</i>	Dicot		Plantae
<i>Ptilotus mollis</i>	Dicot	P4	Plantae
<i>Ptilotus murrayi</i>	Dicot		Plantae
<i>Ptilotus nobilis</i>	Dicot		Plantae
<i>Ptilotus obovatus</i>	Dicot		Plantae
<i>Ptilotus polystachyus</i>	Dicot		Plantae
<i>Ptilotus villosiflorus</i>	Dicot		Plantae
<i>Pupalia lappacea</i>	Dicot		Plantae
<i>Rhagodia eremaea</i>	Dicot		Plantae
<i>Rhagodia</i> sp.	Dicot		Plantae
<i>Rhizophora stylosa</i>	Dicot		Plantae
<i>Rhynchosia australis</i>	Dicot		Plantae
<i>Rhynchosia minima</i>	Dicot		Plantae
<i>Ricinus communis</i>	Dicot		Plantae
<i>Rostellularia adscendens</i> var. <i>clementii</i>	Dicot		Plantae
<i>Rotala diandra</i>	Dicot		Plantae
<i>Rothia indica</i> subsp. <i>australis</i>	Dicot	P3	Plantae
<i>Salsola australis</i>	Dicot		Plantae
<i>Samolus repens</i>	Dicot		Plantae
<i>Sauropus</i> sp.	Dicot		Plantae
<i>Sauropus trachyspermus</i> var. <i>glaber</i>	Dicot		Plantae
<i>Scaevola amblyanthera</i>	Dicot		Plantae
<i>Scaevola amblyanthera</i> var. <i>centralis</i>	Dicot		Plantae
<i>Scaevola browniana</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Scaevola browniana</i> subsp. <i>browniana</i>	Dicot		Plantae
<i>Scaevola crassifolia</i>	Dicot		Plantae
<i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>	Dicot		Plantae
<i>Schenkia australis</i>	Dicot		Plantae
<i>Schenkia clementii</i>	Dicot		Plantae
<i>Schizachyrium fragile</i>	Monocot		Plantae
<i>Schoenoplectiella dissachantha</i>	Monocot		Plantae
<i>Schoenoplectiella laevis</i>	Monocot		Plantae
<i>Schoenoplectiella lateriflora</i>	Monocot		Plantae
<i>Schoenoplectus dissachanthus</i>	Monocot		Plantae
<i>Schoenoplectus laevis</i>	Monocot		Plantae
<i>Schoenoplectus lateriflorus</i>	Monocot		Plantae
<i>Sclerolaena bicornis</i>	Dicot		Plantae
<i>Sclerolaena bicornis</i> var. <i>bicornis</i>	Dicot		Plantae
<i>Sclerolaena costata</i>	Dicot		Plantae
<i>Sclerolaena densiflora</i>	Dicot		Plantae
<i>Sclerolaena glabra</i>	Dicot		Plantae
<i>Sclerolaena hostilis</i>	Dicot		Plantae
<i>Sclerolaena</i> sp.	Dicot		Plantae
<i>Sclerolaena uniflora</i>	Dicot		Plantae
<i>Senna artemisioides</i> subsp. <i>helmsii</i>	Dicot		Plantae
<i>Senna artemisioides</i> subsp. <i>helmsii</i> x <i>artemisioides</i> subsp. <i>oligophylla</i>	Dicot		Plantae
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	Dicot		Plantae
<i>Senna bicapsularis</i>	Dicot		Plantae
<i>Senna costata</i>	Dicot		Plantae
<i>Senna curvistyla</i>	Dicot		Plantae
<i>Senna glutinosa</i>	Dicot		Plantae
<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	Dicot		Plantae
<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	Dicot		Plantae
<i>Senna glutinosa</i> subsp. x <i>luerssenii</i>	Dicot		Plantae
<i>Senna notabilis</i>	Dicot		Plantae
<i>Senna occidentalis</i>	Dicot		Plantae
<i>Senna stricta</i>	Dicot		Plantae
<i>Senna symonii</i>	Dicot		Plantae
<i>Senna venusta</i>	Dicot		Plantae
<i>Seringia elliptica</i>	Dicot		Plantae
<i>Seringia nephrosperma</i>	Dicot		Plantae
<i>Sesbania cannabina</i>	Dicot		Plantae
<i>Sesbania formosa</i>	Dicot		Plantae
<i>Sesuvium portulacastrum</i>	Dicot		Plantae
<i>Setaria dielsii</i>	Monocot		Plantae
<i>Setaria italica</i>	Monocot		Plantae
<i>Setaria sphacelata</i>	Monocot		Plantae
<i>Setaria surgens</i>	Monocot		Plantae
<i>Sida ammophila</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Sida arenicola</i>	Dicot		Plantae
<i>Sida arsinata</i>	Dicot		Plantae
<i>Sida cardiophylla</i>	Dicot		Plantae
<i>Sida clementii</i>	Dicot		Plantae
<i>Sida echinocarpa</i>	Dicot		Plantae
<i>Sida fibulifera</i>	Dicot		Plantae
<i>Sida macropoda</i>	Dicot		Plantae
<i>Sida rohlenae</i>	Dicot		Plantae
<i>Sida rohlenae</i> subsp. <i>rohlenae</i>	Dicot		Plantae
<i>Sida</i> sp.	Dicot		Plantae
<i>Sida</i> sp. Articulation below (A.A. Mitchell PRP 1605)	Dicot		Plantae
<i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)	Dicot		Plantae
<i>Sida</i> sp. Pindan (B.G. Thomson 3398)	Dicot		Plantae
<i>Sida</i> sp. Rabbit Flat (B.J. Carter 626)	Dicot		Plantae
<i>Sida</i> sp. sand dunes (A.A. Mitchell PRP1208)	Dicot		Plantae
<i>Sida</i> sp. Western sand dunes (P.K. Latz 11980)	Dicot		Plantae
<i>Sida spinosa</i>	Dicot		Plantae
<i>Sida trichopoda</i>	Dicot		Plantae
<i>Solanum chippendalei</i>	Dicot		Plantae
<i>Solanum cleistogamum</i>	Dicot		Plantae
<i>Solanum dioicum</i>	Dicot		Plantae
<i>Solanum dioicum</i> sens. lat.	Dicot		Plantae
<i>Solanum diversiflorum</i>	Dicot		Plantae
<i>Solanum gabrielae</i>	Dicot		Plantae
<i>Solanum horridum</i>	Dicot		Plantae
<i>Solanum lasiophyllum</i>	Dicot		Plantae
<i>Solanum lucani</i>	Dicot		Plantae
<i>Solanum nigrum</i>	Dicot		Plantae
<i>Solanum phlomoides</i>	Dicot		Plantae
<i>Sonchus hydrophilus</i>	Dicot		Plantae
<i>Sorghum plumosum</i>	Monocot		Plantae
<i>Sorghum stipoideum</i>	Monocot		Plantae
<i>Spermacoce hillii</i>	Dicot		Plantae
<i>Spermacoce occidentalis</i>	Dicot		Plantae
<i>Spermacoce</i> sp.	Dicot		Plantae
<i>Spinifex longifolius</i>	Monocot		Plantae
<i>Sporobolus actinocladius</i>	Monocot		Plantae
<i>Sporobolus australasicus</i>	Monocot		Plantae
<i>Sporobolus mitchellii</i>	Monocot		Plantae
<i>Sporobolus virginicus</i>	Monocot		Plantae
<i>Stackhousia intermedia</i>	Dicot		Plantae
<i>Stemodia grossa</i>	Dicot		Plantae
<i>Stemodia kingii</i>	Dicot		Plantae
<i>Stemodia lathraia</i>	Dicot		Plantae
<i>Stemodia linophylla</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Stemodia</i> sp.	Dicot		Plantae
<i>Stemodia</i> sp. Shay Gap (B. Cook 7)	Dicot		Plantae
<i>Stemodia viscosa</i>	Dicot		Plantae
<i>Stenopetalum decipiens</i>	Dicot		Plantae
<i>Streptoglossa bubakii</i>	Dicot		Plantae
<i>Streptoglossa cylindriceps</i>	Dicot		Plantae
<i>Streptoglossa decurrens</i>	Dicot		Plantae
<i>Streptoglossa macrocephala</i>	Dicot		Plantae
<i>Streptoglossa odora</i>	Dicot		Plantae
<i>Streptoglossa</i> sp.	Dicot		Plantae
<i>Streptoglossa tenuiflora</i>	Dicot		Plantae
<i>Striga curviflora</i>	Dicot		Plantae
<i>Striga</i> sp.	Dicot		Plantae
<i>Striga squamigera</i>	Dicot		Plantae
<i>Stuckenia pectinata</i>	Monocot		Plantae
<i>Stylidium desertorum</i>	Dicot		Plantae
<i>Stylobasium spathulatum</i>	Dicot		Plantae
<i>Stylosanthes guianensis</i> var. <i>guianensis</i>	Dicot		Plantae
<i>Stylosanthes hamata</i>	Dicot		Plantae
<i>Suaeda arbusculoides</i>	Dicot		Plantae
<i>Surreya diandra</i>	Dicot		Plantae
<i>Swainsona campylantha</i>	Dicot		Plantae
<i>Swainsona formosa</i>	Dicot		Plantae
<i>Swainsona laciniata</i>	Dicot		Plantae
<i>Swainsona pterostylis</i>	Dicot		Plantae
<i>Swainsona tanamiensis</i>	Dicot		Plantae
<i>Symphyotrichum squamatum</i>	Dicot		Plantae
<i>Synaptantha tillaeacea</i>	Dicot		Plantae
<i>Synaptantha tillaeacea</i> var. <i>tillaeacea</i>	Dicot		Plantae
<i>Tecticornia auriculata</i>	Dicot		Plantae
<i>Tecticornia halocnemoides</i>	Dicot		Plantae
<i>Tecticornia halocnemoides</i> subsp. <i>tenuis</i>	Dicot		Plantae
<i>Tecticornia indica</i>	Dicot		Plantae
<i>Tecticornia indica</i> subsp. <i>bidens</i>	Dicot		Plantae
<i>Tecticornia indica</i> subsp. <i>indica</i>	Dicot		Plantae
<i>Tecticornia indica</i> subsp. <i>leiostachya</i>	Dicot		Plantae
<i>Tecticornia pterygosperma</i> subsp. <i>denticulata</i>	Dicot		Plantae
<i>Templetonia hookeri</i>	Dicot		Plantae
<i>Tephrosia arenicola</i>	Dicot		Plantae
<i>Tephrosia clementii</i>	Dicot		Plantae
<i>Tephrosia densa</i>	Dicot		Plantae
<i>Tephrosia flammea</i>	Dicot		Plantae
<i>Tephrosia leptoclada</i>	Dicot		Plantae
<i>Tephrosia rosea</i>	Dicot		Plantae
<i>Tephrosia rosea</i> var. <i>clementii</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Tephrosia rosea</i> var. <i>clementii</i> / <i>rosea</i> var. Port Hedland (A.S. George 1114)	Dicot		Plantae
<i>Tephrosia rosea</i> var. Fortescue creeks (M.I.H. Brooker 2186)	Dicot		Plantae
<i>Tephrosia rosea</i> var. Port Hedland (A.S. George 1114)	Dicot	P1	Plantae
<i>Tephrosia rosea</i> var. <i>rosea</i>	Dicot		Plantae
<i>Tephrosia rosea</i> var. <i>venulosa</i>	Dicot		Plantae
<i>Tephrosia simplicifolia</i>	Dicot		Plantae
<i>Tephrosia</i> sp. B Kimberley Flora (C.A. Gardner 7300)	Dicot		Plantae
<i>Tephrosia</i> sp. Bungaroo Creek (M.E. Trudgen 11601)	Dicot		Plantae
<i>Tephrosia</i> sp. Carnarvon (J.H. Ross 2681)	Dicot		Plantae
<i>Tephrosia</i> sp. clay soils (S. van Leeuwen et al. PBS 0273)	Dicot		Plantae
<i>Tephrosia</i> sp. D Kimberley Flora (R.D. Royce 1848)	Dicot		Plantae
<i>Tephrosia</i> sp. Fortescue (A.A. Mitchell 606)	Dicot		Plantae
<i>Tephrosia</i> sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)	Dicot		Plantae
<i>Tephrosia supina</i>	Dicot		Plantae
<i>Tephrosia uniovulata</i>	Dicot		Plantae
<i>Tephrosia virens</i>	Dicot		Plantae
<i>Terminalia canescens</i>	Dicot		Plantae
<i>Terminalia circumalata</i>	Dicot		Plantae
<i>Thalassia hemprichii</i>	Monocot		Plantae
<i>Themeda avenacea</i>	Monocot		Plantae
<i>Themeda triandra</i>	Monocot		Plantae
<i>Threlkeldia diffusa</i>	Dicot		Plantae
<i>Tinospora smilacina</i>	Dicot		Plantae
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>	Dicot		Plantae
<i>Trachymene pilbarensis</i>	Dicot		Plantae
<i>Trianthema cusackianum</i>	Dicot		Plantae
<i>Trianthema oxycalyptum</i> var. <i>oxycalyptum</i>	Dicot		Plantae
<i>Trianthema pilosum</i>	Dicot		Plantae
<i>Trianthema portulacastrum</i>	Dicot		Plantae
<i>Trianthema</i> sp.	Dicot		Plantae
<i>Trianthema triquetra</i>	Dicot		Plantae
<i>Trianthema triquetrum</i>	Dicot		Plantae
<i>Trianthema turgidifolia</i>	Dicot		Plantae
<i>Trianthema turgidifolium</i>	Dicot		Plantae
<i>Tribulopsis angustifolia</i>	Dicot		Plantae
<i>Tribulus cistoides</i>	Dicot		Plantae
<i>Tribulus hirsutus</i>	Dicot		Plantae
<i>Tribulus macrocarpus</i>	Dicot		Plantae
<i>Tribulus occidentalis</i>	Dicot		Plantae
<i>Tribulus platypterus</i>	Dicot		Plantae
<i>Tribulus</i> sp.	Dicot		Plantae
<i>Tribulus</i> sp. long-styled eichlerianus (A.S. George 10666)	Dicot		Plantae
<i>Tribulus terrestris</i>	Dicot		Plantae
<i>Trichodesma zeylanicum</i>	Dicot		Plantae
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Trichosanthes cucumerina</i>	Dicot		Plantae
<i>Trichosanthes cucumerina</i> var. <i>cucumerina</i>	Dicot		Plantae
<i>Tridax procumbens</i>	Dicot		Plantae
<i>Trigastrotheca molluginea</i>	Dicot		Plantae
<i>Trigonella suavissima</i>	Dicot		Plantae
<i>Triodia angusta</i>	Monocot		Plantae
<i>Triodia biflora</i>	Monocot		Plantae
<i>Triodia bitextura</i>	Monocot		Plantae
<i>Triodia brizoides</i>	Monocot		Plantae
<i>Triodia chichesterensis</i>	Monocot	P3	Plantae
<i>Triodia epactia</i>	Monocot		Plantae
<i>Triodia lanigera</i>	Monocot		Plantae
<i>Triodia longiceps</i>	Monocot		Plantae
<i>Triodia pungens</i>	Monocot		Plantae
<i>Triodia schinzii</i>	Monocot		Plantae
<i>Triodia scintillans</i>	Monocot		Plantae
<i>Triodia secunda</i>	Monocot		Plantae
<i>Triodia</i> sp.	Monocot		Plantae
<i>Triodia</i> sp. Warrawagine (A.L. Payne PRP 1859)	Monocot		Plantae
<i>Triodia wiseana</i>	Monocot		Plantae
<i>Tripogon lolliiformis</i>	Monocot		Plantae
<i>Triraphis mollis</i>	Monocot		Plantae
<i>Triumfetta appendiculata</i>	Dicot		Plantae
<i>Triumfetta chaetocarpa</i>	Dicot		Plantae
<i>Triumfetta clementii</i>	Dicot		Plantae
<i>Triumfetta deserticola</i>	Dicot		Plantae
<i>Triumfetta incana</i>	Dicot		Plantae
<i>Triumfetta johnstonii</i>	Dicot		Plantae
<i>Triumfetta maconochieana</i>	Dicot		Plantae
<i>Triumfetta propinqua</i>	Dicot		Plantae
<i>Triumfetta ramosa</i>	Dicot		Plantae
<i>Triumfetta</i> sp.	Dicot		Plantae
<i>Typha domingensis</i>	Monocot		Plantae
<i>Urochloa holosericea</i> subsp. <i>velutina</i>	Monocot		Plantae
<i>Urochloa occidentalis</i> var. <i>occidentalis</i>	Monocot		Plantae
<i>Urochloa panicoides</i>	Monocot		Plantae
<i>Urochloa piligera</i>	Monocot		Plantae
<i>Uvedalia linearis</i> var. <i>linearis</i>	Dicot		Plantae
<i>Vachellia farnesiana</i>	Dicot		Plantae
<i>Vallisneria nana</i>	Monocot		Plantae
<i>Velleia panduriformis</i>	Dicot		Plantae
<i>Vigna lanceolata</i>	Dicot		Plantae
<i>Vigna lanceolata</i> var. <i>lanceolata</i>	Dicot		Plantae
<i>Vigna</i> sp.	Dicot		Plantae
<i>Vigna</i> sp. Hamersley Clay (A.A. Mitchell PRP 113)	Dicot		Plantae

Taxon	Class	Cons	Kingdom
<i>Vittadinia</i> sp.	Dicot		Plantae
<i>Wahlenbergia queenslandica</i>	Dicot		Plantae
<i>Wahlenbergia tumidifructa</i>	Dicot		Plantae
<i>Waltheria indica</i>	Dicot		Plantae
<i>Waltheria virgata</i>	Dicot		Plantae
<i>Whiteochloa cymbiformis</i>	Monocot		Plantae
<i>Xanthium occidentale</i>	Dicot		Plantae
<i>Xerochloa barbata</i>	Monocot		Plantae
<i>Xerochloa imberbis</i>	Monocot		Plantae
<i>Yakirra australiensis</i>	Monocot		Plantae
<i>Yakirra majuscula</i>	Monocot		Plantae
<i>Zaleya galericulata</i>	Dicot		Plantae
<i>Zaleya galericulata</i> subsp. <i>galericulata</i>	Dicot		Plantae
<i>Zornia albiflora</i>	Dicot		Plantae
<i>Zornia chaetophora</i>	Dicot		Plantae
<i>Zornia muelleriana</i>	Dicot		Plantae
<i>Zornia muelleriana</i> subsp. <i>congesta</i>	Dicot		Plantae

Appendix 3

Vegetation Structural Classification and Condition Ranking Scale



Vegetation structural classes based on modifications of the vegetation classification system of Specht (1970) by Muir (1977) and Aplin (1979).

Stratum	Canopy Cover (%)				
	70-100%	30-70%	10-30%	2-10%	<2%
Trees over 30 m	Tall closed forest	Tall open forest	Tall woodland	Tall open woodland	Scattered tall trees
Trees 10-30 m	Closed forest	Open forest	Woodland	Open woodland	Scattered trees
Trees under 10 m	Low closed forest	Low open forest	Low woodland	Low open woodland	Scattered low trees
Shrubs over 2 m	Tall closed scrub	Tall open scrub	Tall shrubland	Tall open shrubland	Scattered tall shrubs
Shrubs 1-2 m	Closed heath	Open heath	Shrubland	Open shrubland	Scattered shrubs
Shrubs under 1 m	Low closed heath	Low open heath	Low shrubland	Low open shrubland	Scattered low shrubs
Hummock grasses	Closed hummock grassland	Hummock grassland	Open hummock grassland	Very open hummock grassland	Scattered hummock grasses
Grasses, Sedges, Herbs	Closed tussock grassland / bunch grassland / sedgeland / herbland	Tussock grassland / bunch grassland / sedgeland / herbland	Open tussock grassland / bunch grassland / sedgeland / herbland	Very open tussock grassland / bunch grassland / sedgeland / herbland	Scattered tussock grasses / bunch grasses / sedges / herbs

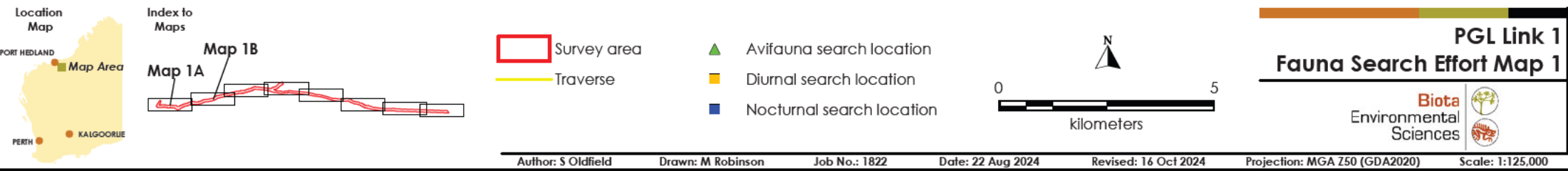
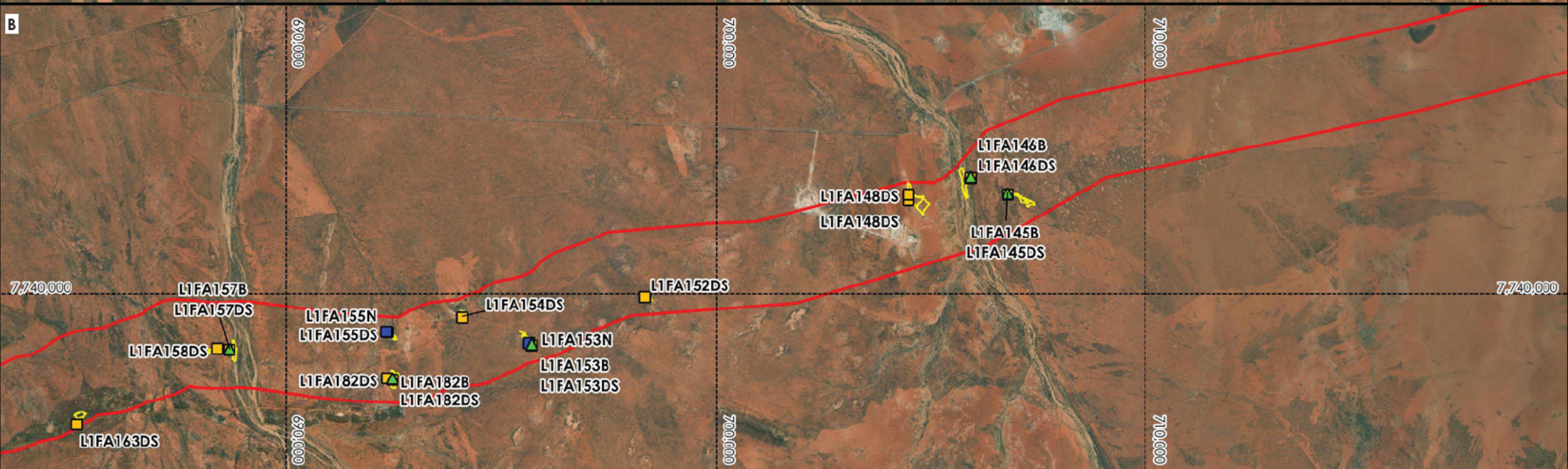
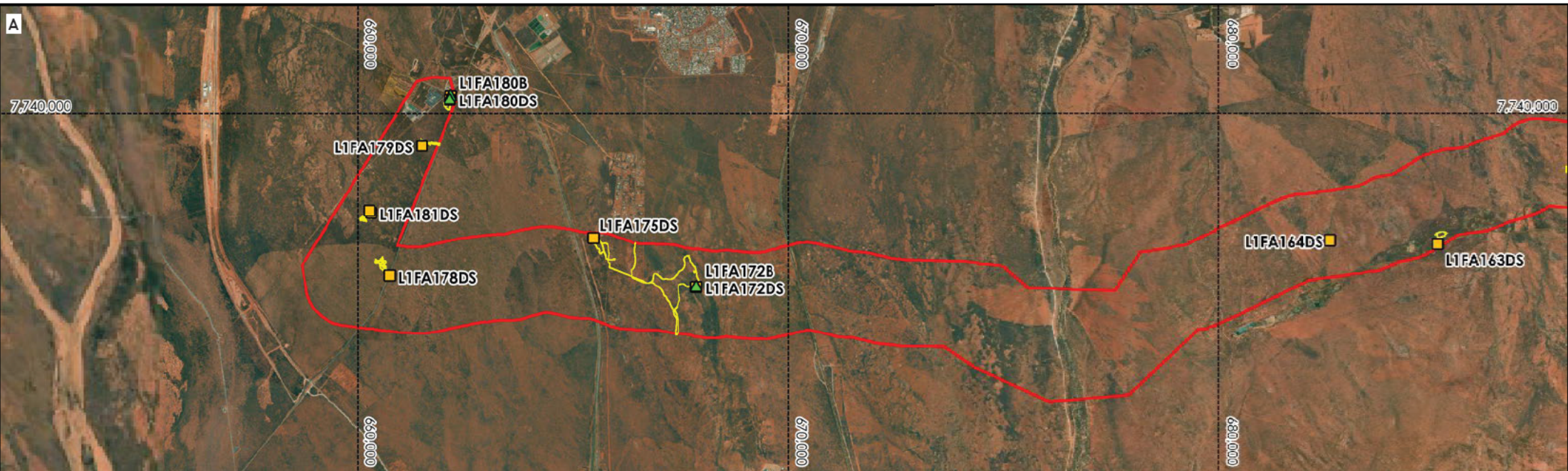
Vegetation condition scale taken from EPA (2016a), based on scales developed by Keighery (1994) and Trudgen (1988).

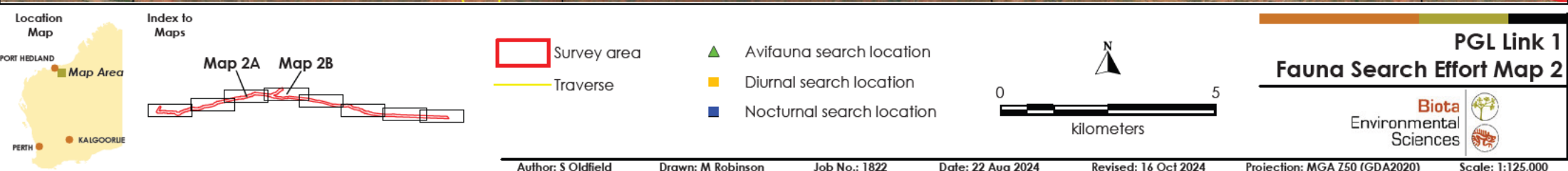
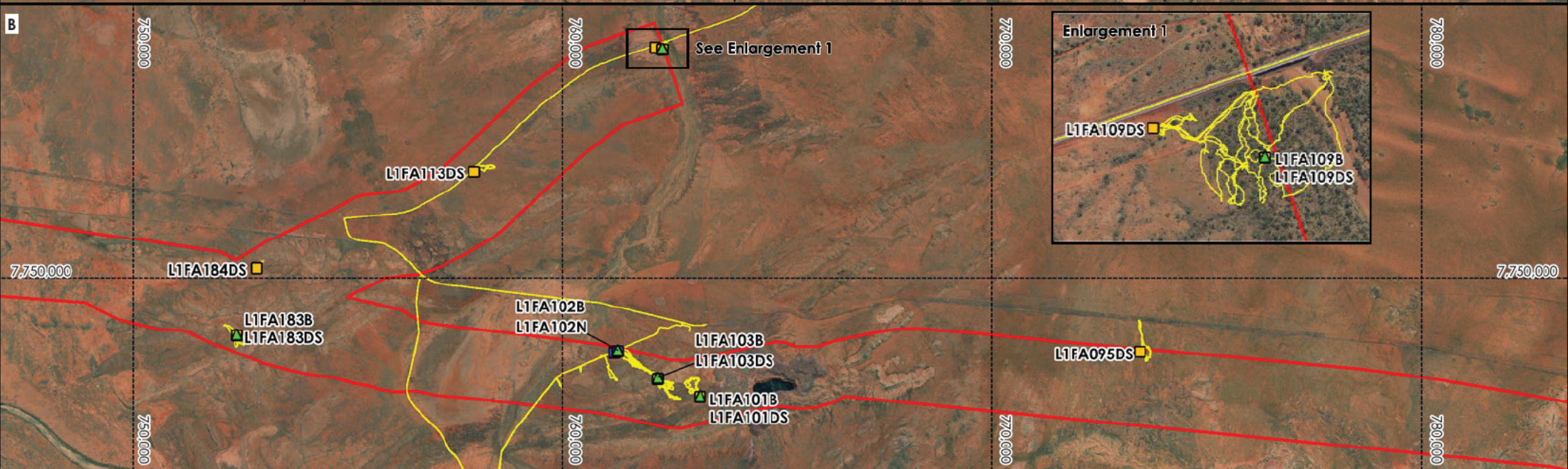
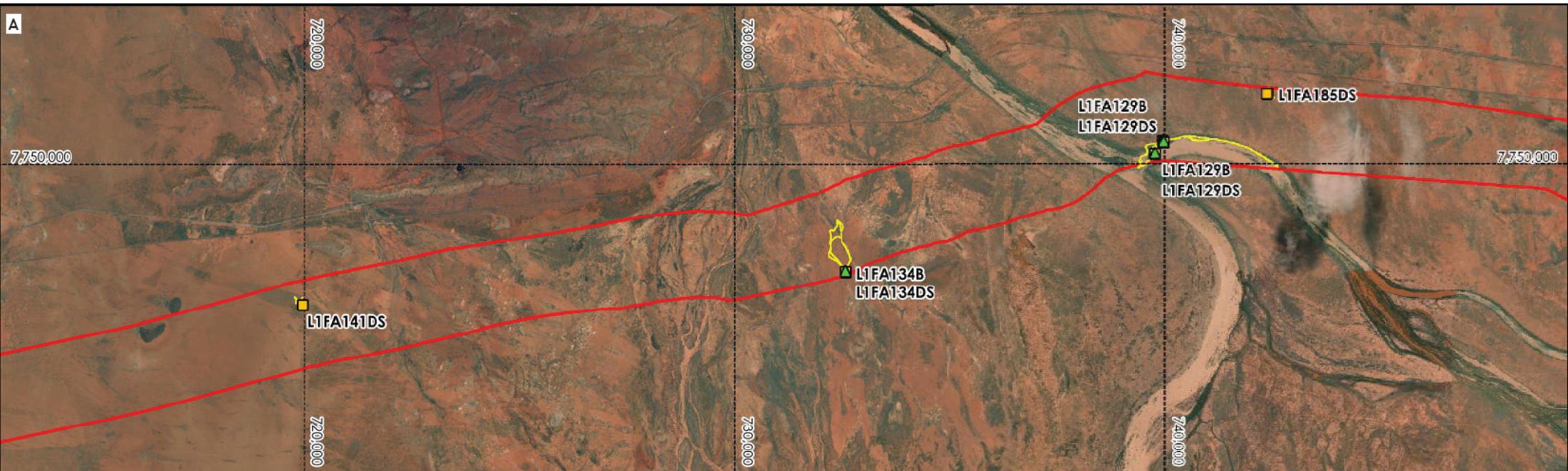
Vegetation Condition	South West and Interzone Botanical Provinces	Eremaean and Northern Botanical Provinces
Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.	
Excellent	Vegetation structure intact, disturbance affecting individual 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.

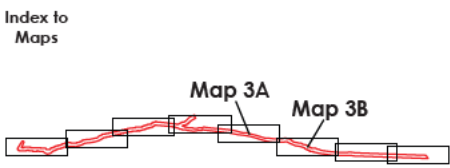
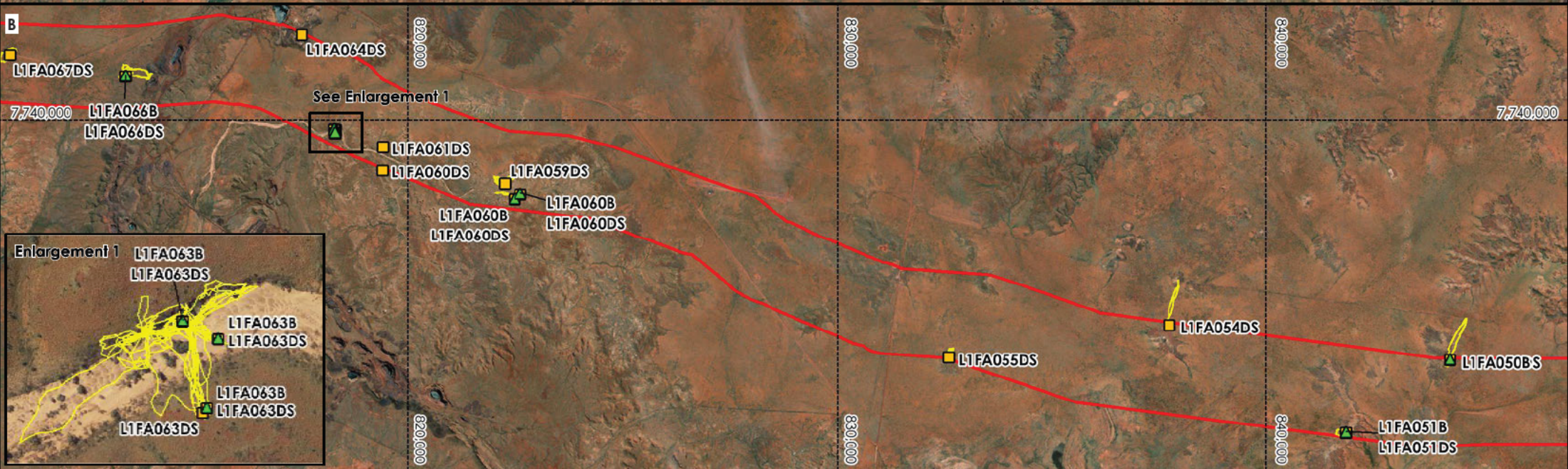
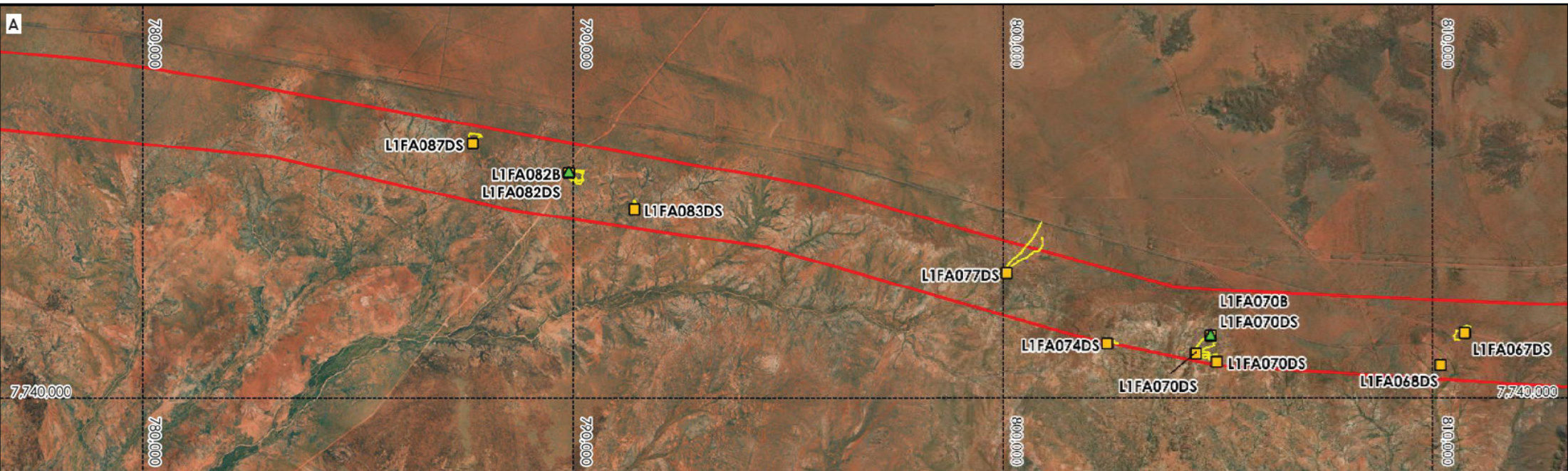
Appendix 4

Flora and Fauna Survey Effort



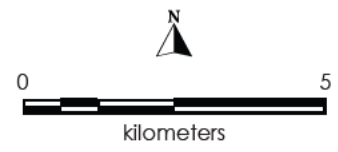






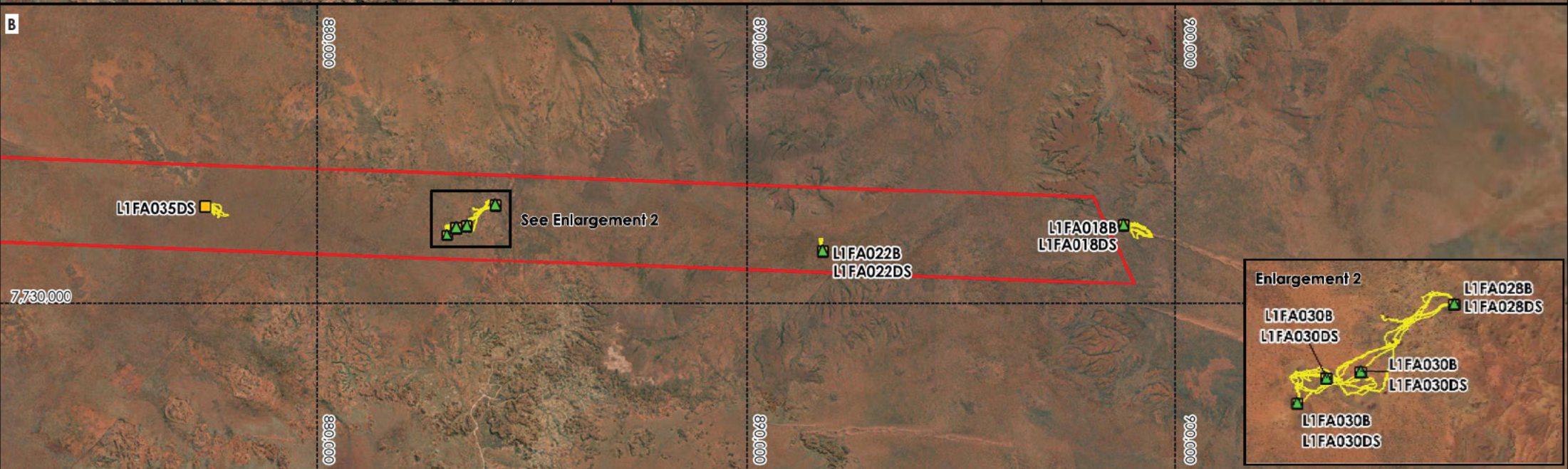
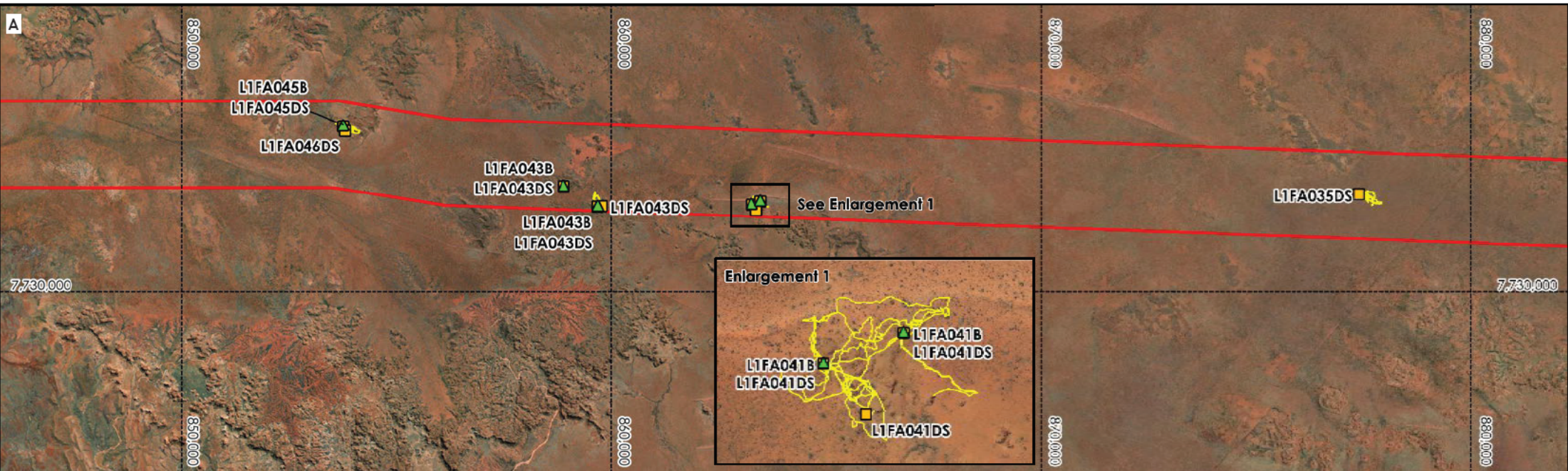
Survey area
 Traverse

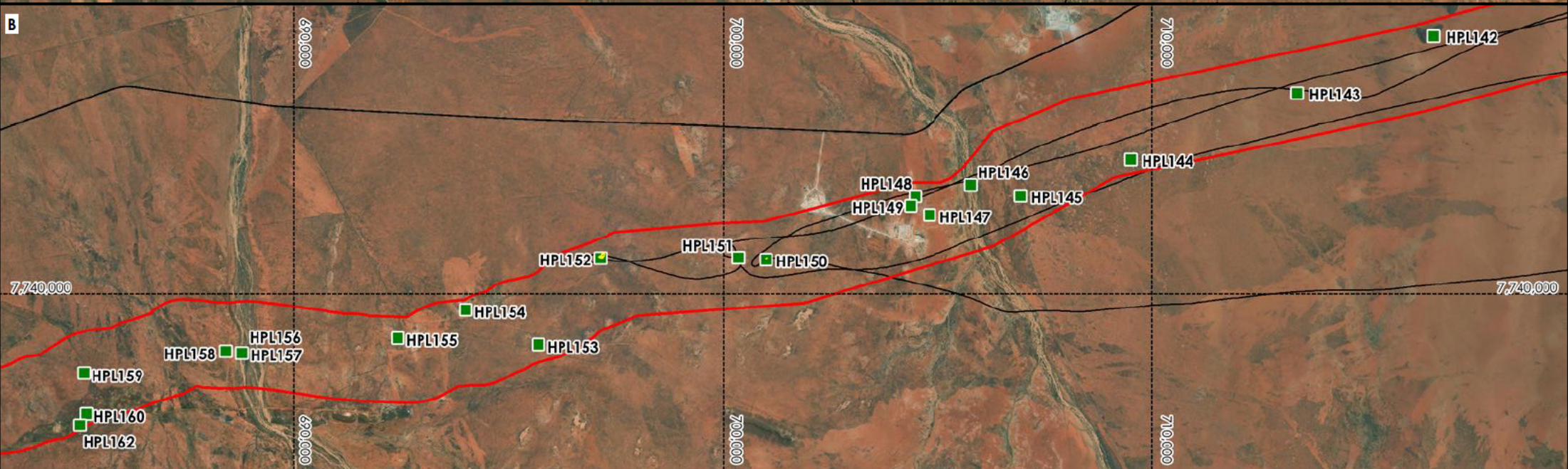
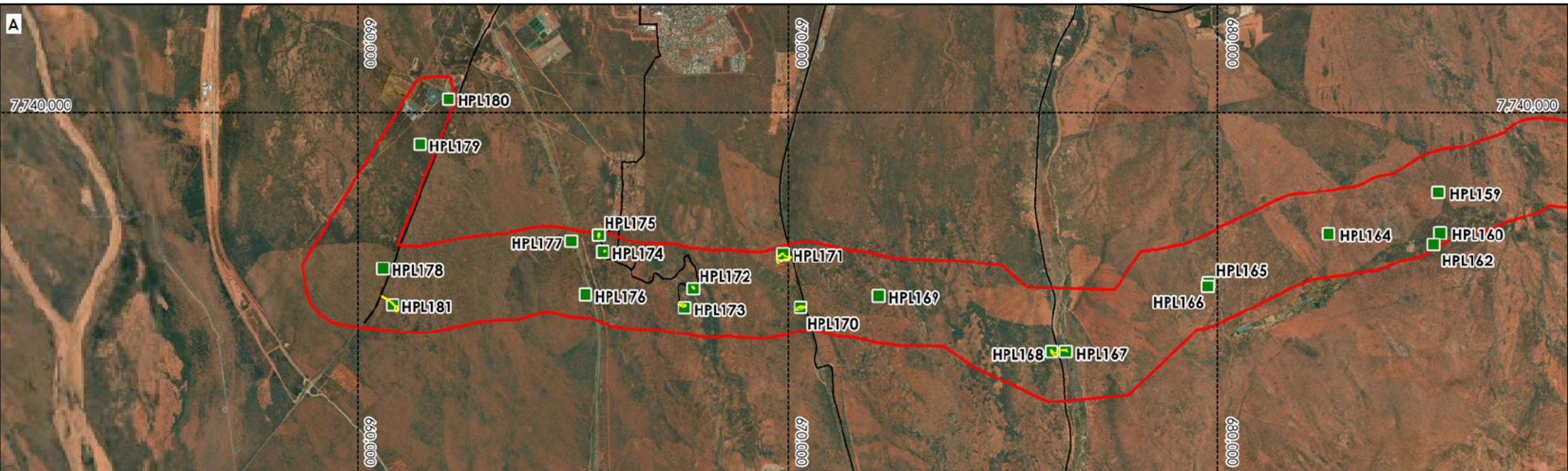
▲ Avifauna search location
■ Diurnal search location
■ Nocturnal search location



PGL Link 1 Fauna Search Effort Map 3







Location Map

Index to Maps

Survey area

■ Sample site location

— Traverse

— GPS recorded tracklog

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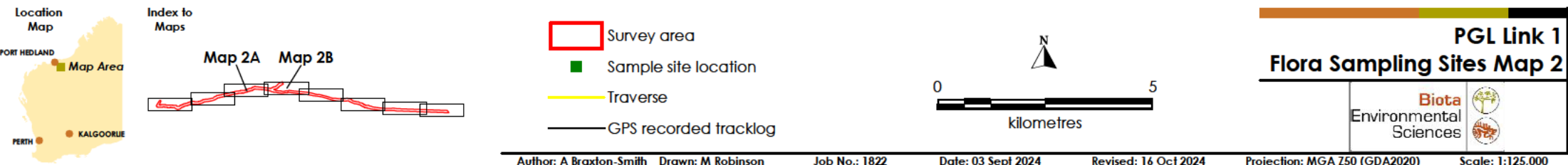
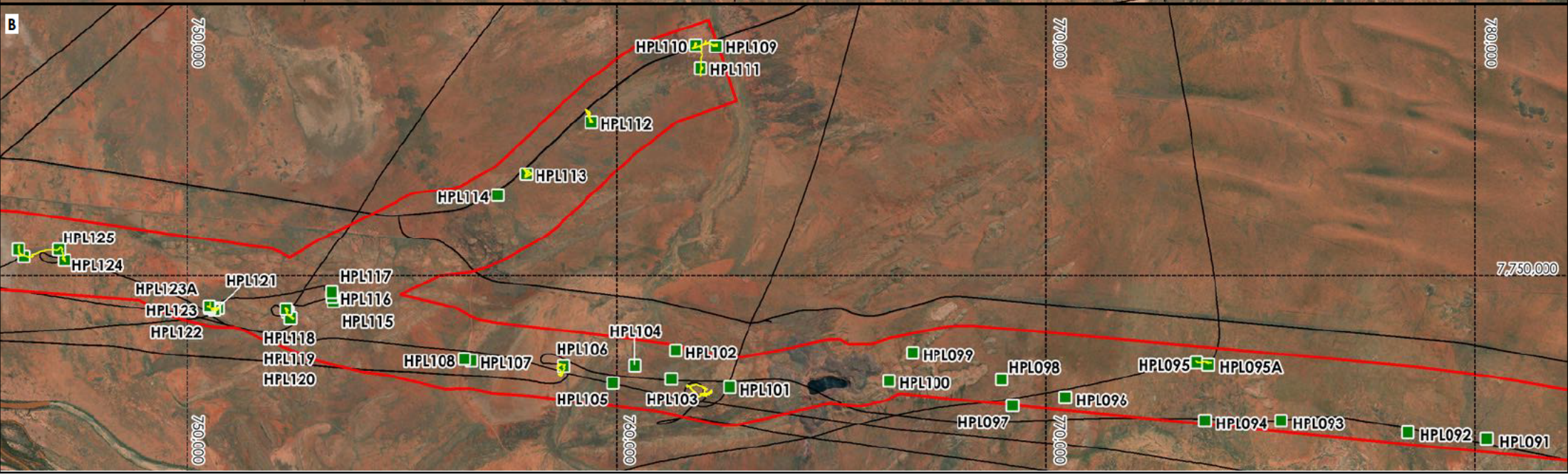
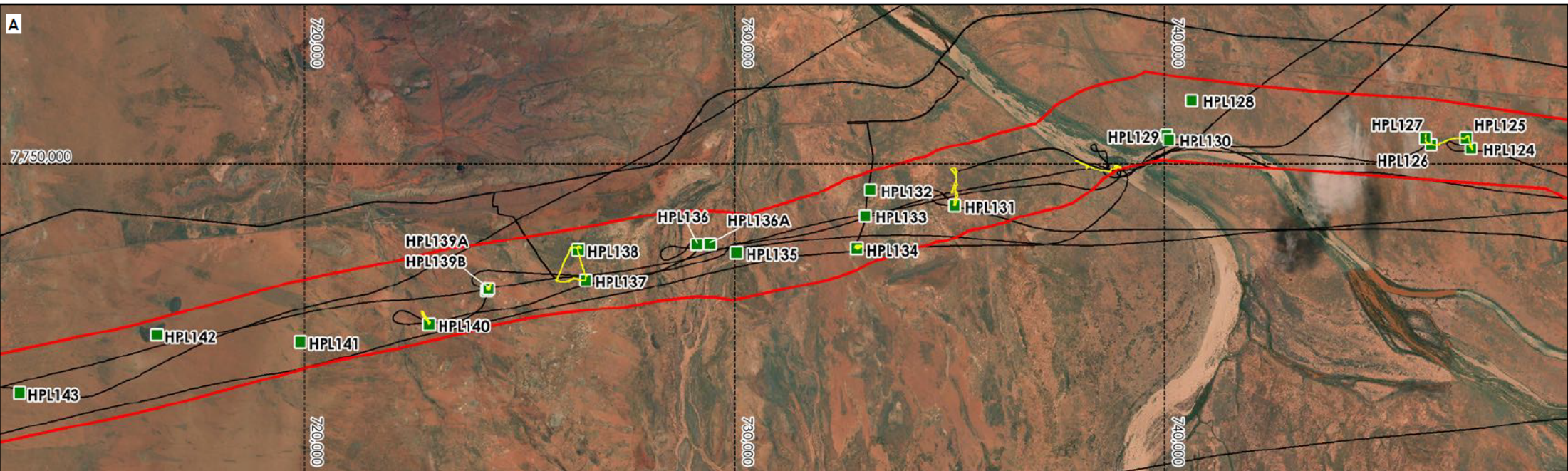
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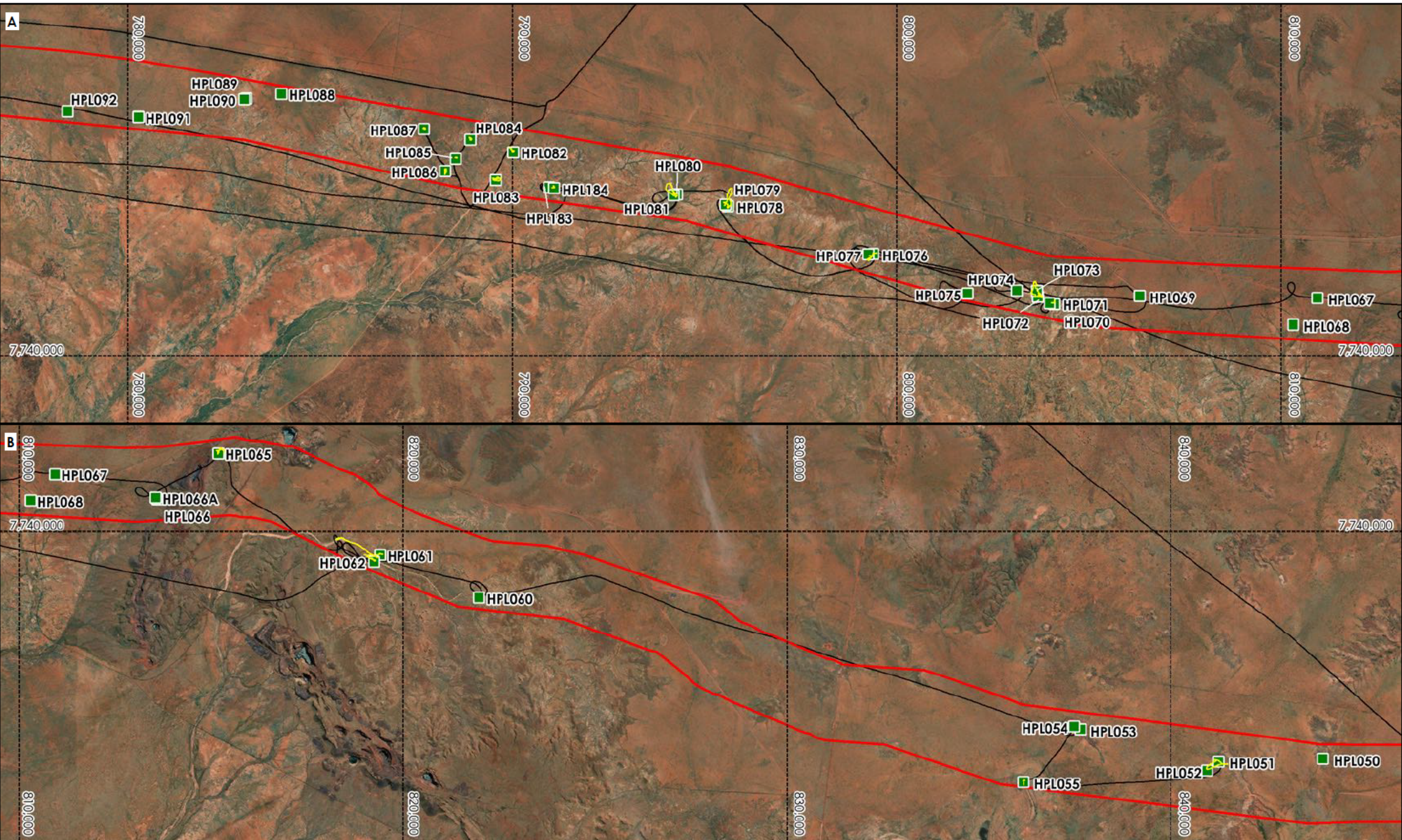
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kilometres

PGL Link 1
Flora Sampling Sites Map 1

Author: A Braxton-Smith Drawn: M Robinson Job No.: 1822
Date: 03 Sept 2024 Revised: 16 Oct 2024 Projection: MGA Z50 (GDA2020) Scale: 1:125,000





Location Map

PORT HEDLAND Map Area KALGOORLIE

PERTH

Index to Maps

Map 3A Map 3B

Legend

- Survey area
- Sample site location
- Traverse
- GPS recorded tracklog

Scale

0 5
kilometres

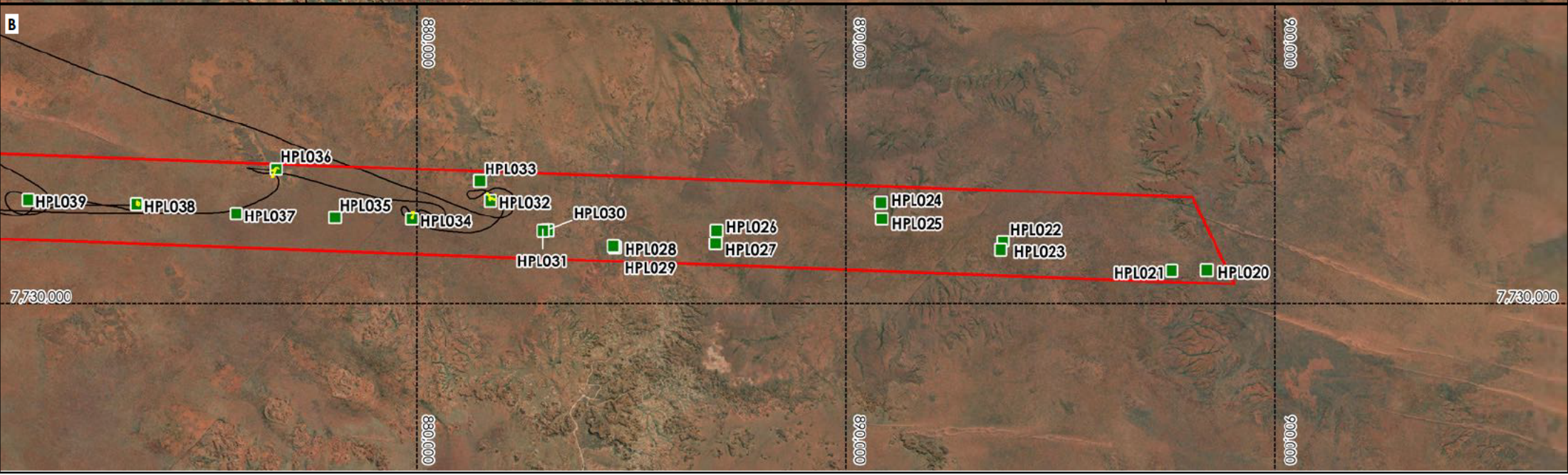
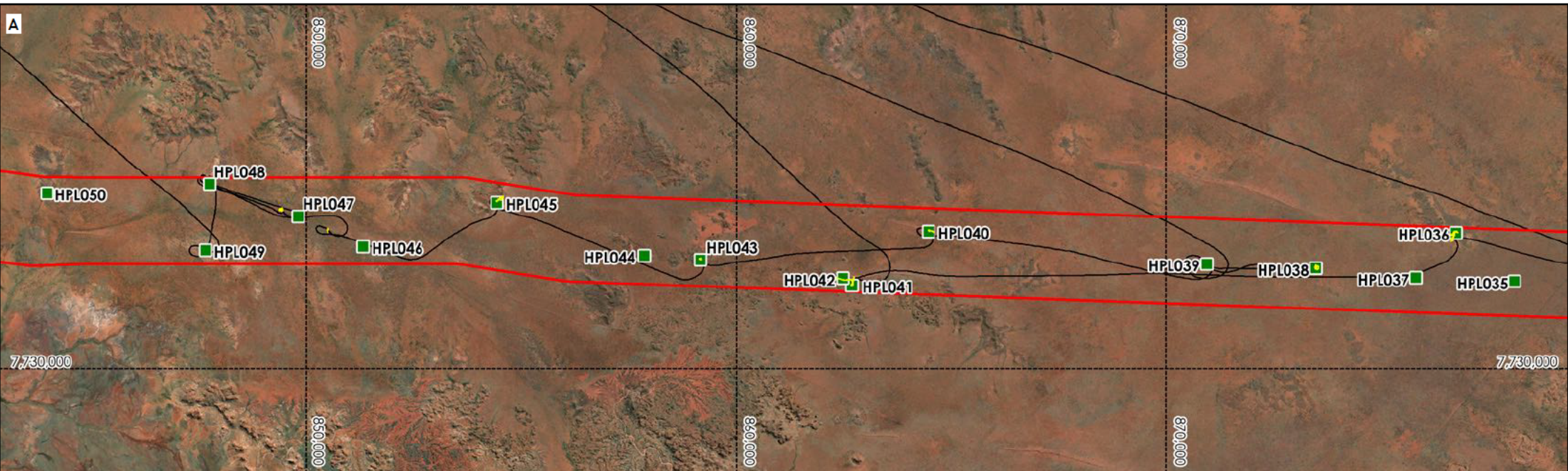
North Arrow

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**PGL Link 1
Flora Sampling Sites Map 3**

Biota
Environmental
Sciences

Author: A Braxton-Smith Drawn: M Robinson Job No.: 1822 Date: 03 Sept 2024 Revised: 16 Oct 2024 Projection: MGA Z50 (GDA2020) Scale: 1:125,000



Location Map

Index to Maps

Legend

- Survey area
- Sample site location
- Traverse
- GPS recorded tracklog

Scale and Orientation

0 5
kilometres

**PGL Link 1
Flora Sampling Sites Map 4**

Author: A Braxton-Smith Drawn: M Robinson
Job No.: 1822
Date: 03 Sept 2024
Revised: 16 Oct 2024
Projection: MGA Z50 (GDA2020)
Scale: 1:125,000

Appendix 6

Likelihood of Significant Flora Occurring in the Survey Area



Taxon	Habit and habitat	Likelihood of occurrence (NR = nearest record)	Database Searches					Past surveys
			DBCA TPFL	WAH	NatureMap	ALA	EPBC PMST	
Priority 1								
<i>Acacia cyperophylla</i> var. <i>omearana</i>	Tree to 10 m, growing along drainage lines in stony and gritty alluvium.	May occur ; one spatially generalised ALA record south of Link 2, which is the northernmost to date.				✓		
<i>Atriplex eremitis</i>	Erect, perennial shrub to 40 cm tall with grey foliage, found on edges of clay pans, coastal areas and saline areas.	Unlikely to occur; generally recorded well north of Link 1, closer to coast (NR = 24.5 km N).	✓	✓	✓	✓		
<i>Corchorus</i> sp. Yarrie (J. Bull & D. Roberts CAL 01.05)	Shrub to 1.5 m, growing in loam-based soils on slopes, and in drainage lines and gullies.	Unlikely to occur; records >15 km south (NR = 19.1 km S).		✓	✓	✓		
<i>Eremophila maculata</i> subsp. <i>filifolia</i>	Shrub to 2 m, growing on plains.	Unlikely to occur; currently only known from a single area fringing the De Grey River, >20 km south of Link 1 (NR = 21.8 km S).		✓	✓	✓		
<i>Euploca parviantrum</i>	Herb to 0.5 m, growing on spinifex plains.	May occur ; only four collections to date, but they include one 11 km north and one 23 km south of Link 1 (NR = 11.3 km N).		✓	✓	✓		
<i>Fimbristylis</i> sp. H Kimberley Flora (Carr 3944 & Beauglehole 47722)	Sedge to 0.3 m, growing on sandy plains.	Unlikely to occur; mainly a Kimberley species; ALA record was from a tentative ID (generalised ALA records only).				✓		
<i>Fimbristylis</i> sp. Shay Gap (K.R. Newbey 10293)	Small to large sprawling shrub to 1.5 m. One collection to date: "Coolibah woodland on variable-drained, gritty, sandy alluvium; small drainage line on colluvial flat between hills of Banded Ironstone Formation".	Unlikely to occur; no suitable habitat (NR = 5.8 km S).		✓				
<i>Grona pullenii</i>	Spreading to erect annual herb, habitat preferences unknown.	Unlikely to occur; typically a Kimberley species. ALA record returned is from 1995 and only record from the Pilbara/Great Sandy Desert.				✓		

Taxon	Habit and habitat	Likelihood of occurrence (NR = nearest record)	Database Searches					Past surveys
			DBCA TPFL	WAH	NatureMap	ALA	EPBC PMST	
<i>Tephrosia rosea</i> var. Port Hedland (A.S. George 1114)	Small to large sprawling shrub to 1.5 m, growing on sandy plains at coastal and near-coastal locations from Port Headland to Point Sampson.	May occur at far west end of Link 1, but typically more coastal. There are also 2 records of a similar looking taxon that Biota and Byrne have vouchered under this name, but which are probably a distinct taxon; this could occur on sand dunes at the east end of Link 1 (NR = 4.1 km N).		✓	✓	✓		✓
<i>Triodia degreyensis</i>	Hummock grass to 1.0 m, growing on or near rocky or gravelly hills.	Likely to occur near the De Grey River; two records in search results, which are the only known records (NR = 0.4 km N).		✓	✓	✓		
<i>Triumfetta rupestris</i>	Spreading to ascending shrub to 1.5 m, growing on steep rocky slopes.	Unlikely to occur; typically recorded near the NT border and further east. ALA record returned is from 1949 and only records in the Pilbara/Great Sandy Desert.				✓		
Priority 2								
<i>Gomphrena pusilla</i>	Slender annual herb to 0.2 m tall with white flowers. Occurs on fine beach sand behind foredunes and on limestone.	Unlikely to occur; associated with coastal habitats (NR = 9.2 km NW).		✓	✓	✓		
<i>Goodenia hartiana</i>	Herb to 0.4 m, growing on sand dunes, swales and sandplains.	Recorded during current survey; at one location near the eastern end of Link 1.		✓	✓	✓		✓
Priority 3								
<i>Abutilon</i> sp. Pritzelianum (S. van Leeuwen 5095)	Upright shrub to 2.5 m, typically growing on sand plains, but also on sand dunes, hilltops and in creek beds.	Recorded during current survey; at 2 locations in western extent of Link 1.	✓	✓	✓	✓		
<i>Bonamia oblongifolia</i>	Spreading shrub growing on pindan plains.	Recorded during current survey; at the western and eastern ends of the Link 1.						✓
<i>Corynotheca asperata</i>	Tufted herb to 0.5 m, growing on sand dunes.	Unlikely to occur; single record in search results from 38 km southeast, which is furthest north to date (NR = 38.4 km SE).		✓	✓	✓		
<i>Croton aridus</i>	Shrub to 0.4 m, growing on sand dunes, and sandplains.	Recorded during current survey; at 12 locations in eastern half of Link 1.		✓	✓	✓		✓

Taxon	Habit and habitat	Likelihood of occurrence (NR = nearest record)	Database Searches					Past surveys
			DBCA TPFL	WAH	NatureMap	ALA	EPBC PMST	
<i>Eriachne filiformis</i>	Grass to 0.2 m, growing on sandstone.	Unlikely to occur; typically a Kimberley species. ALA record returned is from 2001 and only record from the Pilbara/Great Sandy Desert.				✓		
<i>Euphorbia clementii</i>	Erect annual herb to 0.6 m, growing on gravelly hillsides and stony grounds.	Recorded during the current survey, at one location in the western extent of Link 1.	✓	✓	✓	✓		
<i>Euphorbia inappendiculata</i> var. <i>inappendiculata</i>	Herb to 0.1 m, typically growing on plains, gentle slopes and drainages.	Recorded during current survey ; at one location near the eastern end of Link 1.		✓	✓	✓		
<i>Euphorbia inappendiculata</i> var. <i>queenslandica</i>	Herb to 0.1 m, growing on clay plains and narrow to broad drainages.	Recorded during current survey ; at one location near the De Grey River.						
<i>Euploca mutica</i>	Perennial herb to 0.3 m, growing on loamy and/or sandy plains.	Likely to occur ; two records within 100 m of Link 1; likely to occur near Port Hedland, at least as far east as Petermarer Creek (NR = 0.1 km N).		✓	✓	✓		
<i>Gomphrena leptophylla</i>	Prostrate or erect to spreading annual herb to 0.2 m, growing on open flats, sandy creek beds, edges of salt pans and marshes, and stony hillsides.	May occur ; single record from 8 km north of west end of Link 1 (NR = 7.9 km NW).		✓	✓	✓		
<i>Gymnanthera cunninghamii</i>	Erect shrub to 2.0 m, growing in moderate to major drainages.	May occur ; records to north and south of Link 1; species relatively widespread throughout Pilbara (NR = 7.3 km N).	✓	✓	✓	✓		
<i>Heliotropium murinum</i>	Herb to 0.3 m, growing on sandy plains.	May occur ; two records in search results, closest is 23 km south along the De Grey River; this is the furthest north to date (NR = 23.3 km S).		✓	✓	✓		
<i>Hibiscus</i> aff. <i>krichauffianus</i>	Low or ascending shrub to 0.7 m, growing in red sandy soils.	Likely to occur ; three affinity ALA records returned, within 20 km of the survey area, spread through the central section.				✓		
<i>Indigofera ammobia</i>	Shrub to 1 m, growing on sandplains, sand dunes and swales.	Likely to occur in east half of Link 1 (NR = 17.5 km S).	✓	✓	✓	✓		✓

Taxon	Habit and habitat	Likelihood of occurrence (NR = nearest record)	Database Searches					Past surveys
			DBCA TPFL	WAH	NatureMap	ALA	EPBC PMST	
<i>Nicotiana umbratica</i>	Erect, short-lived annual or perennial herb to 0.7 m, growing on rocky outcrops.	Likely to occur ; two records in search results, closest is 2.3 km south (NR = 2.3 km S).		✓	✓	✓		
<i>Phyllanthus</i> sp. aff. <i>herbecarpus</i>	Herb to 0.5 m, growing on low stony rises. Potentially an unrecognised new taxon from a previous AREH survey.	Likely to occur at eastern end; two AREH records in close proximity (NR = 6.8 km NE).						✓
<i>Polymeria</i> sp. Broome (K.F. Kenneally 9759)	Erect or sprawling herb growing on pindan plains.	Recorded during current survey ; at one location in the eastern section of Link 1.						
<i>Rothia indica</i> subsp. <i>australis</i>	Prostrate annual herb growing to 0.3 m tall, growing on sand dunes and sandplains, and in swales.	Likely to occur throughout corridor; numerous records in proximity and lots of suitable habitat (NR = 2.6 km N).		✓	✓	✓		✓
<i>Terminalia kumpaja</i>	Low, spreading tree to 7.0 m, growing on pindan plains.	Likely to occur at eastern end; many records from previous AREH surveys (NR = 37.6 km NE).						✓
<i>Tribulopsis marlesiae</i>	Spreading herb to 0.5 m, growing on pindan plains.	Recorded during current survey ; at one location in the eastern section of Link 1.						✓
<i>Triodia acutispicula</i>	Hummock grass with inflorescences to 1.5 m, growing on sandstone.	Unlikely to occur; typically a Kimberley species. ALA record returned is from 1982 and only record from the Pilbara/Great Sandy Desert.			✓	✓		
<i>Triodia chichesterensis</i>	Hummock grass to 0.8 m, growing on rocky/gravelly hills and slopes.	May occur in western half of Link 1; several records in search results; closest is 10 km south, and this is most north record to date (NR = 9.9 km S).		✓	✓	✓		
Priority 4								
<i>Bulbostylis burbridgeae</i>	Erect to spreading sedge, up to 0.3 m tall, growing in granitic soils, granite outcrops and cliff bases.	Recorded during current survey ; at one location in the central section of Link 1.		✓	✓	✓		✓
<i>Ptilotus mollis</i>	Perennial shrub to 0.5 m, growing on stony hills and screes.	May occur ; only a few records in search results and closest 19.5 km south, but lots of suitable habitat (NR = 19.6 km S).		✓	✓	✓		

Taxon	Habit and habitat	Likelihood of occurrence (NR = nearest record)	Database Searches					Past surveys
			DBCA TPFL	WAH	NatureMap	ALA	EPBC PMST	
<i>Sida</i> sp. Barlee Range (S. van Leeuwen 1642)	Shrub to 1.2 m, growing in steep rocky landforms such as rocky hills, gorges and breakaways.	Unlikely to occur; only one ALA record from 2004 (generalised ALA record only).			✓	✓		

Appendix 7

Regional Fauna List: Vertebrate and Invertebrate Fauna



Amphibians

Family	Species Name	Common Name	State	Commonwealth	ALA	DBCA TF	EPBC	Naturemap	AREH Birds (2018)	AREH Detailed (2021)	Yarrie (2023)	Roy Hill Port (2023)	Ridley Services Corridor (2023)	Ridley Detailed (2024)	Current Survey
Pelodryadidae	Cyclorana australis	Giant Frog			•			•						•	
	Cyclorana maini	Sheep Frog			•			•						•	
	Litoria caerulea	Green Tree Frog			•			•							
	Litoria ridibunda	Western Laughing Tree Frog						•							
	Litoria rubella	Little Red Tree Frog			•			•						•	•
Limnodynastidae	Neobatrachus aquilonius	Northern Burrowing Frog			•			•						•	
	Neobatrachus sutor	Shoemaker Frog						•							
	Notaden nicholisi	Desert Spadefoot			•			•		•				•	
Myobatrachidae	Uperoleia glandulosa	Glandular Toadlet			•			•							
	Uperoleia micromeles	Tanami Toadlet			•			•		•					
	Uperoleia saxatilis	Pilbara Toadlet			•			•							
	Uperoleia talpa	Ratcheting Toadlet			•			•							

The following species returned from the database searches have been excluded:

- Uperoleia russelli, Northwest Toadlet - now U. saxatilis in this region

Birds

Family	Species Name	Common Name	State	Commonwealth	ALA	DBCA TF	EPBC	Naturemap	AREH Birds (2018)	AREH Detailed (2021)	Yarrie (2023)	Roy Hill Port (2023)	Ridley Services Corridor (2023)	Ridley Detailed (2024)	Current Survey
Casuariidae	Dromaius novaehollandiae	Emu			•			•							•
	Dendrocygna eytoni	Plumed Whistling Duck			•			•					•		
	Dendrocygna arcuata	Wandering Whistling Duck		MA	•			•							
	Cygnus atratus	Black Swan			•			•						•	•
	Tadorna tadornoides	Australian Shelduck			•								•		
	Malacorhynchus membranaceus	Pink-eared Duck			•			•	•						
	Chenonetta jubata	Maned Duck			•			•							
	Spatula querquedula	Garganey	MI	MI; MA	•										
	Spatula rhynchotis	Australasian Shoveler			•			•							
	Anas superciliosa	Pacific Black Duck			•			•					•	•	•
	Anas gracilis	Grey Teal			•			•	•				•	•	•
Anatidae	Anas castanea	Chestnut Teal			•										
	Aythya australis	Hardhead			•			•					•		
	Synoicus ypsilophorus	Brown Quail			•			•					•		•
Phasianidae	Coturnix pectoralis	Stubble Quail		MA	•			•						•	
Caprimulgidae	Eurostopodus argus	Spotted Nightjar		MA	•			•						•	•
Podargidae	Podargus strigoides	Tawny Frogmouth			•			•						•	•
Aegothelidae	Aegotheles cristatus	Australian Owlet-nightjar			•			•	•				•	•	•
Apodidae	Apus pacificus	Pacific Swift	MI	MI; MA	•	•	•	•	•					•	
Otididae	Ardeotis australis	Australian Bustard			•			•					•	•	•
	Centropus phasianinus	Pheasant Coucal			•			•						•	
	Chrysococcyx basalis	Horsfield's Bronze Cuckoo		MA	•			•	•				•	•	
	Chrysococcyx osculans	Black-eared Cuckoo		MA	•			•							
Cuculidae	Cacomantis pallidus	Pallid Cuckoo		MA	•			•	•				•	•	
	Cuculus optatus	Oriental Cuckoo	MI	MI; MA	•		•								
Columbidae	Columba livia	Feral Pigeon [Rock Dove]			•			•							
	Phaps chalcoptera	Common Bronzewing			•			•							

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	Phaps elegans	Brush Bronzewing						•							
	Phaps histrionica	Flock Bronzewing			•			•					•	•	
	Ocyphaps lophotes	Crested Pigeon			•			•	•			•	•	•	•
	Geophaps plumifera	Spinifex Pigeon			•			•					•	•	•
	Geopelia cuneata	Diamond Dove			•			•	•				•	•	•
	Geopelia placida	Peaceful Dove			•			•					•	•	•
	Geopelia humeralis	Bar-shouldered Dove			•			•							•
	Hypotaenidia philippensis	Buff-banded Rail		MA	•			•							
	Porzana fluminea	Australian Crake			•			•							
	Tribonyx ventralis	Black-tailed Nativehen			•			•							
	Fulica atra	Eurasian Coot			•			•	•						
	Porphyrio melanotus	Australasian Swamphen		MA	•			•							
	Zapornia pusilla	Baillon's Crake		MA	•										
	Zapornia tabuensis	Spotless Crake		MA				•							
Rallidae	Amaurornis moluccana	Pale-vented Bush-hen		MA	•										
Gruidae	Antigone rubicunda	Brolga			•			•					•		
	Tachybaptus novaehollandiae	Australasian Grebe			•			•					•	•	
	Poliocephalus poliocephalus	Hoary-headed Grebe			•			•							
Podicipedidae	Podiceps cristatus	Great Crested Grebe			•			•							
	Turnix velox	Little Buttonquail			•			•	•				•	•	•
Turnicidae	Turnix pyrrhothorax	Red-chested Buttonquail						•							
	Esacus magnirostris	Beach Stone-curlew		MA	•			•							
Burhinidae	Burhinus grallarius	Bush Stone-curlew			•			•							
	Haematopus longirostris	Pied Oystercatcher			•			•					•		
Haematopodidae	Haematopus fuliginosus	Sooty Oystercatcher			•			•							
	Himantopus leucocephalus	Pied Stilt		MA	•			•	•				•		
Recurvirostridae	Cladorhynchus leucocephalus	Banded Stilt			•			•							

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	Recurvirostra novaehollandiae	Red-necked Avocet		MA	•		•								
	Pluvialis squatarola	Grey Plover	MI	VU; MI; MA	•	•	•	•							
	Pluvialis fulva	Pacific Golden Plover	MI	MI; MA	•	•	•	•							
	Charadrius melanops	Black-fronted Plover			•			•							•
	Charadrius dubius	Little Ringed Plover	MI	MI; MA	•										
	Vanellus tricolor	Banded Lapwing			•			•					•	•	
	Vanellus miles	Masked Lapwing			•			•					•		•
	Erythronyias cinctus	Red-kneed Dotterel			•			•					•		
	Anarhynchus veredus	Oriental Plover	MI	MI; MA	•	•	•	•	•						
	Anarhynchus mongolus	Siberian Sand Plover	EN	EN; MI; MA	•	•	•	•							
Charadriidae	Anarhynchus leschenaultii	Greater Sand Plover	VU	VU; MI; MA	•	•	•	•							
	Anarhynchus ruficapillus	Red-capped Plover		MA	•			•					•		
Rostratulidae	Rostratula australis	Australian Painted-snipe	EN	EN; MA	•		•								
	Numenius phaeopus	Eurasian Whimbrel	MI	MI; MA	•	•	•	•				•	•		
	Numenius minutus	Little Curlew	MI	MI; MA	•	•	•	•	•						
	Numenius madagascariensis	Far Eastern Curlew	CR	CR; MI; MA	•	•	•	•				•		•	
	Limosa lapponica	Bar-tailed Godwit	CR	EN; MI; MA	•	•	•	•					•		
	Limosa limosa	Black-tailed Godwit	MI	EN; MI; MA	•	•	•	•							
	Limnodromus semipalmatus	Asian Dowitcher	MI	VU; MI; MA	•	•	•	•							
	Gallinago megala	Swinhoe's Snipe	MI	MI; MA	•	•		•							
	Gallinago stenura	Pin-tailed Snipe	MI	MI; MA	•	•		•							
	Phalaropus lobatus	Red-necked Phalarope	MI	MI; MA	•	•	•	•							
	Xenus cinereus	Terek Sandpiper	MI	VU; MI; MA	•	•	•	•				•			
Scolopacidae	Actitis hypoleucos	Common Sandpiper	MI	MI; MA	•	•	•	•				•			
	Tringa brevipes	Grey-tailed Tattler	MI; P4	MI; MA	•	•	•	•				•			
	Tringa stagnatilis	Marsh Sandpiper	MI	MI; MA	•	•	•	•							
	Tringa glareola	Wood Sandpiper	MI	MI; MA	•	•	•	•							

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	Tringa totanus	Common Redshank	MI	MI; MA	•										
	Tringa nebularia	Common Greenshank	MI	EN; MI; MA	•	•	•	•				•		•	
	Arenaria interpres	Ruddy Turnstone	MI	VU; MI; MA	•	•	•	•							
	Calidris tenuirostris	Great Knot	CR	VU; MI; MA	•	•	•	•							
	Calidris canutus	Red Knot	EN	VU; MI; MA	•	•	•	•							
	Calidris pugnax	Ruff	MI	MI; MA	•	•		•							
	Calidris falcinellus	Broad-billed Sandpiper	MI	MI; MA	•	•	•	•							
	Calidris acuminata	Sharp-tailed Sandpiper	MI	VU; MI; MA	•	•	•	•							
	Calidris ferruginea	Curlew Sandpiper	CR	CR; MI; MA	•	•	•	•							
	Calidris subminuta	Long-toed Stint	MI	MI; MA	•	•	•	•							
	Calidris ruficollis	Red-necked Stint	MI	MI; MA	•	•	•	•							
	Calidris alba	Sanderling	MI	MI; MA	•	•	•	•					•		
	Calidris minuta	Little Stint		MA	•										
	Calidris fuscicollis	White-rumped Sandpiper						•							
	Calidris melanotos	Pectoral Sandpiper	MI	MI; MA	•	•	•	•							
Glareolidae	Stiltia isabella	Australian Pratincole		MA	•			•	•				•	•	
	Glareola maldivarum	Oriental Pratincole	MI	MI; MA	•	•	•	•	•						
	Sternula albifrons	Little Tern	MI	MI; MA	•	•	•	•				•	•		
	Sternula nereis	Fairy Tern	VU	VU; MA	•	•									
	Gelochelidon macrotarsa	Australian Tern	MI	MI; MA	•	•		•					•	•	
Laridae	Hydroprogne caspia	Caspian Tern	MI	MI; MA	•	•		•					•		
	Chlidonias leucopterus	White-winged Tern	MI	MI; MA	•	•		•							
	Sterna hirundo	Common Tern	MI	MI; MA	•	•		•							
	Sterna dougallii	Roseate Tern	MI	MI; MA	•										
	Thalasseus bengalensis	Lesser Crested Tern		MA	•			•					•		
	Thalasseus bergii	Greater Crested Tern	MI	MI; MA	•	•		•					•		
	Chroicocephalus novaehollandiae	Silver Gull		MA	•			•					•		

[illegible]

[illegible]

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	Falco peregrinus	Peregrine Falcon	OS		•	•		•						•	
	Calyptrorhynchus banksii	Red-tailed Black Cockatoo			•			•	•						
	Nymphicus hollandicus	Cockatiel			•			•	•				•	•	•
	Eolophus roseicapilla	Galah			•			•	•				•	•	•
Cacatuidae	Cacatua sanguinea	Little Corella			•			•					•	•	•
	Polytelis alexandrae	Princess Parrot	P4	VU			•								
Psittaculidae	Barnardius zonarius	Australian Ringneck			•			•					•	•	•
	Pezoporus occidentalis	Night Parrot	CR	EN			•								
	Trichoglossus moluccanus	Rainbow Lorikeet			•										
	Melopsittacus undulatus	Budgerigar			•			•	•				•	•	•
Ptilonorhynchidae	Chlamydera guttata	Western Bowerbird			•			•					•	•	
Climacteridae	Climacteris melanurus	Black-tailed Treecreeper			•			•						•	•
	Malurus assimilis	Purple-backed Fairywren			•			•	•				•	•	
	Malurus splendens	Splendid Fairywren						•							
	Malurus melanocephalus	Red-backed Fairywren			•										
	Malurus leucopterus	White-winged Fairywren			•			•	•			•	•	•	
	Stipiturus ruficeps	Rufous-crowned Emu-wren			•			•							
Maluridae	Amytornis whitei	Rufous Grasswren			•			•							
	Epthianura tricolor	Crimson Chat			•			•	•					•	
	Epthianura aurifrons	Orange Chat			•			•							
	Certhionyx variegatus	Pied Honeyeater			•			•	•					•	•
	Sugomel nigrum	Black Honeyeater			•			•	•						
	Myzomela erythrocephala	Red-headed Myzomela			•										
	Philemon citreogularis	Little Friarbird			•			•							
	Lichmera indistincta	Brown Honeyeater			•			•	•			•	•	•	•
	Melithreptus gularis	Black-chinned Honeyeater			•			•							
	Ptilotula keartlandi	Grey-headed Honeyeater			•			•	•					•	•

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	Ptilotula plumula	Grey-fronted Honeyeater			•			•							
	Ptilotula penicillata	White-plumed Honeyeater			•			•					•	•	•
Meliphagidae	Acanthagenys rufogularis	Spiny-cheeked Honeyeater			•			•	•						
	Manorina flavigula	Yellow-throated Miner			•			•	•				•	•	•
Pardalotidae	Pardalotus rubricatus	Red-browed Pardalote			•			•					•	•	•
	Pardalotus striatus	Striated Pardalote			•			•							
	Smicronis brevirostris	Weebill			•			•						•	•
Acanthizidae	Acanthiza chrysorrhoa	Yellow-rumped Thornbill						•							
	Acanthiza uropygialis	Chestnut-rumped Thornbill			•										
	Acanthiza inornata	Western Thornbill			•										
	Gerygone tenebrosa	Dusky Gerygone			•			•				•			
	Gerygone fusca	Western Gerygone			•			•					•	•	•
	Pomatostomus temporalis	Grey-crowned Babbler			•			•						•	•
Pomatostomidae	Pomatostomus superciliosus	White-browed Babbler						•						•	
Cinclosomatidae	Cinclosoma marginatum	Western Quail-thrush						•							
	Artamus leucorhynchus	White-breasted Woodswallow			•			•				•	•	•	•
	Artamus personatus	Masked Woodswallow			•			•	•					•	•
	Artamus superciliosus	White-browed Woodswallow			•			•							
Artamidae	Artamus cinereus	Black-faced Woodswallow			•			•	•				•	•	•
	Artamus minor	Little Woodswallow			•			•						•	
	Gymnorhina tibicen	Australian Magpie			•			•	•						
	Cracticus torquatus	Grey Butcherbird			•			•							
	Cracticus nigrogularis	Pied Butcherbird			•			•	•				•	•	•
Campephagidae	Coracina novaehollandiae	Black-faced Cuckooshrike		MA	•			•	•			•	•	•	•
	Coracina papuensis	White-bellied Cuckooshrike		MA	•										
	Lalage tricolor	White-winged Triller			•			•	•					•	•
Neosittidae	Daphoenositta chrysoptera	Varied Sittella			•			•							

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Oreoicidae	Oreoica gutturalis	Crested Bellbird			•			•	•				•		
	Pachycephala melanura	Mangrove Golden Whistler			•			•							
	Pachycephala rufiventris	Rufous Whistler			•			•							
	Pachycephala lanioides	White-breasted Whistler			•			•				•			
Pachycephalidae	Colluricincla harmonica	Grey Shrikethrush			•			•						•	•
Rhipiduridae	Rhipidura leucophrys	Willie Wagtail			•			•	•			•	•	•	•
	Rhipidura phasiana	Mangrove Fantail			•			•				•			
Monarchidae	Grallina cyanoleuca	Magpie-lark		MA	•			•				•	•	•	•
	Corvus orru	Torresian Crow			•			•	•			•	•	•	•
Corvidae	Corvus bennetti	Little Crow			•			•					•	•	
	Petroica goodenovii	Red-capped Robin			•			•							
Petroicidae	Peneothello pulverulenta	Mangrove Robin			•			•				•			
Alaudidae	Mirafra javanica	Singing Bush Lark			•			•				•	•	•	
Hirundinidae	Cheramoeca leucosterna	White-backed Swallow			•			•						•	
	Hirundo neoxena	Welcome Swallow		MA	•			•						•	•
	Hirundo rustica	Barn Swallow	MI	MI	•	•	•	•							
	Petrochelidon ariel	Fairy Martin			•			•	•			•	•	•	•
	Petrochelidon nigricans	Tree Martin		MA	•			•				•	•	•	•
Acrocephalidae	Acrocephalus australis	Australian Reed Warbler			•			•							
	Poodytes carteri	Spinifexbird			•			•	•				•	•	
	Poodytes gramineus	Little Grassbird			•										
Locustellidae	Cincloramphus cruralis	Brown Songlark			•			•	•				•	•	
	Cincloramphus mathewsi	Rufous Songlark			•			•	•				•	•	
Zosteropidae	Zosterops luteus	Canary White-eye			•			•				•	•	•	•
Dicaeidae	Dicaeum hirundinaceum	Mistletoebird			•			•							
	Heteromunia pectoralis	Pictorella Mannikin			•			•							
	Emblema pictum	Painted Finch			•			•	•				•	•	•

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Estrildidae	Bathilda ruficauda	Star Finch			•			•					•	•	•
	Taeniopygia castanotis	Australian Zebra Finch			•			•	•			•	•	•	•
Motacillidae	Motacilla tschutschensis	Eastern Yellow Wagtail	MI	MI; MA	•		•								
	Motacilla cinerea	Grey Wagtail	MI	MI; MA			•								
	Anthus australis	Australian Pipit		MA	•			•	•			•	•	•	•

The following species returned from the database searches have been excluded:

- Black-throated Finch; out of range
- Western Thornbill; out of range
- Australian Raven; erroneous
- Anarhynchus atrifrons, Tibetan Sand Plover - Rare to WA, only a few records in Broome
- Zosterops lateralis, Silverye - erroneous/vagrant
- Purpureicephalus spurius, Red-capped Parrot - out of range
- Phaethon rubricauda, Red-tailed Tropic Bird - pelagic
- Phaethon lepturus fulvus, White-tailed Tropic Bird – pelagic
- Anous stolidus, Common Noddy – pelagic
- Calonectris leucomelas, Streaked Shearwater – pelagic
- Fregata minor, Great Frigatebird - pelagic
- Artamus cyanopterus, Dusky Woodswallow - out of range
- Larus pacificus, Pacific Gull - pelagic
- Motacilla alba, White Wagtail - vagrant
- Macronectes giganteus, Southern Giant Petrel - pelagic
- Oceanites oceanicus, Wilson’s Storm Petrel - pelagic
- Numida meleagris, Helmeted Guineafowl - introduced, no self sustaining populations
- Passer montanus, Eurasian Tree Sparrow - vagrant
- Onychoprion anaethetus, Bridled Tern - pelagic
- Pavo cristatus, Indian Peafowl - introduced, no self sustaining populations

Mammals

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Tachyglossidae	Tachyglossus aculeatus	Short-beaked Echidna			•			•		•				•	•
Dasyuridae	Antechinomys laniger	Kultarr			•			•							
	Dasyercus blythi	Brush-tailed Mulgara, Ampurta	P4		•	•		•					•	•	•
	Dasykaluta rosamondae	Kaluta			•			•						•	
	Dasyurus hallucatus	Northern Quoll	EN	EN	•	•	•	•					•	•	•
	Ningauí timealeyi	Pilbara Ningauí			•			•		•				•	
	Planigale ingrami	Long-tailed Planigale						•		•				•	
	Planigale kendricki	Pilbara Planigale						•						•	
	Planigale maculata	Common Planigale						•							
	Planigale tealei	Mt Tom Price Planigale						•							
	Pseudantechinus macdonnellensis	Fat-tailed Pseudantechinus			•			•							
	Pseudantechinus woolleyae	Woolley's Pseudantechinus			•			•						•	
	Sminthopsis macroura	Stripe-faced Dunnart			•			•						•	
	Sminthopsis youngsoni	Lesser Hairy-footed Dunnart			•			•						•	
Thylacomyidae	Macrotis lagotis	Bilby, Dalgyte	VU	VU	•	•	•	•		•				•	•
	Lagostrophus fasciatus	Banded Hare-wallaby	VU	VU		•		•							
Macropodidae	Lagorchestes conspicillatus leichardti	Spectacled Hare-wallaby (mainland)	P4		•	•		•							
	Lagorchestes hirsutus	Rufous Hare-wallaby	VU	VU	•										
	Osphranter robustus	Euro, Biggada			•			•		•		•	•	•	•
	Osphranter rufus	Red Kangaroo, Marlu			•			•					•	•	•
	Petrogale lateralis lateralis	Black-footed Rock-wallaby	EN	EN						•					
	Petrogale rothschildi	Rothschild's Rock-wallaby						•							•
Muridae	Leggadina lakedownensis	Short-tailed Mouse	P4		•	•		•				•			
	Mus musculus	House Mouse			•			•		•					
	Notomys alexis	Spinifex Hopping-mouse			•			•		•				•	•
	Pseudomys chapmani	Western Pebble-mound Mouse	P4		•	•		•		•			•	•	•

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	Pseudomys delicatulus	Delicate Mouse			•			•		•				•	
	Pseudomys desertor	Desert Mouse			•			•						•	
	Pseudomys hermannsburgensis	Sandy Inland Mouse			•			•		•				•	
	Pseudomys nanus	Western Chestnut Mouse						•							
	Rattus rattus	Black Rat						•							
	Zyzomys argurus	Common Rock-rat			•			•						•	
Leporidae	Oryctolagus cuniculus	Rabbit			•			•							
Pteropodidae	Pteropus alecto	Black Flying-fox			•									•	
	Pteropus scapulatus	Little Red Flying-fox			•			•						•	
Rhinonycteridae	Rhinonictis aurantia Pilbara form	Pilbara Leaf-nosed Bat	VU	VU	•	•	•	•						•	
Megadermatidae	Macroderma gigas	Ghost Bat	VU	VU	•	•	•	•						•	
Emballonuridae	Saccolaimus flaviventris	Yellow-bellied Sheath-tailed Bat						•				•	•	•	
	Taphozous georgianus	Common Sheath-tailed Bat			•			•				•	•	•	
	Taphozous hilli	Hill's Sheath-tailed Bat			•			•							
Molossidae	Austronomus australis	White-striped Free-tailed Bat			•			•				•	•	•	
	Chaerephon jobensis	Greater Northern Free-tailed Bat			•			•					•	•	
	Ozimops cobourgiensis	Northern Coastal Free-tailed Bat	P1		•	•		•							
Vespertilionidae	Chalinolobus gouldii	Gould's Wattled Bat			•			•		•		•	•	•	
	Nyctophilus arnhemensis	Arnhem Long-eared Bat			•			•							
	Nyctophilus geoffroyi	Lesser Long-eared Bat			•			•				•	•	•	
	Scotorepens greyii	Little Broad-nosed Bat						•				•	•	•	
	Vespadelus finlaysoni	Finlayson's Cave-bat			•			•					•	•	
Canidae	Canis familiaris	Dog/Dingo			•			•				•	•	•	•
	Vulpes vulpes	Red Fox			•			•						•	
Felidae	Felis catus	Cat			•			•		•		•	•	•	•
Equidae	Equus ferus caballus	Horse			•			•							
Camelidae	Camelus dromedarius	Dromedary, Camel			•			•		•			•		•

Family	Species Name	Common Name	State	Commonwealth	ALA	DBCA TF	EPBC	Naturemap	AREH Birds (2018)	AREH Detailed (2021)	Yarrie (2023)	Roy Hill Port (2023)	Ridley Services Corridor (2023)	Ridley Detailed (2024)	Current Survey
Bovidae	Bos primigenius taurus	European Cattle			•			•					•	•	•
	Capra aegagrus hircus	Goat			•			•							

The following species returned from the database searches have been excluded:

- Megaptera novaeangliae, Humpback Whale; marine species excluded given strictly terrestrial survey
- Balaenoptera musculus, Blue Whale; marine species excluded given strictly terrestrial survey
- Dugong dugon, Dugong; marine species excluded given strictly terrestrial survey
- Pseudorca crassidens, False Killer Whale; marine species excluded given strictly terrestrial survey
- Sousa sahalensis, Indo-Pacific Humpback Dolphin; marine species excluded given strictly terrestrial survey
- Orcaella heinsohni, Australian Snubfin Dolphin; marine species excluded given strictly terrestrial survey
- Steno bredanensis, Rough-toothed Dolphin; marine species excluded given strictly terrestrial survey
- Tursiops aduncus, Indo-Pacific Bottlenose Dolphin; marine species excluded given strictly terrestrial survey
- Petaurus ariel, Savannah Glider - out of range
- Dasycercus cristicauda, Crest Tailed Mulgara; records in this range now attributed to D. blythi
- Canis lupus dingo now considered part of C. familiaris, previously treated as separate sub species

Reptiles

[illegible]

Family	Species Name	Common Name	State	Commonwealth	ALA	DBCA TF	EPBC	Naturemap	AREH Birds (2018)	AREH Detailed (2021)	Yarrie (2023)	Roy Hill Port (2023)	Ridley Services Corridor (2023)	Ridley Detailed (2024)	Current Survey
	Gehyra pilbara				•			•						•	
	Gehyra punctata				•			•							•
	Gehyra purpurascens				•			•		•					
	Gehyra unguiculata	Crescent-marked Pilbara Gehyra			•									•	
	Gehyra variegata				•			•						•	
	Hemidactylus frenatus	Asian House Gecko			•			•							
	Heteronotia binoei	Bynoe's Gecko			•			•		•				•	•
	Heteronotia spelea	Pilbara Cave Gecko			•			•							
Pygopodidae	Delma borea				•			•						•	
	Delma butleri				•			•						•	
	Delma desmosa				•			•		•				•	
	Delma elegans				•			•							
	Delma nasuta				•			•		•					
	Delma pax				•			•						•	
	Delma tincta				•			•		•				•	
	Lialis burtonis				•			•		•				•	
	Pygopus nigriceps				•			•		•				•	
Agamidae	Ctenophorus caudicinctus	Ring-tailed Dragon			•			•		•			•	•	•
	Ctenophorus isolepis	Military Dragon			•			•		•			•	•	•
	Ctenophorus nuchalis	Central Netted Dragon			•			•		•			•	•	
	Ctenophorus reticulatus	Western Netted Dragon			•			•							
	Ctenophorus scutulatus				•										
	Diporiphora paraconvergens	Grey-striped Western Desert Dragon			•			•		•					
	Diporiphora pindan	Pindan Dragon			•			•		•					•
	Diporiphora valens	Southern Pilbara Tree Dragon						•							
	Diporiphora vescus	Northern Pilbara Tree Dragon			•			•							
	Gowidon longirostris	Long-nosed Dragon			•			•					•	•	

Family	Species Name	Common Name	State	Commonwealth	ALA	DBCA TF	EPBC	Naturemap	AREH Birds (2018)	AREH Detailed (2021)	Yarrie (2023)	Roy Hill Port (2023)	Ridley Services Corridor (2023)	Ridley Detailed (2024)	Current Survey
	Lophognathus gilberti	Ta-Ta or Gilbert's Dragon						•							
	Lophognathus horneri	Northern Tree Dragon			•										
	Moloch horridus	Thorny Devil			•			•		•					
	Pogona minor				•					•				•	
Scincidae	Carlia munda				•			•							
	Carlia triacantha				•			•						•	•
	Cryptoblepharus buchananii				•			•							
	Cryptoblepharus plagiocephalus				•			•						•	
	Cryptoblepharus ustulatus				•			•							
	Ctenotus angusticeps	Airlie Island ctenotus, northwestern coastal ctenotus	P3		•	•		•							
	Ctenotus brooksi				•			•							
	Ctenotus calurus				•			•							
	Ctenotus colletti				•										
	Ctenotus duricola				•			•					•	•	•
	Ctenotus dux							•							
	Ctenotus grandis				•			•		•			•	•	•
	Ctenotus hanloni				•			•						•	
	Ctenotus helenae				•			•		•				•	
	Ctenotus nasutus				•			•		•					
	Ctenotus pallasotus	Western Pilbara Lined Ctenotus			•									•	
	Ctenotus pantherinus	Leopard Ctenotus			•			•		•			•	•	
	Ctenotus piankai				•			•		•				•	
	Ctenotus quattuordecimlineatus				•			•		•					
	Ctenotus robustus				•										
	Ctenotus rubicundus				•			•							
	Ctenotus rufescens				•			•		•					
	Ctenotus rutilans				•			•							

Family	Species Name	Common Name	State	Commonwealth	ALA	DBCA TF	EPBC	Naturemap	AREH Birds (2018)	AREH Detailed (2021)	Yarrie (2023)	Roy Hill Port (2023)	Ridley Services Corridor (2023)	Ridley Detailed (2024)	Current Survey
	Ctenotus saxatilis	Rock Ctenotus			•			•		•			•	•	•
	Ctenotus schomburgkii				•			•		•				•	
	Ctenotus serventyi				•			•						•	•
	Cyclodomorphus melanops	Slender Blue-tongue						•						•	
	Egernia cygnitos	Western Pilbara Spiny-tailed Skink			•			•							
	Egernia ephissolus	Eastern Pilbara Spiny-tailed Skink			•			•					•	•	•
	Eremiascincus isolepis				•			•							
	Eremiascincus musivus	Mosaic Desert Skink			•			•		•					
	Eremiascincus pallidus	Western Narrow-banded Skink			•			•		•					
	Eremiascincus richardsonii	Broad-banded Sand Swimmer			•			•							
	Lerista bipes				•			•		•				•	•
	Lerista clara				•			•						•	
	Lerista ips				•			•		•					
	Lerista jacksoni				•			•							
	Lerista labialis				•										
	Lerista muelleri							•							
	Lerista separanda	Dampierland plain slider	P2		•	•		•		•					
	Lerista timida				•									•	
	Lerista verhmens				•			•							
	Liopholis kintorei	Great Desert Skink	VU	VU			•								
	Liopholis striata	Night Skink			•			•							
	Menetia greyii				•			•						•	
	Menetia surda							•						•	
	Menetia surda surda				•			•							
	Morethia ruficauda				•			•		•				•	•
	Notoscincus ornatus				•			•		•					
	Proablepharus reginae				•			•							

Family	Species Name	Common Name	State	Commonwealth	ALA	DBCA TF	EPBC	Naturemap	AREH Birds (2018)	AREH Detailed (2021)	Yarrie (2023)	Roy Hill Port (2023)	Ridley Services Corridor (2023)	Ridley Detailed (2024)	Current Survey
	Tiliqua multifasciata	Central Blue-tongue			•			•		•			•	•	•
Varanidae	Varanus acanthurus	Spiny-tailed Goanna			•			•		•				•	•
	Varanus brevicauda	Short-tailed Pygmy Goanna			•			•						•	
	Varanus bushi	Pilbara Mulga Goanna						•							
	Varanus caudolineatus				•										
	Varanus eremius	Pygmy Desert Goanna			•			•		•				•	
	Varanus giganteus	Perentie			•			•		•				•	•
	Varanus gilleni	Pygmy Mulga Goanna			•			•		•					
	Varanus gouldii	Bungarra or Sand Goanna			•			•		•				•	•
	Varanus panoptes	Yellow-spotted Goanna			•			•							
	Varanus pilbarensis	Northern Pilbara Rock Goanna			•			•						•	•
	Varanus tristis	Racehorse Goanna			•			•		•					
Typhlopidae	Anilius ammodytes				•			•		•				•	
	Anilius grypus				•			•		•				•	
	Anilius hamatus				•			•							
	Anilius pilbarensis				•			•							
	Indotyphlops braminus				•			•							
Pythonidae	Antaresia childreni	Children's Python			•			•						•	
	Antaresia perthensis	Pygmy Python			•			•		•				•	•
	Aspidites melanocephalus	Black-headed Python			•			•					•	•	
	Aspidites ramsayi	Woma			•			•							
	Liasis olivaceus barroni	Pilbara Olive Python	VU	VU		•	•	•			•			•	
Homalopsidae	Fordonia leucobalia	White-bellied Mangrove Snake			•			•							
Elapidae	Acanthophis pyrrhus	Desert Death Adder			•			•					•	•	
	Acanthophis wellsi	Pilbara Death Adder						•							
	Brachyurophis approximans				•			•							
	Brachyurophis fasciolatus				•			•							

Family	Species Name	Common Name	State	Commonwealth	ALA	DBCA TF	EPBC	Naturemap	AREH Birds (2018)	AREH Detailed (2021)	Yarrie (2023)	Roy Hill Port (2023)	Ridley Services Corridor (2023)	Ridley Detailed (2024)	Current Survey
	Demansia cyanochasma	Desert Whipsnake						•							
	Demansia reticulata	Reticulated Whipsnake			•			•						•	•
	Demansia rufescens	Rufous Whipsnake			•			•						•	
	Furina ornata	Moon Snake			•			•		•				•	
	Pseudechis australis	Mulga Snake			•			•		•				•	•
	Pseudonaja mengdeni	Western Brown Snake			•			•		•				•	
	Pseudonaja modesta	Ringed Brown Snake			•			•		•				•	
	Simoselaps anomalus	Desert Banded Snake			•			•		•				•	
	Suta fasciata	Rosen's Snake			•			•							
	Suta punctata	Spotted Snake			•			•						•	
	Ephalophis greyae			MA	•			•							

The following species returned from the database searches have been excluded:

- Diporiphora winneckeii
- Eremiascincus fasciolatus now E. pallidus in this range
- Oedura marmorata now considered frimbria
- Pogona minor minima abrohlos restricted
- Demansia torquata out of range
- Egernia depressa, Southern Pygmy Spiny-tailed Skink - records now attributed to E. epsilosis and E. cygnitos
- Caretta caretta, Loggerhead Turtle - marine species excluded given strictly terrestrial survey
- Chelonia mydas, Green Turtle - marine species excluded given strictly terrestrial survey
- Eretmochelys imbricata, Hawksbill Turtle - marine species excluded given strictly terrestrial survey
- Natator depressus, Flatback Turtle - marine species excluded given strictly terrestrial survey
- Dermochelys coriacea, Leatherback Turtle - marine species excluded given strictly terrestrial survey
- Aipysurus apraefrontalis - marine species excluded given strictly terrestrial survey
- Aipysurus duboisii - marine species excluded given strictly terrestrial survey
- Aipysurus foliosquama - marine species excluded given strictly terrestrial survey
- Aipysurus laevis - marine species excluded given strictly terrestrial survey
- Hydrelaps darwiniensis - marine species excluded given strictly terrestrial survey
- Hydrophis elegans - marine species excluded given strictly terrestrial survey
- Hydrophis major - marine species excluded given strictly terrestrial survey
- Hydrophis stokesii - marine species excluded given strictly terrestrial survey

Short Range Endemic (SRE) Desktop Results

Family	Species	WAM	ALA	DBCA	Helix	Status
Mygalomorph spiders						
Actinopodidae	<i>Missulena</i> `sp. 8`	•				Potential SRE, species complex, data deficient
	<i>Missulena rutraspina</i>	•				Potential SRE, species complex, data deficient
Anamidae	<i>Aname</i> `MYG107`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Aname</i> `MYG168`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Aname</i> `MYG242`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Aname</i> `MYG372`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Aname</i> `MYG373`	•				Potential SRE. Aligns with <i>A. grothi</i> , data deficient
	<i>Aname</i> `MYG678`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Aname</i> `MYG682`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Aname</i> `MYG770`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Aname</i> `Phoenix0068` sp.	•				Potential SRE, undescribed species, unknown distribution area
	<i>Aname baileyorum</i>	•				Not an SRE
	<i>Aname ellenae</i>	•				Not an SRE
	<i>Aname mcalpinei</i>	•				Known SRE
	<i>Aname mellosa</i>	•				Potential SRE, species complex, unknown distribution area
	<i>Aname munyardae</i>	•				Known SRE
	<i>Aname nitidimarina</i>	•				Known SRE
	<i>Aname sinuata</i>	•				Not an SRE
	<i>Anaminae</i> `MYGAAB` sp.	•				Potential SRE, undescribed genus/ species
	<i>Kwonkan</i> `MYG007`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Kwonkan</i> `MYG089`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Kwonkan</i> `MYG091`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Kwonkan</i> `MYG209`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Kwonkan</i> `Yilgarnia` sp.	•				Potential SRE, undescribed species, unknown distribution area
Barychelidae	<i>Aureocrypta</i> `chichester`	•				Potential SRE, undescribed species, unknown distribution area

Family	Species	WAM	ALA	DBCA	Helix	Status
	<i>Aureocrypta</i> `MYG318`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Synothele</i> `MYG115`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Synothele</i> `MYG127`	•				Potential SRE, undescribed species, species complex
	<i>Synothele</i> `MYG334`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Synothele</i> `sp. BMYG195`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Synothele</i> `xkarara`	•				Not an SRE
Halonoproctidae	<i>Conothele</i> `H-C29`	•			•	Potential SRE, undescribed species, unknown distribution area
	<i>Conothele</i> `MYG296`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Conothele</i> `MYG541`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Conothele</i> `MYG557`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Conothele</i> `MYG607`	•				Potential SRE, undescribed species, unknown distribution area
Idiopidae	<i>Idiosoma</i> `H-I82`	•			•	Potential SRE, undescribed species, unknown distribution area
	<i>Idiosoma</i> `MYG084`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Idiosoma occidentale</i>	•				Not an SRE
Selenopid spiders						
Selenopidae	<i>Karaops kariyarra</i>	•				Potential SRE, unknown distribution area
	<i>Karaops nyiyaparli</i>	•				Not an SRE, widespread
Millipedes						
Paradoxosomatidae	<i>Antichiropus</i> `DIP005, abydos`	•		•		Known SRE, CS2 (P1)
	<i>Antichiropus</i> `DIP033, wodgina`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Antichiropus</i> `DIP037, balfour1`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Antichiropus apricus</i>	•				Known SRE
	<i>Antichiropus confragus</i>	•				Known SRE
	<i>Antichiropus forcipatus</i>	•				Known SRE
	<i>Antichiropus patriciae</i>	•				Not an SRE
	<i>Antichiropus procerus</i>	•				Not an SRE
	<i>Antichiropus simmonsii</i>	•				Known SRE

Family	Species	WAM	ALA	DBCA	Helix	Status
	<i>Antichiropus</i> sp. `DIP006, Area C`			•		Known SRE, CS2 (P1)
	<i>Antichiropus</i> sp. `DIP007`			•		Known SRE, CS2 (P1)
	<i>Antichiropus</i> sp. `DIP008, Flinders`			•		Known SRE, CS2 (P1)
	<i>Antichiropus</i> sp. `DIP013, Cloudbreak`			•		Known SRE, CS2 (P1)
	<i>Antichiropus</i> sp. `DIP029, Mt Bruce`			•		Known SRE, CS2 (P1)
	<i>Antichiropus spathion</i>	•				Not an SRE
Pseudoscorpions						
Atemnidae	<i>Anatemnus</i> sp.	•				Higher order identification, not identified to species level
	<i>Oratemnus</i> `PSE060`	•				Potential SRE, unknown distribution area
	<i>Oratemnus</i> `sp. BPS437`	•				Potential SRE, unknown distribution area
Cheiridiidae	<i>Apocheiridium</i> sp.	•				Higher order identification, not identified to species level
	Cheiridiinae `PSEAAB` sp.	•				Higher order identification, not identified to genus level
Chernetidae	<i>Austrochernes</i> `sp. nov. 001`	•				Potential SRE, undescribed species, unknown distribution area
	Chernetinae `PSEAAF` `PSE130`	•				Potential SRE, undescribed genus/species, unknown distribution area
	Chernetinae `PSEAAF` `PSE258`	•				Potential SRE, undescribed genus/species, unknown distribution area
	<i>Sundochernes</i> `PSE021`	•				Not an SRE
Chthoniidae	<i>Austrochthonius</i> `PSE135, pilbara`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Tyrannochthonius</i> `sp. nov. near aridus`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Tyrannochthonius aridus</i>	•				Not an SRE
Feaellidae	<i>Feaella tealei</i>	•				Known SRE
Garypidae	<i>Synsphyronus</i> `PSE008`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Synsphyronus</i> `PSE012`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Synsphyronus</i> `PSE094, long chelal hand`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Synsphyronus</i> `PSE128`	•				Potential SRE, undescribed species, unknown distribution area

Family	Species	WAM	ALA	DBCA	Helix	Status
	<i>Synsphyronus</i> `sp. nov. Spinifex Ridge`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Synsphyronus xynus</i>	•				Not an SRE
Garypinidae	<i>Solinus</i> `PSE222`	•				Potential SRE, undescribed species, unknown distribution area
Hyidae	<i>Indohya boltoni</i>	•				Not an SRE
Sternophoridae	<i>Afrosterophorus</i> `sp. BPS436`	•				Potential SRE, undescribed species, unknown distribution area
Scorpions						
Bothriuridae	<i>Cercophonius granulosus</i>	•				Not an SRE
Buthidae	<i>Lychas</i> `adonis`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Lychas</i> `gracilimanus`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Lychas</i> `GTS C1`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Lychas</i> `hairy tail complex`	•				Potential SRE, species complex, unknown distribution area
	<i>Lychas</i> `harveyi`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Lychas</i> `macleod`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Lychas</i> `multipunctatus`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Lychas</i> `SCO039` sp.	•				Potential SRE, undescribed species, unknown distribution area
	<i>Lychas</i> `sp. 1`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Lychas</i> `sp. 2`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Lychas</i> `sp. 3`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Lychas</i> `sp. 4`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Lychas</i> `sp. 5`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Lychas</i> `sp. 6`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Lychas</i> `spiny hairy tail group`	•				Potential SRE, species complex, unknown distribution area
	<i>Lychas annulatus</i>	•				Potential SRE, species complex, unknown distribution area
	<i>Lychas bituberculatus</i>	•				Potential SRE, species complex, unknown distribution area
Urodacidae	<i>Urodacus</i> `armatus`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Urodacus</i> `pilbara 13`	•				Potential SRE, undescribed species, unknown distribution area

Family	Species	WAM	ALA	DBCA	Helix	Status
	<i>Urodacus</i> `pilbara 4`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Urodacus</i> `Pilbara 5`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Urodacus</i> `pilbara 8`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Urodacus</i> `SCO010, pearcei`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Urodacus</i> `SCO028`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Urodacus</i> `sp. 6`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Urodacus</i> `sp. 7`	•				Potential SRE, undescribed species, unknown distribution area
	<i>Urodacus hoplurus</i>	•				Not an SRE
	<i>Urodacus lunatus</i>	•				Known SRE
	<i>Urodacus megamastigus</i>	•				Not an SRE
	<i>Urodacus uncinus</i>	•				Potential SRE
	<i>Urodacus varians</i>	•				Not an SRE
	<i>Urodacus yaschenkoi</i>	•				Not an SRE
Land Snails						
Camaenidae	Camaenidae n.gen. cf. `Mount Robinson` n.sp.	•				Potential SRE, undescribed genus/species
	Camaenidae n.gen. cf. `Z` n.sp.	•				Potential SRE, undescribed genus/species
	Camaenidae n.gen. n.sp.	•				Potential SRE, undescribed genus/species
	<i>Quistrachia</i> sp.	•				Higher order identification, not identified to species level
	<i>Rhagada</i> `small banded` n.sp.	•				Potential SRE, undescribed species, unknown distribution area
	<i>Rhagada</i> `Sulphur Springs` n.sp.	•				Potential SRE, undescribed species, unknown distribution area
	<i>Rhagada</i> cf. <i>convicta</i>	•				Higher order identification, not identified to species level
	<i>Rhagada</i> cf. <i>richardsonii</i>	•				Higher order identification, not identified to species level
	<i>Rhagada convicta</i>	•				Not an SRE
	<i>Rhagada radleyi</i>	•				Not an SRE
	<i>Rhagada richardsonii</i>	•				Not an SRE
	<i>Rhagada tescorum</i>	•				Potential SRE, species complex, unknown distribution area

Family	Species	WAM	ALA	DBCA	Helix	Status
Gastrocoptidae	<i>Gastrocopta cf. larapinta</i>	•				Higher order identification, not identified to species level
	<i>Gastrocopta cf. mussoni</i>	•				Higher order identification, not identified to species level
	<i>Gastrocopta hedleyi</i>	•				Not an SRE
	<i>Gastrocopta larapinta</i>	•				Not an SRE
	<i>Gastrocopta mussoni</i>	•				Not an SRE
Helicodiscidae	<i>Stenopylis cf. coarctata</i>	•				Higher order identification, not identified to species level
	<i>Stenopylis coarctata</i>	•				Not an SRE
Pupillidae	<i>Pupoides beltianus</i>	•				Not an SRE
	<i>Pupoides cf. beltianus</i>	•				Higher order identification, not identified to species level
	<i>Pupoides cf. contrarius</i>	•				Higher order identification, not identified to species level
	<i>Pupoides cf. eremicolus</i>	•				Higher order identification, not identified to species level
	<i>Pupoides cf. lepidulus</i>	•				Higher order identification, not identified to species level
	<i>Pupoides cf. pacificus</i>	•				Higher order identification, not identified to species level
	<i>Pupoides contrarius</i>	•				Not an SRE
	<i>Pupoides lepidulus</i>	•				Not an SRE
	<i>Pupoides pacificus</i>	•				Not an SRE
Succineidae	<i>Succinea sp.</i>	•				Higher order identification, not identified to species level
	<i>Succinea cf. strigillata</i>	•				Higher order identification, not identified to species level

Appendix 8

Likelihood of Significant Fauna Occurring in the Survey Area



Species name	Common name	State	C'wealth	Preferred Habitat	Habitat Available in Survey Area?	Desktop Records	Likelihood of Occurrence
Mammals							
<i>Dasyercus blythi</i>	Brush-tailed Mulgara, Ampurta	P4		Spinifex (<i>Triodia</i> spp.) grasslands on sandplains and sandy swales.	Yes	One record in the survey area, over 250 in the desktop study area with records largely concentrated towards the western end.	Recorded
<i>Dasyurus hallucatus</i>	Northern Quoll	EN	EN	Pilbara: Rocky habitats, commonly utilising gorges, breakaways, outcrops and hills. Also occurs near creek lines and drainage lines.	Yes	179 records in the survey area and over 1000 within the desktop study area. Records present along the length of the survey area.	Recorded
<i>Macrotis lagotis</i>	Bilby, Dalgyte	VU	VU	In WA, primarily Acacia shrubland and spinifex (<i>Triodia</i> spp.) grassland on sand plains, dunes and along drainage lines. Formerly occupied wider range of habitats.	Yes	8 records in the survey area and over 250 in the desktop study area, records span the length of the desktop study area.	Recorded
<i>Lagostrophus fasciatus</i>	Banded Hare-wallaby	VU	VU	Extant island populations occupy shrublands on sandplains and dunes, little information on preferred habitat on mainland prior to extinction, recorded from dense scrubs.	Unknown, only on mainland in fenced reserves	Single historical record in the desktop study area, only accurate to 50 000m.	Would not occur
<i>Lagorchestes conspicillatus</i>	Spectacled Hare-wallaby	P4		Tropical spinifex (<i>Triodia</i> spp.) or tussock grasslands with mid-dense tree and shrub cover.	Yes, though impact of fire has reduced the extent of available habitat.	A single record from the survey area (1983), 3 further records in the desktop study area.	May occur
<i>Lagorchestes hirsutus</i>	Rufous Hare-wallaby	VU	VU	Spinifex (<i>Triodia</i> spp.) grasslands and sandplain shrublands	Unknown, only on mainland in fenced reserves	Single record from desktop study area, dated 1992.	Would not occur
<i>Petrogale lateralis lateralis</i>	Black-footed Rock-wallaby	EN	EN	Rocky hills, outcrops and breakaways with caves and crevices for shelter, foraging on surrounding flats vegetation that includes grasses & herbs.	Yes	Recorded on previous surveys (Biota, 2019, 2023) east of the desktop study area.	May occur
<i>Leggadina lakedownensis</i>	Short-tailed Mouse	P4		Tussock grasslands on cracking clays, variety of grassland habitats particularly seasonally inundated sandy clay soils, but known to occur in eucalypt and Melaleuca woodlands, samphire, acacia shrublands and stony ranges.	Limited	15 records in the desktop study area, only two since 2008. Two more recent records (2022) are within 10km of western survey area boundary.	May occur
<i>Pseudomys chapmani</i>	Western Pebble-mound Mouse	P4		Stony hillslopes and plateaux vegetated with spinifex (<i>Triodia</i> spp.).	Yes	Three records in the survey area, over 100 in the desktop study area.	Recorded
<i>Rhinonicteris aurantia</i> Pilbara form	Pilbara Leaf-nosed Bat	VU	VU	Occurrence influenced by the availability of suitable roost caves that offer high humidity and a stable temperature. Restricted to caves with semi-permanent or permanent water nearby, usually in rocky habitat. Foraging typically occurs over open grasslands in gorges, low hills and plains.	No permanent roost sites, potential day roosts available; foraging sites present	More than 200 records within the survey area (echolocation calls), some within 300m of the desktop study area boundary.	Recorded
<i>Macroderma gigas</i>	Ghost Bat	VU	VU	Roost in caves, rock crevices and old mines, foraging in wide variety of habitats with distribution influenced by the availability of suitable caves for roost sites.	No permanent roost sites, potential day roosts available; foraging sites present	5 records within the survey area and more than 750 in the desktop study area (echolocation calls).	Likely to occur
<i>Ozimops cobourgianus</i>	Northern Coastal Free-tailed Bat	P1		Mangrove specialist, restricted to mangrove forests, adjacent areas of monsoon forest, vine thickets, and coastal woodland.	No	11 records in desktop study area, in coastal areas, most recent 2017.	Would not occur
Birds							
<i>Apus pacificus</i>	Pacific Swift	MI	MI; MA	Aerial over most habitats, largest numbers usually over coastal and near coastal plains.	Yes	7 records from the desktop study area, most recently in 2022.	Likely to occur
<i>Cuculus optatus</i>	Oriental Cuckoo	MI	MI; MA	Dense to open woodlands and forest, especially riparian areas, rainforest patches, vine thickets, mangroves	No	Single record in the desktop study area from 1973, also returned from EPBC search.	Unlikely to occur

Species name	Common name	State	C'wealth	Preferred Habitat	Habitat Available in Survey Area?	Desktop Records	Likelihood of Occurrence
Mammals							
<i>Pluvialis squatarola</i>	Grey Plover	MI	VU; MI; MA	Coastal and estuarine intertidal flats, sandy beaches, salt ponds, and adjacent rocky shorelines. Less commonly on near-coastal salt lakes and sewage ponds.	No	Over 30 records in the desktop study area. Predominately on the coast in the western extent of the desktop study area.	Unlikely to occur
<i>Pluvialis fulva</i>	Pacific Golden Plover	MI	MI; MA	Coastal and estuarine intertidal flats, sandy beaches and adjacent rocky shorelines, shallow margins of freshwater wetlands including sewage ponds, short grasslands including sportfields	No	24 records in the desktop study area, predominately on the coast in the western extent.	Unlikely to occur
<i>Charadrius dubius</i>	Little Ringed Plover	MI	MI; MA	Sandy or muddy fringes of freshwater and estuarine wetlands	Limited	Single record in the desktop study area from 1972.	Unlikely to occur
<i>Anarhynchus veredus</i>	Oriental Plover	MI	MI; MA	Open plains, bare, rolling country, muddy or sandy wastes near inland swamps or intertidal mudflats; bare claypans, margins of coastal marshes; grassy airfields, sportsfields, lawns and coastal dune areas	Limited	21 records from the desktop study area, predominately along the coastline, closest being approximately 7km from the survey area.	May occur
<i>Anarhynchus mongolus</i>	Siberian Sand Plover	EN	EN; MI; MA	Coastal and estuarine intertidal flats, sandy beaches, salt ponds	No	36 records in the desktop study area, all on the coast except one (1979).	Unlikely to occur
<i>Anarhynchus leschenaultii</i>	Greater Sand Plover	VU	VU; MI; MA	Coastal and estuarine intertidal flats, sandy beaches, occasionally adjacent rocky shorelines, less commonly near-coastal wetlands, salt lakes and salt ponds	No	Over 57 records in the desktop study area, concentrated along the coastline.	Unlikely to occur
<i>Rostratula australis</i>	Australian Painted-snipe	EN	EN; MA	Shallow vegetated ephemeral wetlands. Less commonly saltmarsh, claypans, sewage farms, dams, bores and irrigation channels	Limited	Single record in the desktop study area, approximately 30km from the survey area.	Unlikely to occur
<i>Numenius phaeopus</i>	Eurasian Whimbrel	MI	MI; MA	Coastal and estuarine intertidal flats, saltmarsh, tidal creeks and mangroves, less commonly sandy beaches and rocky shorelines.	No	Over 85 records in the desktop study area, concentrated on the coastline following the desktop study area.	Unlikely to occur
<i>Numenius minutus</i>	Little Curlew	MI	MI; MA	Short grassland plains and bare country, roosts on sandy beaches and mudflats or margins of wetlands.	Limited	29 records in the desktop study area, largely along the coastline with the some inland. Nearest record 2.5km from the survey area boundary (2010).	May occur
<i>Numenius madagascariensis</i>	Far Eastern Curlew	CR	CR; MI; MA	Coastal and estuarine intertidal mudflats and sandflats, adjacent sandy beaches, saltmarsh, tidal creeks and mangrove fringes.	No	53 records in the desktop study area, largely along the coastline with the some inland. Nearest record 2.5km from the survey area boundary (2019).	Unlikely to occur
<i>Limosa lapponica</i>	Bar-tailed Godwit	CR	EN; MI; MA	Coastal and estuarine intertidal flats, adjacent sandy beaches and rocky shorelines, near-coastal salt lakes and saltworks ponds.	No	72 records in desktop study area, all on the coast, most recent 2017.	Unlikely to occur
<i>Limosa limosa</i>	Black-tailed Godwit	MI	EN; MI; MA	Shallow freshwater wetlands, coastal and estuarine intertidal mudflats, preferring softer, muddy substrates, adjacent sandy beaches, saltworks ponds	Limited	12 records in the desktop study area, nearest record is from 2005, 3km from the desktop study area boundary.	Unlikely to occur
<i>Limnodromus semipalmatus</i>	Asian Dowitcher	MI	VU; MI; MA	Coastal and estuarine intertidal flats, adjacent sandy beaches, salt ponds.	No	16 records in the desktop study area, all on the coast in the north west.	Unlikely to occur
<i>Gallinago megala</i>	Swinhoe's Snipe	MI	MI; MA	Shallow margins of well-vegetated freshwater wetlands, including sewage ponds, damp grasslands	Limited	One record in the survey area (1977) and one in the desktop study area (1985). 1977 record from now decommissioned Goldsworthy sewage ponds, species unlikely to occur within existing survey area habitat.	Unlikely to occur
<i>Gallinago stenura</i>	Pin-tailed Snipe	MI	MI; MA	Shallow margins of well-vegetated freshwater wetlands, including sewage ponds, damp grasslands	Limited	4 records in desktop study area, only one since 1982, in 2014.	Unlikely to occur
<i>Phalaropus lobatus</i>	Red-necked Phalarope	MI	MI; MA	Primarily open seas in this region, when ashore favours natural salt lakes, artificial salt ponds, and sewage treatment ponds, sometimes freshwater wetlands.	No	11 records in the desktop study area, predominately coastal and most recently in 2017.	Unlikely to occur

Species name	Common name	State	C'wealth	Preferred Habitat	Habitat Available in Survey Area?	Desktop Records	Likelihood of Occurrence
Mammals							
Xenus cinereus	Terek Sandpiper	MI	VU; MI; MA	Coastal and estuarine intertidal flats, saltworks ponds, adjacent sandy beaches and rocky shorelines.	No	34 records in the desktop study area, predominately coastal and in the north-western end of the desktop study area.	Unlikely to occur
Actitis hypoleucos	Common Sandpiper	MI	MI; MA	Margins of coastal and inland wetlands, including mangroves/mangrove creeks, rocky shorelines, river banks, sewage ponds, but less often intertidal flats.	Yes	101 records in the desktop study area, with multiple records inland within 2km of the survey area boundary.	May occur
Tringa brevipes	Grey-tailed Tattler	MI; P4	MI; MA	Coastal and estuarine intertidal flats and adjacent sandy beaches and rocky shorelines, mangrove fringes, near-coastal wetlands	No	75 records in the desktop study area, predominately coastal, most recent inland record from 1981.	Unlikely to occur
Tringa stagnatilis	Marsh Sandpiper	MI	MI; MA	Shallow freshwater wetlands and wetland margins, less commonly intertidal mudflats	Limited	38 records in the survey area, predominately coastal.	Unlikely to occur
Tringa glareola	Wood Sandpiper	MI	MI; MA	Shallow freshwater wetlands and wetland margins, particularly ones with taller fringing vegetation, including sewage ponds	Limited	One record in the survey area (1981), 36 more in the desktop study area, scattered inland records. 1981 record from now decommissioned Goldsworthy sewage ponds, species unlikely to occur within exisiting survey area habitat.	Unlikely to occur
Tringa totanus	Common Redshank	MI	MI; MA	Most Australian records from coastal and estuarine tidal flats, or roosting on adjacent sandy beaches or rocky shorelines. Uses a broad range of wetland habitats overseas.	No	3 records in the desktop study area, all coastal most recently 1995.	Would not occur
Tringa nebularia	Common Greenshank	MI	EN; MI; MA	Inhabits a variety of coastal and freshwater habitats, intertidal flats and adjacent sandy beaches, mangrove fringes, shallow freshwater wetlands and wetland margins, salt ponds ponds, less commonly on sandy beaches	Limited	95 records in the desktop study area, predominately coastal, some scattered inland records.	May occur
Arenaria interpres	Ruddy Turnstone	MI	VU; MI; MA	Coastal and estuarine intertidal flats, sandy beaches esp. with extensive tide wrack, rocky shorelines, near-coastal salt lakes and salt ponds	No	106 records in the desktop study area, predominately coastal, nearest record within 3kms from SH sewage treatment (2007).	Unlikely to occur
Calidris tenuirostris	Great Knot	CR	VU; MI; MA	Coastal and estuarine intertidal mudflats, adjacent sandy beaches and rocky shorelines, near coastal salt lakes and salt ponds	No	41 records in the desktop study area, almost exclusively coastal.	Unlikely to occur
Calidris canutus	Red Knot	EN	VU; MI; MA	Coastal and estuarine intertidal mudflats, adjacent sandy beaches and rocky shorelines, near coastal salt lakes and salt ponds, occasionally near coastal freshwater wetlands	No	26 records in the desktop study area, almost exclusively coastal, single inland record (1979).	Unlikely to occur
Calidris pugnax	Ruff	MI	MI; MA	Shallows and margins of coastal and inland wetlands, preferring freshwater, less commonly estuarine intertidal mudflats and salt ponds	Limited	2 records in the desktop study area, one from 1979, the other from 2017 at the PH Saltworks.	Unlikely to occur
Calidris falcinellus	Broad-billed Sandpiper	MI	MI; MA	Coastal and estuarine intertidal mudflats, adjacent sandy beaches and rocky shorelines, salt ponds, less commonly shallow margins of freshwater wetlands	Limited	28 records in the desktop study area, all confined to the coastline.	Unlikely to occur
Calidris acuminata	Sharp-tailed Sandpiper	MI	VU; MI; MA	Shallows and margins of coastal and inland wetlands, preferring freshwater, less commonly coastal and estuarine intertidal mudflats.	Limited	Single record in the survey area (1981), 55 other records in the desktop study area, largely coastal and the SH sewage treatment (2014). 1981 record from now decommissioned Goldsworthy sewage ponds, species unlikely to occur within exisiting survey area habitat.	Unlikely to occur
Calidris ferruginea	Curlew Sandpiper	CR	CR; MI; MA	Coastal and estuarine intertidal flats and adjacent sandy beaches and rocky shorelines, shallow fresh and saline wetlands including sewage ponds and salt ponds	No	55 records from the desktop study area, closest record is within 3km from 2010 (SH sewage treatment).	Unlikely to occur

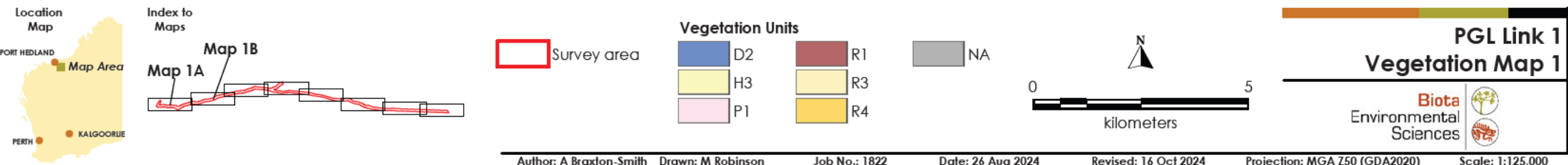
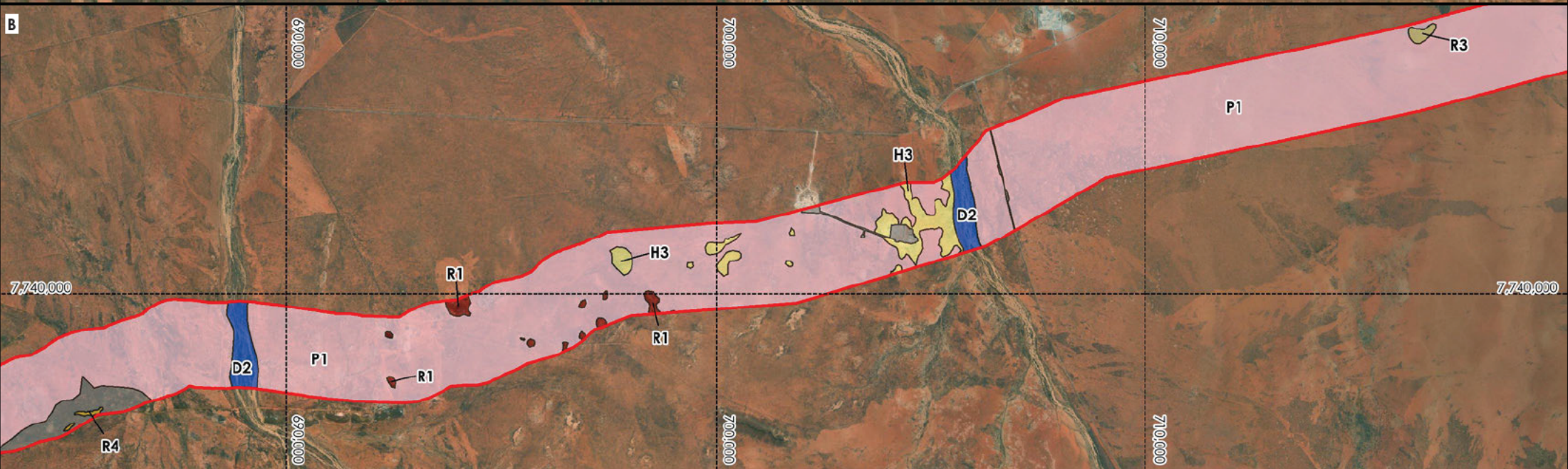
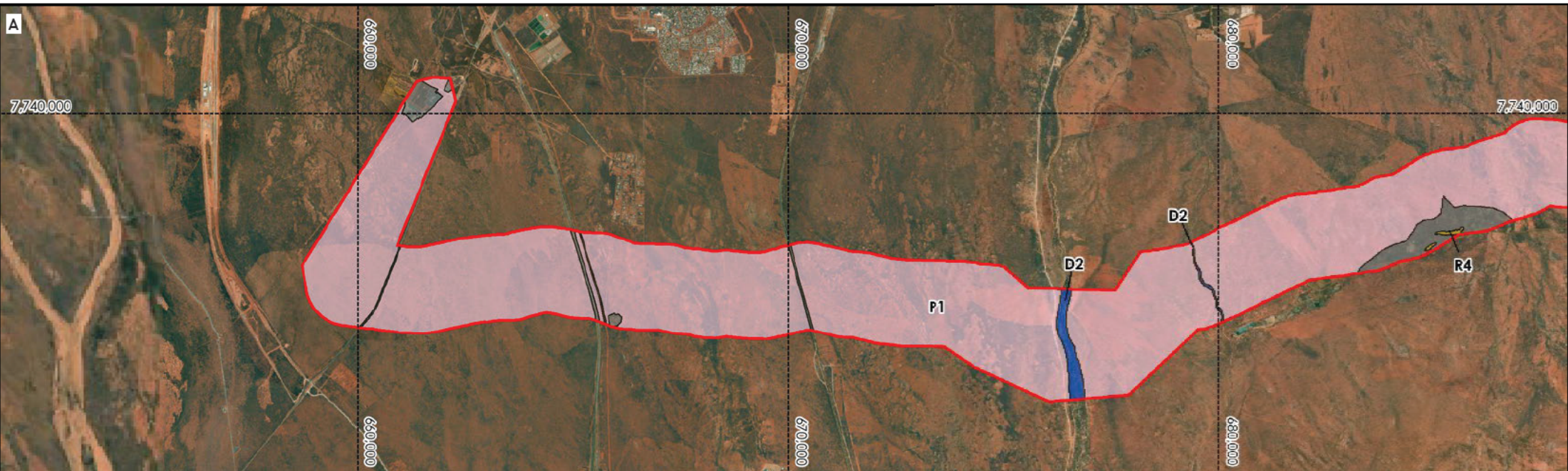
Species name	Common name	State	C'wealth	Preferred Habitat	Habitat Available in Survey Area?	Desktop Records	Likelihood of Occurrence
Mammals							
<i>Calidris subminuta</i>	Long-toed Stint	MI	MI; MA	Muddy fringes of freshwater wetlands (including sewage ponds), often with short vegetation, less commonly brackish estuarine mudflats and saltmarsh	No	12 records in the desktop study area, largely between the coastline and the survey area boundary.	Unlikely to occur
<i>Calidris ruficollis</i>	Red-necked Stint	MI	MI; MA	Variety of wetland habitats including coastal and estuarine intertidal flats, adjacent sandy beaches and rocky coasts, muddy fringes of freshwater wetlands, sewage ponds, salt ponds.	Limited	94 records within the desktop study area, predominately coastal, nearest record within 3km from SH sewage treatment (2014).	Unlikely to occur
<i>Calidris alba</i>	Sanderling	MI	MI; MA	Sandy ocean beaches, less commonly tidal sand or reef flats.	No	24 records in the desktop study area, a single inland record (1981) otherwise coastal.	Unlikely to occur
<i>Calidris melanotos</i>	Pectoral Sandpiper	MI	MI; MA	Shallows and margins of freshwater wetlands, occasionally coastal or estuarine intertidal flats and flooded samphire	Limited	Two records in the desktop study area, 1998 and 2014.	Unlikely to occur
<i>Glareola maldivarum</i>	Oriental Pratincole	MI	MI; MA	Primarily forages aerially over open country, roosts on bare ground near water (e.g. tidal flats, sandy beaches, margins of freshwater wetlands)	Yes	1 record in the survey area (2004), 32 in the desktop study area including four within 3km of the survey area.	Recorded (previously)
<i>Sternula albifrons</i>	Little Tern	MI	MI; MA	Sheltered coastal waters, estuaries, and tidal creeks, roosting on adjacent sandy and rocky shorelines, breed on open sandy beaches	No	29 records in the desktop study area, all along the coastline.	Unlikely to occur
<i>Sternula nereis</i>	Fairy Tern	VU	VU; MA	Sheltered coasts and estuaries, with sandy beaches, sandbars, offshore islands with sandy beaches.	No	Two coastal records in the north-west of the desktop study area, 1995 and 2008.	Unlikely to occur
<i>Gelochelidon macrotarsa</i>	Australian Tern	MI	MI; MA	Coasts and estuaries, particularly in vicinity of intertidal flats, inland wetlands, grasslands and open country (sometimes far from water). Breeding primarily on large ephemeral wetlands inland.	Yes	1 record in the survey area (2004), 47 in the desktop study area, mostly coastal.	Recorded (previously)
<i>Hydroprogne caspia</i>	Caspian Tern	MI	MI; MA	Sheltered coastal waters, estuaries, and larger inland water bodies (including larger rivers, reservoirs, fresh and salt lakes, salt ponds)	Yes	1 record in the survey area (1999), 117 in the desktop study area, predominately coastal with some inland records.	Recorded (previously)
<i>Chlidonias leucopterus</i>	White-winged Tern	MI	MI; MA	Estuaries, sheltered seas, freshwater wetlands, sewage ponds, and flooded grasslands and samphire flats	Yes	45 records in the desktop study area, mostly coastal, some further inland, nearest record within 3km (SH sewage treatment).	May occur
<i>Sterna hirundo</i>	Common Tern	MI	MI; MA	Sheltered seas, coasts, estuaries, salt ponds, occasionally other near-coastal wetlands	No	12 records in the desktop study area, exclusively coastal.	Unlikely to occur
<i>Sterna dougallii</i>	Roseate Tern	MI	MI; MA	Coastal and offshore waters, exposed rocky shorelines, islands	No	Two records in the desktop study area, both off the coast in the north-west (2006 and 2022).	Unlikely to occur
<i>Thalasseus bergii</i>	Greater Crested Tern	MI	MI; MA	Coastal seas and estuaries, primarily inshore but foraging offshore as far as continental shelf edge, roosts on sandy beaches, rocks and man-made structures. Breeds on sandy or rocky offshore islands	No	35 records in the desktop study area, predominately coastal.	Unlikely to occur
<i>Fregata ariel</i>	Lesser Frigatebird	MI	MI; MA	Aerial over tropical coasts and seas, breeding on offshore islands.	No	18 records in the desktop study area, all but one (1979) along the coastline.	Unlikely to occur
<i>Sula leucogaster</i>	Brown Booby	MI	MI; MA	Inshore and offshore waters of tropical seas, breeds on offshore islands.	No	Single record (1979) just off the coastline in the north west of the desktop study area.	Would not occur
<i>Plegadis falcinellus</i>	Glossy Ibis	MI	MI; MA	Shallows of wetlands and floodplains, occasionally dry grasslands.	Yes	17 records within the desktop study area, nearest five within 2km of the survey area (1999-2011).	May occur
<i>Pandion haliaetus</i>	Osprey	MI	MI; MA	Estuaries, coasts and offshore islands, less commonly large inland wetlands.	Limited	93 records within the desktop study area, largely coastal but some inland records.	Unlikely to occur

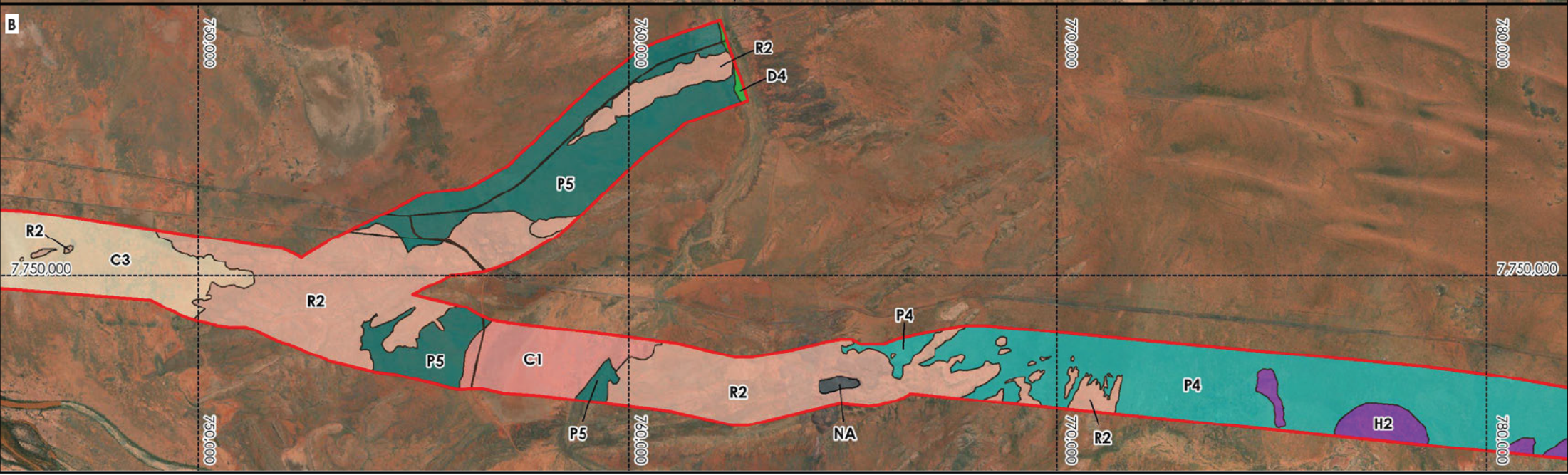
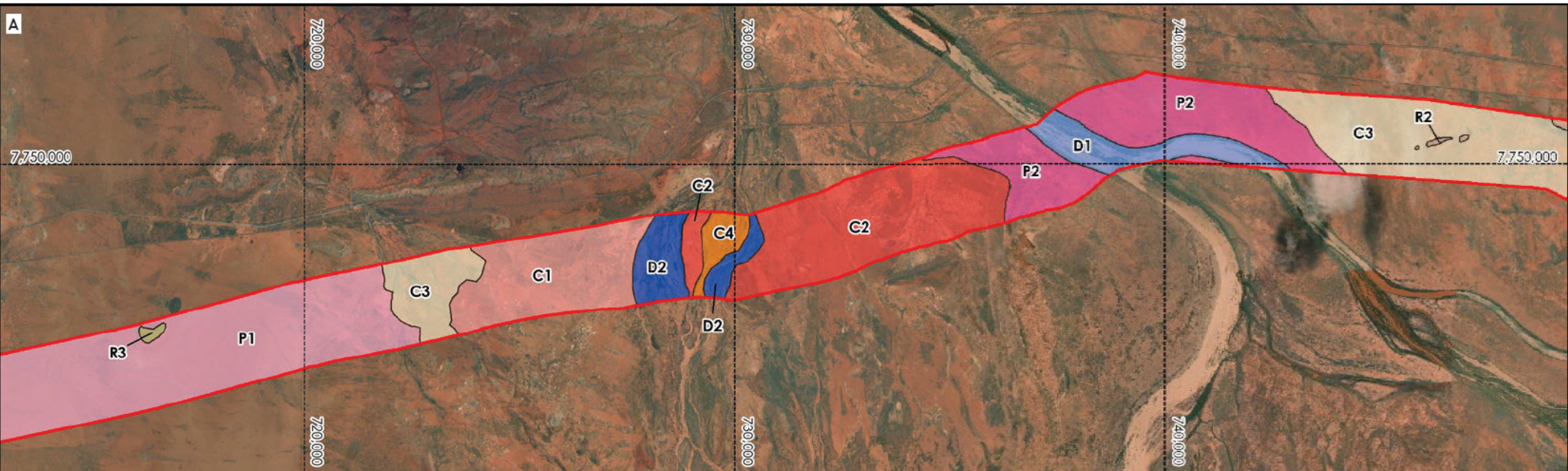
Species name	Common name	State	C'wealth	Preferred Habitat	Habitat Available in Survey Area?	Desktop Records	Likelihood of Occurrence
Mammals							
Elanus scriptus	Letter-winged Kite	P4		Arid and semi-arid grasslands, open country and timbered watercourses, roosting and breeding in trees. Irruptive, and after good seasons wandering individuals may appear far from their core range in a wider range of habitats.	Yes	Two records from the north-west of the desktop study area, one from 1994.	Unlikely to occur
Erythroriorchis radiatus	Red Goshawk	VU	EN	Tall open forest and woodland, especially along watercourses with tall eucalypts and melaleucas, potentially occupying wider range of habitats post-breeding.	No	Returned from EPBC search only, no known records in the desktop study area.	Unlikely to occur
Falco hypoleucos	Grey Falcon	VU	VU	Lightly wooded or untimbered arid plains, especially those that are crossed by major watercourses lined with taller trees, or isolated man-made structures such as communications towers.	Yes	1 record in the survey area, 13 records spread inland across the desktop study area, two very close, within 1km, of the survey area (2012, 2017).	Recorded (previously)
Falco peregrinus	Peregrine Falcon	OS		Most habitats, favouring areas with concentrations of bird prey (e.g. wetlands, coastal cliffs with seabird colonies, cities with large numbers of feral pigeons). Cliffs faces preferred for breeding, but also in trees (using old stick nests of other species or tree hollows) where cliffs are in short supply	Yes	9 records within the survey area (1977-2012), six of them within 5km of the desktop study area.	Likely to occur
Polytelis alexandrae	Princess Parrot	P4	VU	Desert sand dune country with scattered trees (particularly marble gums and desert oak) and good ground cover of shrubs and spinifex (Triodia).	No	Returned from EPBC search only, no known records in the desktop study area.	Unlikely to occur
Pezoporus occidentalis	Night Parrot	CR	EN	Arid or semi-arid spinifex grasslands with patches of large, established and unburnt hummocks, usually in association with palaeodrainage/drainage areas, salt lakes or rocky breakaways. Foraging habitat includes high productivity grassland areas, and shrublands of samphire, bluebush and saltbush.	No	Returned from EPBC search only, no known records in the desktop study area.	Unlikely to occur
Hirundo rustica	Barn Swallow	MI	MI	Open habitats including urban environments, particularly near water	Yes	23 records in the desktop study area, largely coastal, two records within 5km of the survey area (2001 and 2005).	Unlikely to occur
Motacilla tschutschensis	Eastern Yellow Wagtail	MI	MI; MA	Short grasslands and bare ground (including sports ovals, agricultural areas), wetland margins, sewage ponds.	Limited	Returned from ALA and NatureMap, desktop study area only.	Unlikely to occur
Motacilla cinerea	Grey Wagtail	MI	MI; MA	A variety of habitats near water, particularly along fast-flowing freshwater waterways. Rare migrant to the Kimberley region, vagrant elsewhere in the state	Limited	Returned from EPBC search, desktop study area only.	Unlikely to occur
Reptiles							
Ctenotus angusticeps		P3		On mainland, coastal saltmarsh vegetation on mudflats, often near mangroves and with numerous crabholes. On Airlie Island occurs in acacia shrubland, coastal spinifex, and tussock grassland.	No	18 records in the desktop study area, from 2010-2019, all located along the coastline.	Would not occur
Lerista separanda	Dampierland plain slider	P2		Sandy coastal areas and inland sand dunes and sandplains	Yes	17 records within the desktop study area from 2006 to 2018, towards the eastern end of the desktop study area.	May occur
Liopholis kintorei	Great Desert Skink	VU	VU	Spinifex (Triodia spp.) on arid sandy, clay or loamy flats.	Yes	Returned from EPBC search only, no known records in the desktop study area, some habitat present in the eastern end of the desktop study area.	Unlikely to occur
Liasis olivaceus barroni	Pilbara Olive Python	VU	VU	Most commonly encountered in habitats with ready access to shelter and freshwater, such as gorges, rockpiles, springs and vegetated watercourses - but will travel long distances and use a variety of other habitats in passing, both natural and artificial. Regularly shelters beneath boulders on dry escarpments, hills and creeklines.	Yes	Five records within the desktop study area, three within 10km of the survey boundary. Species recorded in 2023 by biota approximately 20km north of desktop study area.	Likely to occur

Appendix 9

Vegetation Types Mapping, Significant Flora Locations







Location Map

Index to Maps

Vegetation Units

C1	D1	P1	R2
C2	D2	P2	NA
C3	D4	P4	
C4	H2	P5	

Scale

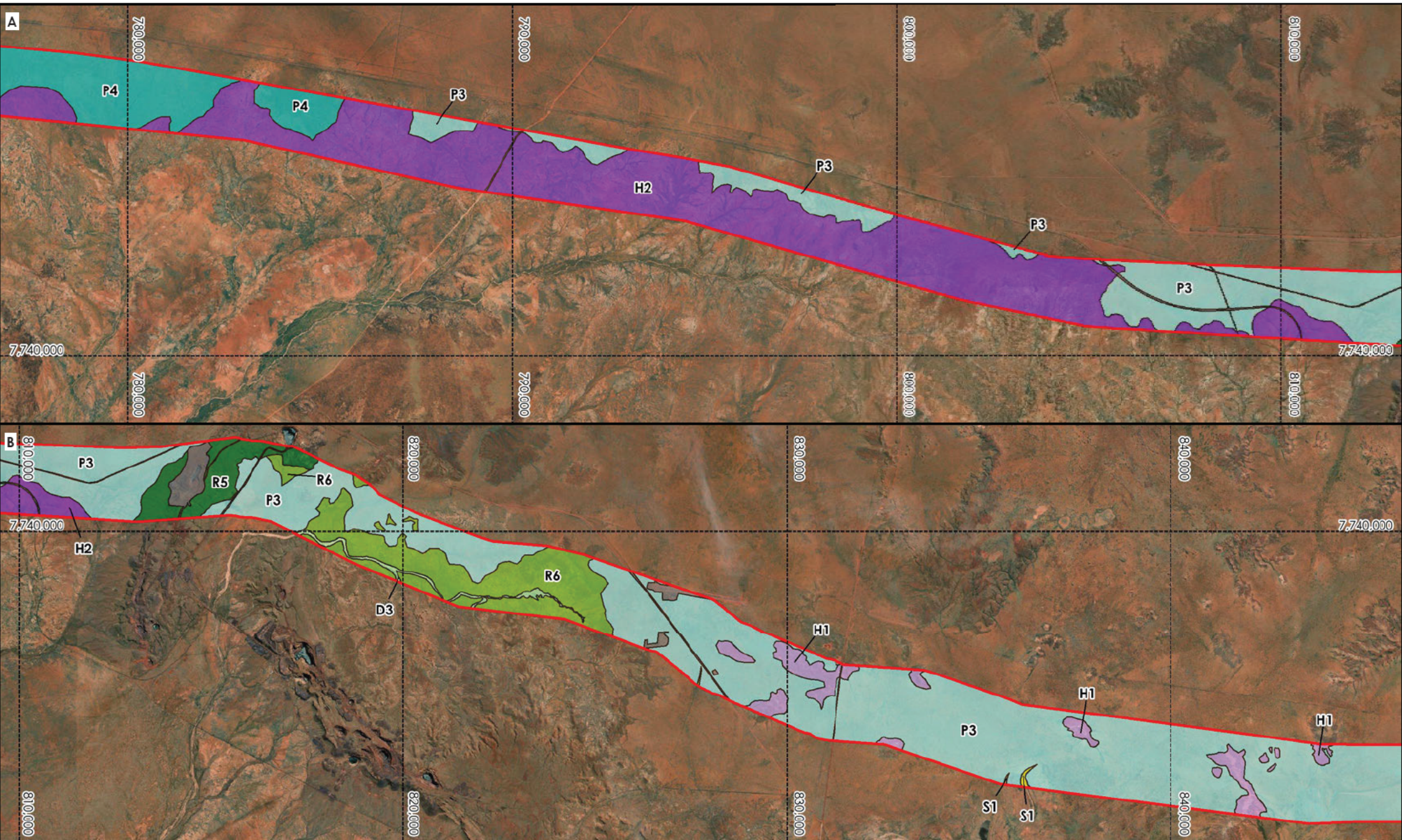
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kilometers

North Arrow

PGL Link 1
Vegetation Map 2

Biota Environmental Sciences

Author: A Braxton-Smith
Drawn: M Robinson
Job No.: 1822
Date: 26 Aug 2024
Revised: 16 Oct 2024
Projection: MGA Z50 (GDA2020)
Scale: 1:125,000



Location Map

PORT HEDLAND
Map Area
PERTH
KALGOORLIE

Index to Maps

Map 3A
Map 3B

Vegetation Units

 D3	 P3	 R6
 H1	 P4	 S1
 H2	 R5	 NA

Survey area

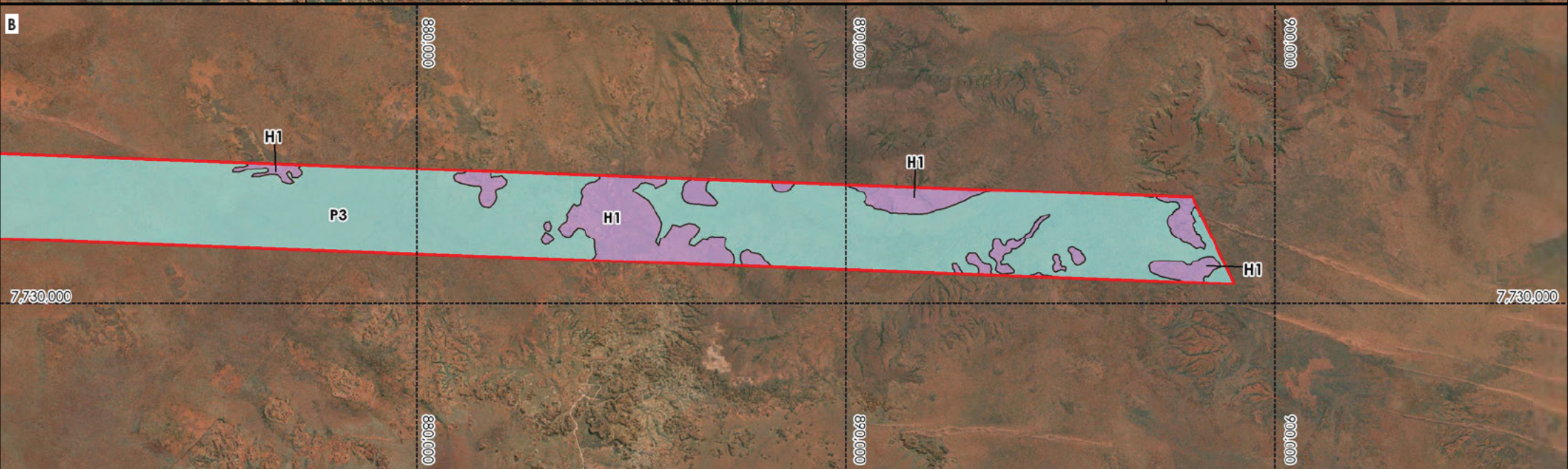
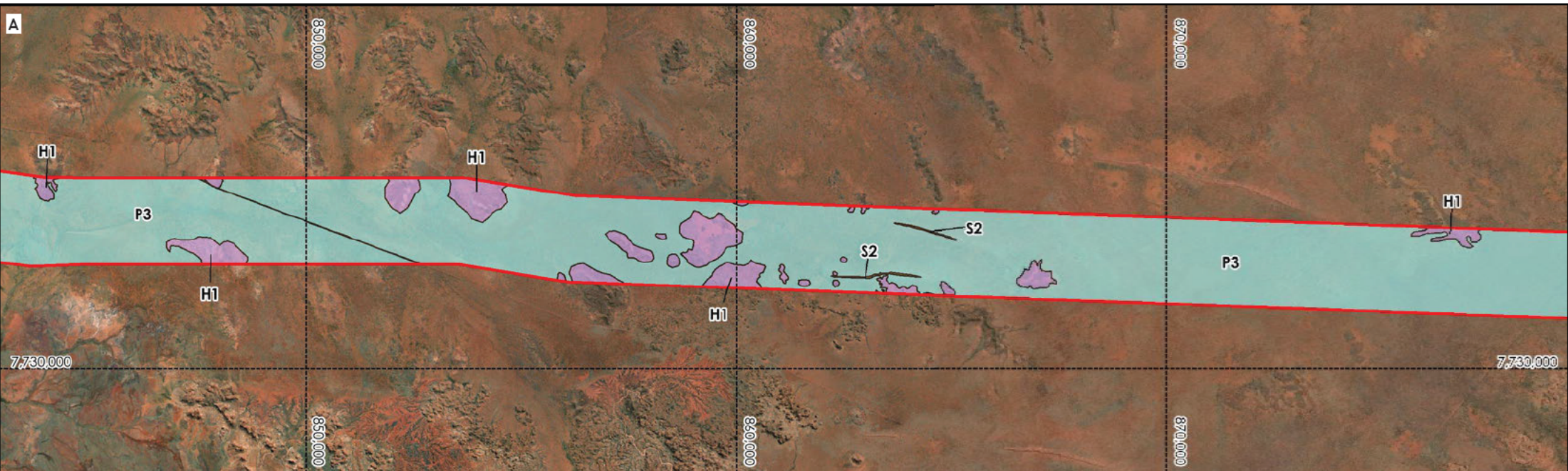
N

0 5
kilometers

**PGL Link 1
Vegetation Map 3**

Biota
Environmental
Sciences

Author: A Braxton-Smith Drawn: M Robinson
Job No.: 1822
Date: 26 Aug 2024
Revised: 16 Oct 2024
Projection: MGA Z50 (GDA2020)
Scale: 1:125,000



Location Map

PORT HEDLAND
Map Area
PERTH
KALGOORLIE

Index to Maps

Map 4A
Map 4B

Vegetation Units

 H1	 NA
 P3	
 S2	

Survey area

**PGL Link 1
Vegetation Map 4**

**Biota
Environmental
Sciences**

0 5
kilometers

N

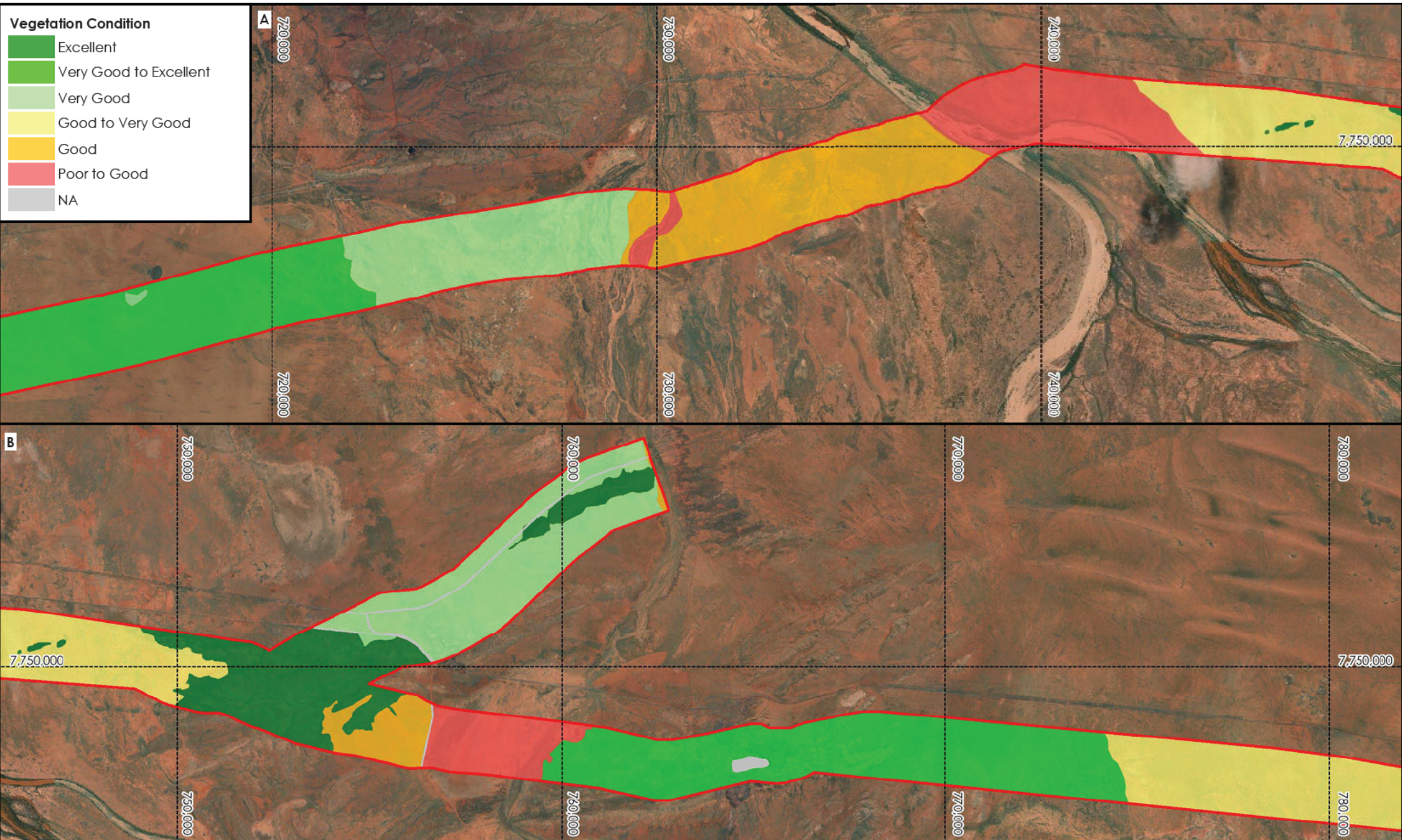
Author: A Braxton-Smith Drawn: M Robinson
Job No.: 1822
Date: 26 Aug 2024
Revised: 16 Oct 2024
Projection: MGA Z50 (GDA2020)
Scale: 1:125,000

Name	Status	Count/Cover	Site	Latitude	Longitude
<i>Goodenia hartiana</i>	P2	0.1%	HPL037		
<i>Abutilon</i> sp. Pritzelianum (S. van Leeuwen 5095)	P3	0.1%	HPL178		
<i>Abutilon</i> sp. Pritzelianum (S. van Leeuwen 5095)	P3	N=5	Opportunistic		
<i>Bonamia oblongifolia</i>	P3	0.1%	HPL037		
<i>Bonamia oblongifolia</i>	P3	0.1%	HPL037		
<i>Bonamia oblongifolia</i>	P3	0.1%	HPL157		
<i>Croton aridus</i>	P3	1%	HPL022		
<i>Croton aridus</i>	P3	N=11; 0.5%	HPL025		
<i>Croton aridus</i>	P3	1%	HPL026		
<i>Croton aridus</i>	P3	N=5	HPL034		
<i>Croton aridus</i>	P3	1%	HPL035		
<i>Croton aridus</i>	P3	1%	HPL037		
<i>Croton aridus</i>	P3	1.5%	HPL038		
<i>Croton aridus</i>	P3	N=10	HPL039		
<i>Croton aridus</i>	P3	N=8	Opportunistic		
<i>Croton aridus</i>	P3	N=1	Opportunistic		
<i>Croton aridus</i>	P3	N=12	Opportunistic		
<i>Croton aridus</i>	P3	N=109	Opportunistic		
<i>Euphorbia clementii</i>	P3	N=1	Opportunistic		
<i>Euphorbia inappendiculata</i> var. <i>inappendiculata</i>	P3	N=20	Opportunistic		
<i>Euphorbia inappendiculata</i> var. <i>queenslandica</i>	P3	0.1%	HPL106		
<i>Indigofera ammobia</i>	P3	0.1%	HPL042		
<i>Polymeria</i> sp. Broome (K.F. Kenneally 9759)	P3	0.1%	HPL047		
<i>Tribulopsis marliesiae</i>	P3	0.1%	HPL047		
<i>Tribulopsis</i> ? <i>marliesiae</i>	?P3	0.1%	HPL178		
<i>Tribulopsis</i> ? <i>marliesiae</i>	?P3	0.1%	HPL179		
<i>Bulbostylis burbridgeae</i>	P4	0.1%	HPL077		

Appendix 10

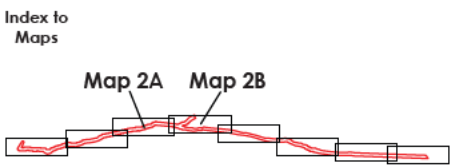
Vegetation Condition Mapping and Weed Locations



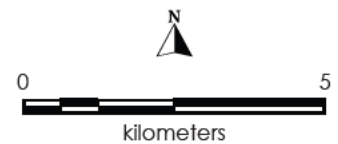


Vegetation Condition

- Excellent
- Very Good to Excellent
- Very Good
- Good to Very Good
- Good
- Poor to Good
- NA

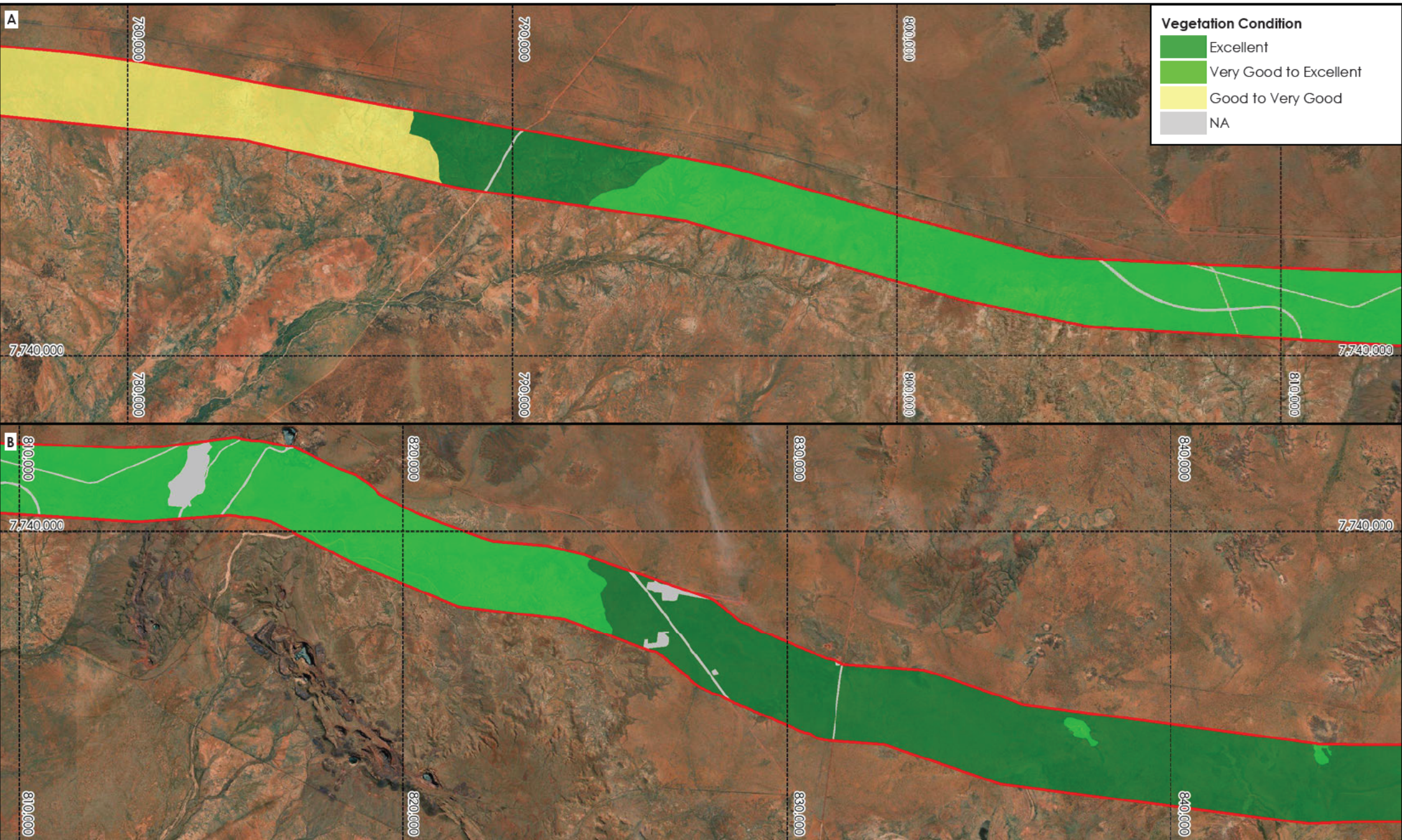


Survey area



**PGL Link 1
Vegetation Condition Map 2**





Location Map

PORT HEDLAND

Map Area

PERTH

KALGOORLIE

Index to Maps

Map 3A

Map 3B

Survey area

Scale

0 5

kilometers

North Arrow

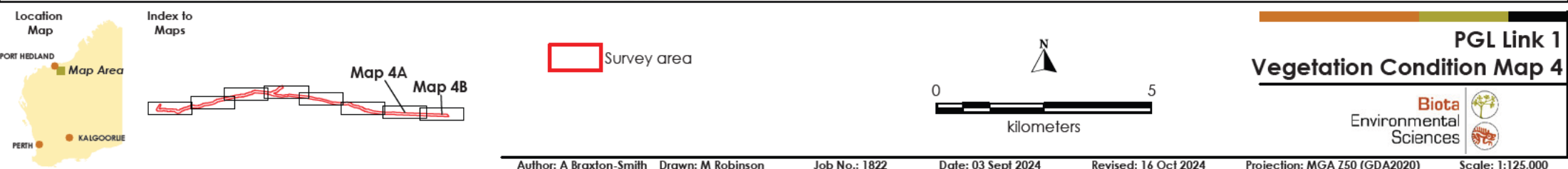
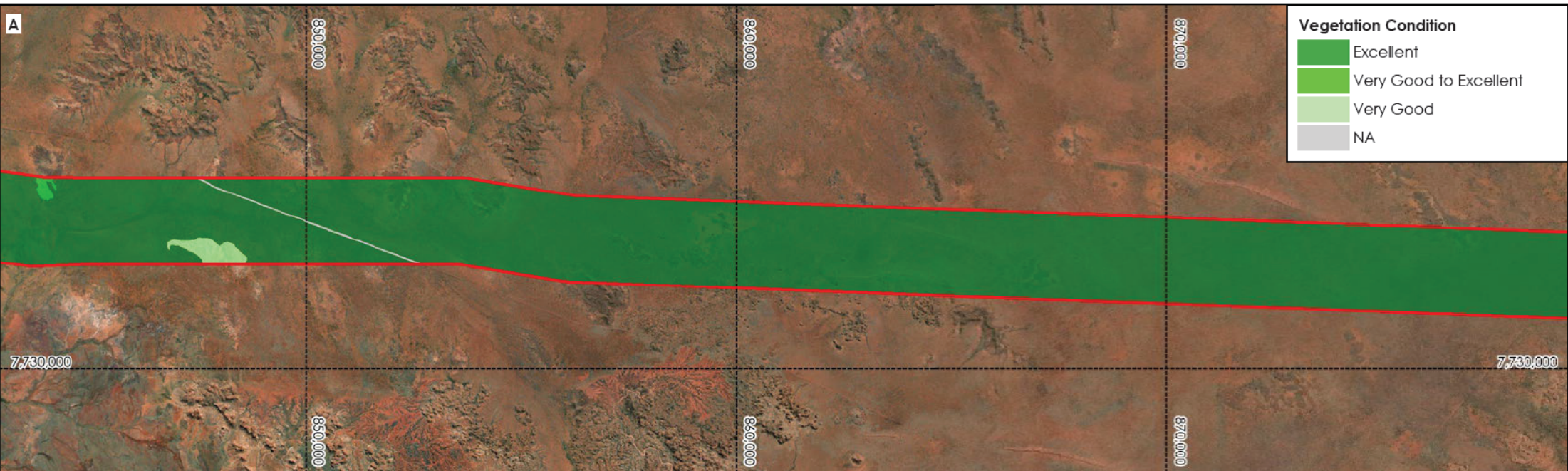
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PGL Link 1

Vegetation Condition Map 3

Biota Environmental Sciences

Author: A Braxton-Smith Drawn: M Robinson Job No.: 1822 Date: 03 Sept 2024 Revised: 16 Oct 2024 Projection: MGA Z50 (GDA2020) Scale: 1:125,000



Name	Status	Count/Cover	Site	Latitude	Longitude
*Aerva javanica	Weed	0.1%	HPL053		
*Aerva javanica	Weed	0.1%	HPL147		
*Aerva javanica	Weed	1.5%	HPL155		
*Aerva javanica	Weed	0.5%	HPL157		
*Aerva javanica	Weed	N=25	HPL167		
*Aerva javanica	Weed	N=10	HPL170		
*Aerva javanica	Weed	N=4	HPL171		
*Aerva javanica	Weed	N=2	Opportunistic		
*Aerva javanica	Weed	N=10	Opportunistic		
*Argemone ochroleuca subsp. ochroleuca	Weed	0.5%	HPL130		
*Argemone ochroleuca subsp. ochroleuca	Weed	N=15	Opportunistic		
*Calotropis procera	Declared Pest	0.1%	HPL129		
*Calotropis procera	Declared Pest	24%	HPL130		
*Calotropis procera	Declared Pest	N=6	HPL133		
*Calotropis procera	Declared Pest	0.1%	HPL135		
*Calotropis procera	Declared Pest	0.1%	HPL157		
*Calotropis procera	Declared Pest		Opportunistic		
*Calotropis procera	Declared Pest	N=1	Opportunistic		
*Calotropis procera	Declared Pest	N=2	Opportunistic		
*Calotropis procera	Declared Pest	N=30	Opportunistic		
*Calotropis procera	Declared Pest	N=10	Opportunistic		
*Calotropis procera	Declared Pest	N=1	Opportunistic		
*Calotropis procera	Declared Pest	N=1	Opportunistic		
*Calotropis procera	Declared Pest	N=30	Opportunistic		
*Calotropis procera	Declared Pest	N=40	Opportunistic		
*Cenchrus ciliaris	Weed	N=200	HPL076		
*Cenchrus ciliaris	Weed	4%	HPL077		
*Cenchrus ciliaris	Weed	3%	HPL079		
*Cenchrus ciliaris	Weed	0.5%	HPL080		
*Cenchrus ciliaris	Weed	0.1%	HPL088		
*Cenchrus ciliaris	Weed	0.5%	HPL105		
*Cenchrus ciliaris	Weed	0.5%	HPL121		
*Cenchrus ciliaris	Weed	2.5%	HPL123		
*Cenchrus ciliaris	Weed	0.1%	HPL135		
*Cenchrus ciliaris	Weed	0.1%	HPL146		
*Cenchrus ciliaris	Weed	1.5%	HPL147		
*Cenchrus ciliaris	Weed	0.1%	HPL153		
*Cenchrus ciliaris	Weed	1%	HPL155		
*Cenchrus ciliaris	Weed	0.1%	HPL156		
*Cenchrus ciliaris	Weed	24%	HPL157		

Name	Status	Count/Cover	Site	Latitude	Longitude
* <i>Cenchrus ciliaris</i>	Weed	4%	HPL167		
* <i>Cenchrus ciliaris</i>	Weed	N=7	HPL170		
* <i>Cenchrus ciliaris</i>	Weed	0.1%	HPL177		
* <i>Cenchrus ciliaris</i>	Weed	N=5	Opportunistic		
* <i>Cenchrus setiger</i>	Weed	0.5%	HPL105		
* <i>Cenchrus setiger</i>	Weed	3%	HPL129		
* <i>Cenchrus setiger</i>	Weed	11%	HPL130		
* <i>Cenchrus setiger</i>	Weed	0.1%	HPL130		
* <i>Cenchrus setiger</i>	Weed	0.1%	HPL157		
* <i>Cenchrus setiger</i>	Weed	0.1%	HPL167		
* <i>Cynodon dactylon</i>	Weed	4%	HPL130		
* <i>Cynodon dactylon</i>	Weed	N=10000	Opportunistic		
* <i>Datura leichhardtii</i> subsp. <i>leichhardtii</i>	Weed	N=1	Opportunistic		
* <i>Echinochloa colona</i>	Weed	0.1%	HPL130		
* <i>Echinochloa colona</i>	Weed	0.1%	HPL133		
* <i>Euphorbia hirta</i>	Weed	N=25	Opportunistic		
* <i>Indigofera oblongifolia</i>	Weed	0.1%	HPL124		
* <i>Indigofera oblongifolia</i>	Weed	0.5%	HPL127		
* <i>Indigofera oblongifolia</i>	Weed	2%	HPL129		
* <i>Indigofera oblongifolia</i>	Weed	12%	HPL130		
* <i>Indigofera oblongifolia</i>	Weed	1%	HPL131		
* <i>Indigofera oblongifolia</i>	Weed	0.1%	HPL132		
* <i>Indigofera oblongifolia</i>	Weed	1%	HPL133		
* <i>Indigofera oblongifolia</i>	Weed	0.1%	HPL136A		
* <i>Indigofera oblongifolia</i>	Weed	0.1%	HPL166		
* <i>Indigofera oblongifolia</i>	Weed	N=1	Opportunistic		
* <i>Indigofera oblongifolia</i>	Weed	N=3	Opportunistic		
* <i>Indigofera oblongifolia</i>	Weed	N=5	Opportunistic		
* <i>Parkinsonia aculeata</i>	Weed of National Significance; Declared Pest	0.1%	HPL130		
* <i>Passiflora foetida</i> var. <i>hispida</i>	Weed	N=1	HPL130		
* <i>Passiflora foetida</i> var. <i>hispida</i>	Weed	N=15	HPL146		
* <i>Passiflora foetida</i> var. <i>hispida</i>	Weed	0.1%	HPL155		
* <i>Passiflora foetida</i> var. <i>hispida</i>	Weed	0.1%	HPL156		
* <i>Passiflora foetida</i> var. <i>hispida</i>	Weed	N=5	Opportunistic		
* <i>Sigesbeckia orientalis</i>	Weed	0.1%	HPL130		
* <i>Trianthema portulacastrum</i>	Weed	0.1%	HPL130		
* <i>Vachellia farnesiana</i>	Weed	0.1%	HPL104		
* <i>Vachellia farnesiana</i>	Weed	0.1%	HPL129		
* <i>Vachellia farnesiana</i>	Weed	0.1%	HPL130		
* <i>Vachellia farnesiana</i>	Weed	0.1%	HPL133		
* <i>Vachellia farnesiana</i>	Weed	N=1	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=1	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=1	Opportunistic		

Name	Status	Count/Cover	Site	Latitude	Longitude
* <i>Vachellia farnesiana</i>	Weed	N=1	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=1	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=1	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=1	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=1	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=1	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=18	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=2	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=2	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=2	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=3	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=4	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=4	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=45	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=600	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=7	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=8	Opportunistic		
* <i>Vachellia farnesiana</i>	Weed	N=80	Opportunistic		

Appendix 11

Vascular Flora Species List



Family	Species	Status
Acanthaceae	<i>Rostellularia adscendens</i> var. <i>clementii</i>	
Aizoaceae	<i>Trianthema oxycalyptum</i> var. <i>oxycalyptum</i>	
Aizoaceae	<i>Trianthema pilosum</i>	
Aizoaceae	* <i>Trianthema portulacastrum</i>	Weed
Aizoaceae	<i>Trianthema triquetrum</i>	
Aizoaceae	<i>Trianthema turgidifolium</i>	
Amaranthaceae	* <i>Aerva javanica</i>	Weed
Amaranthaceae	<i>Alternanthera denticulata</i>	
Amaranthaceae	<i>Amaranthus undulatus</i>	
Amaranthaceae	<i>Gomphrena affinis</i> subsp. <i>pilbarensis</i>	
Amaranthaceae	<i>Gomphrena cunninghamii</i>	
Amaranthaceae	<i>Gomphrena</i> sp.	
Amaranthaceae	<i>Ptilotus arthrolasius</i>	
Amaranthaceae	<i>Ptilotus astrolasius</i>	
Amaranthaceae	<i>Ptilotus axillaris</i>	
Amaranthaceae	<i>Ptilotus calostachyus</i>	
Amaranthaceae	<i>Ptilotus exaltatus</i>	
Amaranthaceae	<i>Ptilotus fusiformis</i>	
Amaranthaceae	<i>Ptilotus</i> ? <i>fusiformis</i>	
Amaranthaceae	<i>Ptilotus incanus</i>	
Amaranthaceae	<i>Ptilotus murrayi</i>	
Amaranthaceae	<i>Ptilotus obovatus</i> var. <i>obovatus</i>	
Amaranthaceae	<i>Ptilotus polystachyus</i>	
Apocynaceae	* <i>Calotropis procera</i>	Weed
Apocynaceae	<i>Carissa lanceolata</i>	
Apocynaceae	<i>Cynanchum floribundum</i>	
Araliaceae	<i>Trachymene oleracea</i> subsp. <i>oleracea</i>	
Asteraceae	<i>Blumea tenella</i>	
Asteraceae	<i>Centipeda</i> sp.	
Asteraceae	<i>Pluchea dentex</i>	
Asteraceae	<i>Pluchea dunlopil</i>	
Asteraceae	<i>Pluchea ferdinandi-muelleri</i>	
Asteraceae	<i>Pluchea</i> ? <i>ferdinandi-muelleri</i>	
Asteraceae	<i>Pluchea rubelliflora</i>	
Asteraceae	<i>Pluchea tetranthera</i>	
Asteraceae	<i>Pterocaulon serrulatum</i> var. <i>velutinum</i>	
Asteraceae	<i>Pterocaulon sphacelatum</i>	
Asteraceae	<i>Pterocaulon sphaeranthoides</i>	
Asteraceae	<i>Pterocaulon</i> sp.	
Asteraceae	* <i>Sigesbeckia orientalis</i>	Weed
Asteraceae	<i>Streptoglossa decurrens</i>	
Asteraceae	<i>Streptoglossa macrocephala</i>	
Bignoniaceae	<i>Dolichandrone occidentalis</i>	

Family	Species	Status
Boraginaceae	<i>Ehretia saligna</i> var. <i>saligna</i>	
Boraginaceae	<i>Euploca diversifolia</i>	
Boraginaceae	<i>Euploca foliata</i>	
Boraginaceae	<i>Euploca glabella</i>	
Boraginaceae	<i>Euploca pachyphylla</i>	
Boraginaceae	<i>Euploca</i> ? <i>pachyphylla</i>	
Boraginaceae	<i>Euploca</i> sp.	
Boraginaceae	<i>Halgania solanacea</i> var. <i>solanacea</i>	
Boraginaceae	<i>Heliotropium ammophilum</i>	
Boraginaceae	<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	
Campanulaceae	<i>Wahlenbergia tumidifructa</i>	
Capparaceae	<i>Capparis lasiantha</i>	
Caryophyllaceae	<i>Polycarpaea corymbosa</i> var. <i>corymbosa</i>	
Caryophyllaceae	<i>Polycarpaea involucrata</i>	
Caryophyllaceae	<i>Polycarpaea longiflora</i>	
Chenopodiaceae	<i>Maireana</i> ? <i>georgei</i>	
Chenopodiaceae	<i>Salsola australis</i>	
Chenopodiaceae	<i>Sclerolaena costata</i>	
Chenopodiaceae	<i>Sclerolaena</i> ? <i>densiflora</i>	
Cleomaceae	<i>Arivela uncifera</i>	
Cleomaceae	<i>Arivela viscosa</i>	
Combretaceae	<i>Terminalia circumalata</i>	
Convolvulaceae	<i>Bonamia alatisemina</i>	
Convolvulaceae	<i>Bonamia erecta</i>	
Convolvulaceae	<i>Bonamia linearis</i>	
Convolvulaceae	<i>Bonamia oblongifolia</i>	Priority 3
Convolvulaceae	<i>Bonamia pannosa</i>	
Convolvulaceae	<i>Bonamia pilbarensis</i>	
Convolvulaceae	<i>Bonamia</i> ? <i>pilbarensis</i>	
Convolvulaceae	<i>Bonamia pilbarensis</i> (Port Hedland form; densely indumented)	
Convolvulaceae	<i>Bonamia</i> sp.	
Convolvulaceae	<i>Duperreya commixta</i>	
Convolvulaceae	<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	
Convolvulaceae	<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	
Convolvulaceae	<i>Evolvulus alsinoides</i> var. ? <i>villosicalyx</i>	
Convolvulaceae	<i>Ipomoea coptica</i>	
Convolvulaceae	<i>Ipomoea muelleri</i>	
Convolvulaceae	<i>Ipomoea</i> ? <i>muelleri</i>	
Convolvulaceae	<i>Polymeria ambigua</i>	
Convolvulaceae	<i>Polymeria</i> ? <i>mollis</i>	
Convolvulaceae	<i>Polymeria</i> sp. (Site 1365)	
Convolvulaceae	<i>Polymeria</i> sp. Broome (K.F. Kenneally 9759)	Priority 3
Convolvulaceae	<i>Polymeria</i> sp.	

Family	Species	Status
Cucurbitaceae	<i>Cucumis variabilis</i>	
Cucurbitaceae	<i>Cucumis ? variabilis</i>	
Cucurbitaceae	<i>Cucumis</i> sp.	
Cyperaceae	<i>Abildgaardia schoenoides</i>	
Cyperaceae	<i>Bulbostylis barbata</i>	
Cyperaceae	<i>Bulbostylis burbridgeae</i>	Priority 4
Cyperaceae	<i>Bulbostylis turbinata</i>	
Cyperaceae	<i>Cyperus blakeanus</i>	
Cyperaceae	<i>Cyperus carinatus</i>	
Cyperaceae	<i>Cyperus cunninghamii</i> subsp. <i>cunninghamii</i>	
Cyperaceae	<i>Cyperus leptocarpus</i>	
Cyperaceae	<i>Cyperus microcephalus</i> subsp. <i>microcephalus</i>	
Cyperaceae	<i>Cyperus ? microcephalus</i>	
Cyperaceae	<i>Cyperus vaginatus</i>	
Cyperaceae	<i>Fimbristylis dichotoma</i>	
Cyperaceae	<i>Fimbristylis ? dichotoma</i>	
Cyperaceae	<i>Fimbristylis microcarya</i>	
Cyperaceae	<i>Fimbristylis neilsonii</i>	
Cyperaceae	<i>Fimbristylis simulans</i>	
Cyperaceae	<i>Fimbristylis ? simulans</i>	
Euphorbiaceae	<i>Adriana tomentosa</i> var. <i>tomentosa</i>	
Euphorbiaceae	<i>Croton aridus</i>	Priority 3
Euphorbiaceae	<i>Euphorbia ? boophthona</i>	
Euphorbiaceae	<i>Euphorbia australis</i> var. <i>subtomentosa</i>	
Euphorbiaceae	<i>Euphorbia clementii</i>	Priority 3
Euphorbiaceae	<i>Euphorbia drummondii</i>	
Euphorbiaceae	* <i>Euphorbia hirta</i>	Weed
Euphorbiaceae	<i>Euphorbia inappendiculata</i> var. <i>inappendiculata</i>	Priority 2
Euphorbiaceae	<i>Euphorbia inappendiculata</i> var. <i>queenslandica</i>	Priority 2
Euphorbiaceae	<i>Euphorbia myrtoides</i>	
Euphorbiaceae	<i>Euphorbia ? myrtoides</i>	
Euphorbiaceae	<i>Euphorbia ? porcata</i>	
Euphorbiaceae	<i>Euphorbia psilosperma</i>	
Euphorbiaceae	<i>Euphorbia</i> sp. (<i>biconvexa/coghlanii/trigonosperma</i> ; sterile)	
Euphorbiaceae	<i>Euphorbia</i> sp. (<i>boophthona/tannensis</i>)	
Euphorbiaceae	<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	
Euphorbiaceae	<i>Euphorbia trigonosperma</i>	
Euphorbiaceae	<i>Microstachys chamaelea</i>	
Fabaceae	<i>Acacia acradenia</i>	
Fabaceae	<i>Acacia adoxa</i> var. <i>adoxo</i>	
Fabaceae	<i>Acacia ampliceps</i>	
Fabaceae	<i>Acacia anaticeps</i>	
Fabaceae	<i>Acacia ancistrocarpa</i>	

Family	Species	Status
Fabaceae	<i>Acacia ? ancistrocarpa</i>	
Fabaceae	<i>Acacia arida</i>	
Fabaceae	<i>Acacia bivenosa</i>	
Fabaceae	<i>Acacia citrinoviridis</i>	
Fabaceae	<i>Acacia colei</i>	
Fabaceae	<i>Acacia colei</i> var. <i>colei</i>	
Fabaceae	<i>Acacia dictyophleba</i>	
Fabaceae	<i>Acacia elachantha</i>	
Fabaceae	<i>Acacia ? elachantha</i>	
Fabaceae	<i>Acacia eriopoda</i>	
Fabaceae	<i>Acacia hilliana</i>	
Fabaceae	<i>Acacia ? hilliana</i>	
Fabaceae	<i>Acacia inaequilatera</i>	
Fabaceae	<i>Acacia ? inaequilatera</i>	
Fabaceae	<i>Acacia maitlandii</i>	
Fabaceae	<i>Acacia monticola</i>	
Fabaceae	<i>Acacia ? monticola</i> x <i>tumida</i> var. <i>pilbarensis</i>	
Fabaceae	<i>Acacia orthocarpa</i> (wispy form)	
Fabaceae	<i>Acacia ptychophylla</i>	
Fabaceae	<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>	
Fabaceae	<i>Acacia robeorum</i>	
Fabaceae	<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>	
Fabaceae	<i>Acacia sericophylla</i>	
Fabaceae	<i>Acacia</i> sp. Urandangie (L. Pedley 2025)	
Fabaceae	<i>Acacia sphaerostachya</i>	
Fabaceae	<i>Acacia stellaticeps</i>	
Fabaceae	<i>Acacia trachycarpa</i>	
Fabaceae	<i>Acacia trachycarpa</i> x <i>tumida</i> var. <i>pilbarensis</i>	
Fabaceae	<i>Acacia tumida</i> var. <i>kulpam</i>	
Fabaceae	<i>Acacia tumida</i> var. ? <i>kulpam</i>	
Fabaceae	<i>Acacia tumida</i> var. <i>pilbarensis</i>	
Fabaceae	<i>Acacia tumida</i> var. ? <i>pilbarensis</i>	
Fabaceae	<i>Alysicarpus muelleri</i>	
Fabaceae	<i>Cajanus cinereus</i>	
Fabaceae	<i>Cajanus ? cinereus</i>	
Fabaceae	<i>Crotalaria cunninghamii</i>	
Fabaceae	<i>Crotalaria medicaginea</i> var. <i>neglecta</i>	
Fabaceae	<i>Crotalaria ramosissima</i>	
Fabaceae	<i>Cullen stipulaceum</i>	
Fabaceae	<i>Erythrophleum arenarium</i>	
Fabaceae	<i>Gompholobium polyzygum</i>	
Fabaceae	<i>Gompholobium simplicifolium</i>	
Fabaceae	<i>Grona ? filiformis</i>	

Family	Species	Status
Fabaceae	<i>Indigofera ammobia</i>	Priority 3
Fabaceae	<i>Indigofera colutea</i>	
Fabaceae	<i>Indigofera ? deserticola</i>	
Fabaceae	<i>Indigofera linifolia</i>	
Fabaceae	<i>Indigofera linnaei</i>	
Fabaceae	<i>Indigofera monophylla</i>	
Fabaceae	* <i>Indigofera oblongifolia</i>	Weed
Fabaceae	<i>Indigofera rugosa</i>	
Fabaceae	<i>Indigofera trita</i> subsp. <i>trita</i>	
Fabaceae	<i>Isotropis atropurpurea</i>	
Fabaceae	<i>Jacksonia aculeata</i>	
Fabaceae	<i>Leptosema anomalum</i>	
Fabaceae	<i>Lysiphyllum cunninghamii</i>	
Fabaceae	<i>Mirbelia viminalis</i>	
Fabaceae	<i>Neptunia ? scutata</i>	
Fabaceae	* <i>Parkinsonia aculeata</i>	Weed
Fabaceae	<i>Petalostylis labicheoides</i>	
Fabaceae	<i>Rhynchosia minima</i>	
Fabaceae	<i>Senna artemisioides</i> subsp. <i>helmsii</i>	
Fabaceae	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	
Fabaceae	<i>Senna artemisioides</i> subsp. <i>oligophylla</i> (thinly sericeous form MET 15,035)	
Fabaceae	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	
Fabaceae	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	
Fabaceae	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	
Fabaceae	<i>Senna notabilis</i>	
Fabaceae	<i>Senna symonii</i>	
Fabaceae	<i>Senna venusta</i>	
Fabaceae	<i>Sesbania cannabina</i>	
Fabaceae	<i>Sesbania formosa</i>	
Fabaceae	<i>Tephrosia ? supina</i>	
Fabaceae	<i>Tephrosia rosea</i>	
Fabaceae	<i>Tephrosia rosea</i> var. <i>clementii</i>	
Fabaceae	<i>Tephrosia rosea</i> var. Fortescue creeks (M.I.H. Brooker 2186)	
Fabaceae	<i>Tephrosia rosea</i> var. <i>rosea</i>	
Fabaceae	<i>Tephrosia rosea</i> var. <i>? rosea</i>	
Fabaceae	<i>Tephrosia simplicifolia</i>	
Fabaceae	<i>Tephrosia</i> sp. B Kimberley Flora (C.A. Gardner 7300)	
Fabaceae	<i>Tephrosia</i> sp. Bungaroo Creek (M.E. Trudgen 11601)	
Fabaceae	<i>Tephrosia</i> sp. D Kimberley Flora (R.D. Royce 1848)	
Fabaceae	<i>Tephrosia</i> sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)	
Fabaceae	<i>Tephrosia virens</i>	
Fabaceae	* <i>Vachellia farnesiana</i>	Weed
Fabaceae	<i>Vigna lanceolata</i> var. <i>lanceolata</i>	

Family	Species	Status
Fabaceae	<i>Zornia chaetophora</i>	
Goodeniaceae	<i>Dampiera candicans</i>	
Goodeniaceae	<i>Dampiera cinerea</i>	
Goodeniaceae	<i>Goodenia armitiana</i>	
Goodeniaceae	<i>Goodenia azurea</i> subsp. <i>hesperia</i>	
Goodeniaceae	<i>Goodenia</i> ? <i>azurea</i> subsp. <i>hesperia</i>	
Goodeniaceae	<i>Goodenia forrestii</i>	
Goodeniaceae	<i>Goodenia hartiana</i>	Priority 2
Goodeniaceae	<i>Goodenia lamprosperma</i>	
Goodeniaceae	<i>Goodenia microptera</i>	
Goodeniaceae	<i>Goodenia</i> ? <i>scaevolina</i>	
Goodeniaceae	<i>Goodenia stobbsiana</i>	
Goodeniaceae	<i>Goodenia triodiophila</i>	
Goodeniaceae	<i>Goodenia</i> sp.	
Goodeniaceae	<i>Scaevola amblyanthera</i> var. <i>centralis</i>	
Goodeniaceae	<i>Scaevola browniana</i> subsp. <i>browniana</i>	
Goodeniaceae	<i>Scaevola parvifolia</i>	
Goodeniaceae	<i>Scaevola spinescens</i> (broad form)	
Gyrostemonaceae	<i>Codonocarpus cotinifolius</i>	
Hernandiaceae	<i>Gyrocarpus americanus</i> subsp. <i>pachyphyllus</i>	
Lamiaceae	<i>Basilicum polystachyon</i>	
Lamiaceae	<i>Clerodendrum tomentosum</i> var. <i>mollissima</i>	
Lamiaceae	<i>Clerodendrum tomentosum</i> var. ? <i>tomentosum</i>	
Lamiaceae	<i>Dicrastylis cordifolia</i>	
Lamiaceae	<i>Dicrastylis doranii</i>	
Lauraceae	<i>Cassytha capillaris</i>	
Lauraceae	<i>Cassytha filiformis</i>	
Malvaceae	<i>Abutilon lepidum</i>	
Malvaceae	<i>Abutilon</i> sp. <i>Dioicum</i> (A.A. Mitchell PRP 1618)	
Malvaceae	<i>Abutilon</i> sp. <i>Pilbara</i> (W.R. Barker 2025)	
Malvaceae	<i>Abutilon</i> sp. <i>Pritzelianum</i> (S. van Leeuwen 5095)	Priority 3
Malvaceae	<i>Corchorus</i> ? <i>elachocarpus</i>	
Malvaceae	<i>Corchorus elachocarpus</i>	
Malvaceae	<i>Corchorus incanus</i> subsp. <i>incanus</i>	
Malvaceae	<i>Corchorus</i> ? <i>incanus</i> subsp. <i>incanus</i>	
Malvaceae	<i>Corchorus parviflorus</i>	
Malvaceae	<i>Corchorus</i> ? <i>sidoides</i>	
Malvaceae	<i>Corchorus sidoides</i> subsp. <i>vermicularis</i>	
Malvaceae	<i>Corchorus</i> ? <i>sidoides</i> subsp. <i>vermicularis</i>	
Malvaceae	<i>Corchorus tridens</i>	
Malvaceae	<i>Corchorus</i> sp.	
Malvaceae	<i>Gossypium australe</i>	
Malvaceae	<i>Gossypium sturtianum</i> var. <i>sturtianum</i>	

Family	Species	Status
Malvaceae	<i>Hibiscus coatesii</i>	
Malvaceae	<i>Hibiscus leptocladus</i>	
Malvaceae	<i>Hibiscus sturtii</i>	
Malvaceae	? <i>Hibiscus sturtii</i>	
Malvaceae	<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>	
Malvaceae	<i>Melhania oblongifolia</i>	
Malvaceae	<i>Seringia</i> ? <i>exastia</i>	
Malvaceae	<i>Seringia nephrosperma</i>	
Malvaceae	<i>Seringia</i> ? <i>nephrosperma</i>	
Malvaceae	<i>Sida</i> ? <i>macropoda</i>	
Malvaceae	<i>Sida</i> ? sp. Articulation below (A.A. Mitchell PRP 1605)	
Malvaceae	<i>Sida</i> ? sp. Pindan (B.G. Thomson 3398)	
Malvaceae	<i>Sida arenicola</i>	
Malvaceae	<i>Sida echinocarpa/clementii</i>	
Malvaceae	<i>Sida fibulifera</i>	
Malvaceae	<i>Sida</i> ? <i>fibulifera</i>	
Malvaceae	<i>Sida rohlenae</i> subsp. <i>rohlenae</i>	
Malvaceae	<i>Sida</i> sp. Articulation below (A.A. Mitchell PRP 1605)	
Malvaceae	<i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)	
Malvaceae	<i>Sida</i> sp. Pindan (B.G. Thomson 3398)	
Malvaceae	<i>Triumfetta</i> ? <i>incana</i>	
Malvaceae	<i>Triumfetta</i> ? <i>ramosa</i>	
Malvaceae	<i>Triumfetta chaetocarpa</i>	
Malvaceae	<i>Triumfetta johnstonii</i>	
Malvaceae	<i>Triumfetta maconochieana</i>	
Malvaceae	<i>Triumfetta ramosa</i>	
Malvaceae	<i>Waltheria indica</i>	
Marsileaceae	<i>Marsilea</i> ? <i>angustifolia</i>	
Marsileaceae	<i>Marsilea exarata</i>	
Meliaceae	<i>Owenia reticulata</i>	
Menispermaceae	<i>Tinospora smilacina</i>	
Molluginaceae	<i>Trigastrotheca molluginea</i>	
Montiaceae	<i>Calandrinia</i> ? <i>strophiolata</i>	
Montiaceae	<i>Calandrinia strophiolata</i>	
Moraceae	<i>Ficus aculeata</i> var. <i>indecora</i>	
Moraceae	<i>Ficus brachypoda</i>	
Myrtaceae	<i>Calytrix carinata</i>	
Myrtaceae	<i>Corymbia candida</i> subsp. <i>candida</i>	
Myrtaceae	<i>Corymbia flavescens</i>	
Myrtaceae	<i>Corymbia hamersleyana</i>	
Myrtaceae	<i>Corymbia zygophylla</i>	
Myrtaceae	<i>Corymbia</i> ? <i>zygophylla</i>	
Myrtaceae	<i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i>	

Family	Species	Status
Myrtaceae	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	
Myrtaceae	<i>Eucalyptus odontocarpa</i>	
Myrtaceae	<i>Eucalyptus victrix</i>	
Myrtaceae	<i>Melaleuca argentea</i>	
Myrtaceae	<i>Melaleuca glomerata</i>	
Nyctaginaceae	<i>Boerhavia burbridgeana</i>	
Nyctaginaceae	<i>Boerhavia gardneri</i>	
Nyctaginaceae	<i>Boerhavia ? gardneri</i>	
Nyctaginaceae	<i>Boerhavia repleta</i>	
Oleaceae	<i>Jasminum didymum</i> subsp. <i>lineare</i>	
Papaveraceae	* <i>Argemone ochroleuca</i> subsp. <i>ochroleuca</i>	Weed
Passifloraceae	* <i>Passiflora foetida</i> var. <i>hispida</i>	Weed
Phyllanthaceae	<i>Cathetus exilis</i>	
Phyllanthaceae	<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	
Phyllanthaceae	<i>Lysandra eremica</i>	
Phyllanthaceae	<i>Nelica maderaspatensis</i>	
Plantaginaceae	<i>Stemodia ? viscosa</i>	
Plantaginaceae	<i>Stemodia</i> sp. Shay Gap (B. Cook 7)	
Plantaginaceae	<i>Stemodia</i> sp.	
Plumbaginaceae	<i>Plumbago zeylanica</i>	
Poaceae	<i>Amphipogon sericeus</i>	
Poaceae	<i>Aristida contorta</i>	
Poaceae	<i>Aristida holathera</i> var. <i>holathera</i>	
Poaceae	<i>Aristida hygrometrica</i>	
Poaceae	<i>Aristida inaequiglumis</i>	
Poaceae	<i>Aristida latifolia</i>	
Poaceae	<i>Aristida</i> sp.	
Poaceae	<i>Astrebula pectinata</i>	
Poaceae	* <i>Cenchrus ciliaris</i>	Weed
Poaceae	* <i>Cenchrus setiger</i>	Weed
Poaceae	<i>Chloris pectinata</i>	
Poaceae	<i>Chrysopogon fallax</i>	
Poaceae	<i>Cymbopogon ambiguus</i>	
Poaceae	<i>Cymbopogon</i> sp.	
Poaceae	* <i>Cynodon dactylon</i>	Weed
Poaceae	<i>Dactyloctenium radulans</i>	
Poaceae	<i>Digitaria brownii</i>	
Poaceae	* <i>Echinochloa colona</i>	Weed
Poaceae	<i>Enneapogon caerulescens</i>	
Poaceae	<i>Enneapogon lindleyanus</i>	
Poaceae	<i>Eragrostis cumingii</i>	
Poaceae	<i>Eragrostis eriopoda</i>	
Poaceae	<i>Eragrostis ? eriopoda</i>	

Family	Species	Status
Poaceae	<i>Eragrostis tenellula</i>	
Poaceae	<i>Eragrostis xerophila</i>	
Poaceae	<i>Eriachne</i> aff. <i>obtus</i> a (Coongan Station)	
Poaceae	<i>Eriachne aristidea</i>	
Poaceae	<i>Eriachne benthamii</i>	
Poaceae	<i>Eriachne</i> ? <i>benthamii</i>	
Poaceae	<i>Eriachne ciliata</i>	
Poaceae	<i>Eriachne</i> ? <i>flaccida</i>	
Poaceae	<i>Eriachne glauca</i> var. <i>glauca</i>	
Poaceae	<i>Eriachne</i> ? <i>glauca</i> var. <i>glauca</i>	
Poaceae	<i>Eriachne helmsii</i>	
Poaceae	<i>Eriachne lanata</i>	
Poaceae	<i>Eriachne mucronata</i>	
Poaceae	<i>Eriachne obtusa</i>	
Poaceae	<i>Eriachne pulchella</i> subsp. <i>pulchella</i>	
Poaceae	<i>Eriachne tenuiculmis</i>	
Poaceae	<i>Eulalia aurea</i>	
Poaceae	<i>Heteropogon contortus</i>	
Poaceae	<i>Iseilema dolichotrichum</i>	
Poaceae	<i>Iseilema membranaceum</i>	
Poaceae	<i>Panicum australiense</i> var. <i>australiense</i>	
Poaceae	<i>Panicum laevinode</i>	
Poaceae	<i>Paractaenum refractum</i>	
Poaceae	<i>Paraneurachne muelleri</i>	
Poaceae	<i>Paspalidium basicladum</i>	
Poaceae	<i>Paspalidium rarum</i>	
Poaceae	<i>Paspalidium tabulatum</i>	
Poaceae	<i>Perotis rara</i>	
Poaceae	<i>Setaria dielsii</i>	
Poaceae	<i>Setaria surgens</i>	
Poaceae	<i>Sorghum plumosum</i> var. <i>plumosum</i>	
Poaceae	<i>Sorghum</i> ? <i>plumosum</i> var. <i>plumosum</i>	
Poaceae	<i>Sporobolus australasicus</i>	
Poaceae	<i>Themeda triandra</i>	
Poaceae	<i>Triodia angusta</i>	
Poaceae	<i>Triodia</i> ? <i>angusta</i>	
Poaceae	<i>Triodia epactia</i>	
Poaceae	<i>Triodia lanigera</i>	
Poaceae	<i>Triodia longiceps</i>	
Poaceae	<i>Triodia</i> ? <i>longiceps</i>	
Poaceae	<i>Triodia schinzii</i>	
Poaceae	<i>Triodia scintillans</i>	
Poaceae	<i>Triodia secunda</i>	

Family	Species	Status
Poaceae	<i>Triodia wiseana</i>	
Poaceae	<i>Urochloa holosericea</i> subsp. <i>velutina</i>	
Poaceae	<i>Xerochloa laniflora</i>	
Poaceae	Poaceae sp.	
Polygalaceae	<i>Polygala glaucifolia</i>	
Portulacaceae	<i>Portulaca pilosa/filifolia</i>	
Portulacaceae	<i>Portulaca</i> sp. (oleracea/intraterranea)	
Proteaceae	<i>Grevillea eriostachya</i>	
Proteaceae	<i>Grevillea pyramidalis</i> subsp. <i>leucadendron</i>	
Proteaceae	<i>Grevillea refracta</i> subsp. <i>refracta</i>	
Proteaceae	<i>Grevillea stenobotrya</i>	
Proteaceae	<i>Grevillea wickhamii</i>	
Proteaceae	<i>Grevillea wickhamii</i> subsp. <i>aprica</i>	
Proteaceae	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	
Proteaceae	<i>Grevillea wickhamii</i> subsp. <i>macrodonta</i>	
Proteaceae	<i>Hakea chordophylla</i>	
Proteaceae	<i>Hakea lorea</i> subsp. <i>lorea</i>	
Proteaceae	<i>Hakea macrocarpa</i>	
Pteridaceae	<i>Cheilanthes</i> ? <i>sieberi</i> subsp. <i>sieberi</i>	
Rubiaceae	<i>Dolichocarpa crouchiana</i>	
Rubiaceae	<i>Paranotis mitrasacmoides</i> subsp. <i>mitrasacmoides</i>	
Rubiaceae	<i>Scleromitron galloides</i>	
Rubiaceae	<i>Spermacoce hillii</i>	
Santalaceae	<i>Santalum lanceolatum</i>	
Sapindaceae	<i>Atalaya hemiglauca</i>	
Sapindaceae	<i>Dodonaea coriacea</i>	
Sapindaceae	<i>Dodonaea hispidula</i> var. <i>arida</i>	
Scrophulariaceae	<i>Eremophila latrobei</i> subsp. ? <i>glabra</i>	
Scrophulariaceae	<i>Eremophila longifolia</i>	
Solanaceae	* <i>Datura leichhardtii</i> subsp. <i>leichhardtii</i>	Weed
Solanaceae	<i>Nicotiana</i> sp.	
Solanaceae	<i>Solanum dioicum</i>	
Solanaceae	<i>Solanum</i> ? <i>dioicum</i>	
Solanaceae	<i>Solanum diversiflorum</i>	
Solanaceae	<i>Solanum horridum</i>	
Solanaceae	<i>Solanum lasiophyllum</i>	
Solanaceae	<i>Solanum phlomoides</i>	
Solanaceae	<i>Solanum</i> sp. (<i>cunninghamii</i> / <i>dioicum</i>)	
Solanaceae	<i>Solanum</i> sp.	
Surianaceae	<i>Stylobasium spathulatum</i>	
Thymelaeaceae	<i>Pimelea ammodarid</i>	
Violaceae	<i>Afrohybanthus aurantiacus</i>	
Violaceae	<i>Afrohybanthus</i> ? <i>aurantiacus</i>	

Family	Species	Status
Zygophyllaceae	? <i>Tribulopsis angustifolia</i>	
Zygophyllaceae	<i>Tribulopsis marliesiae</i>	Priority 3
Zygophyllaceae	<i>Tribulopsis</i> ? <i>marliesiae</i>	Priority 3?
Zygophyllaceae	<i>Tribulus</i> ? <i>hirsutus</i>	
Zygophyllaceae	<i>Tribulus suberosus</i>	

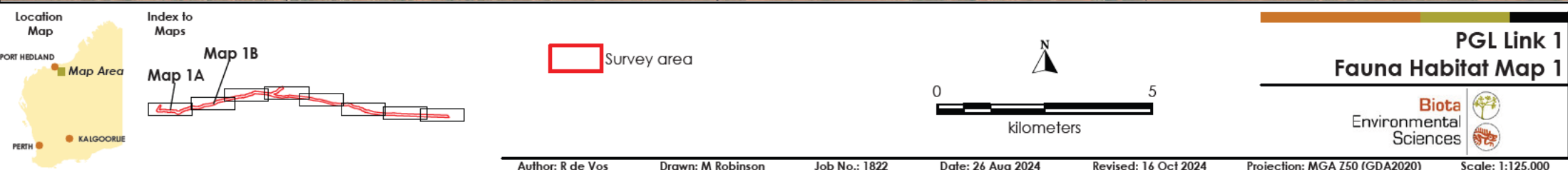
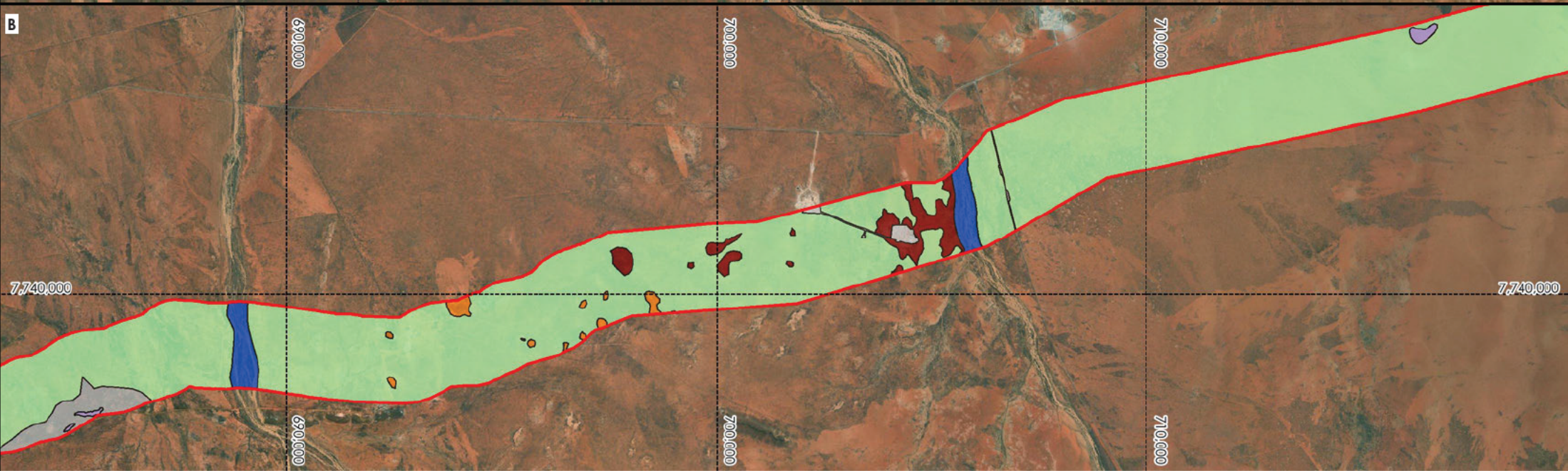
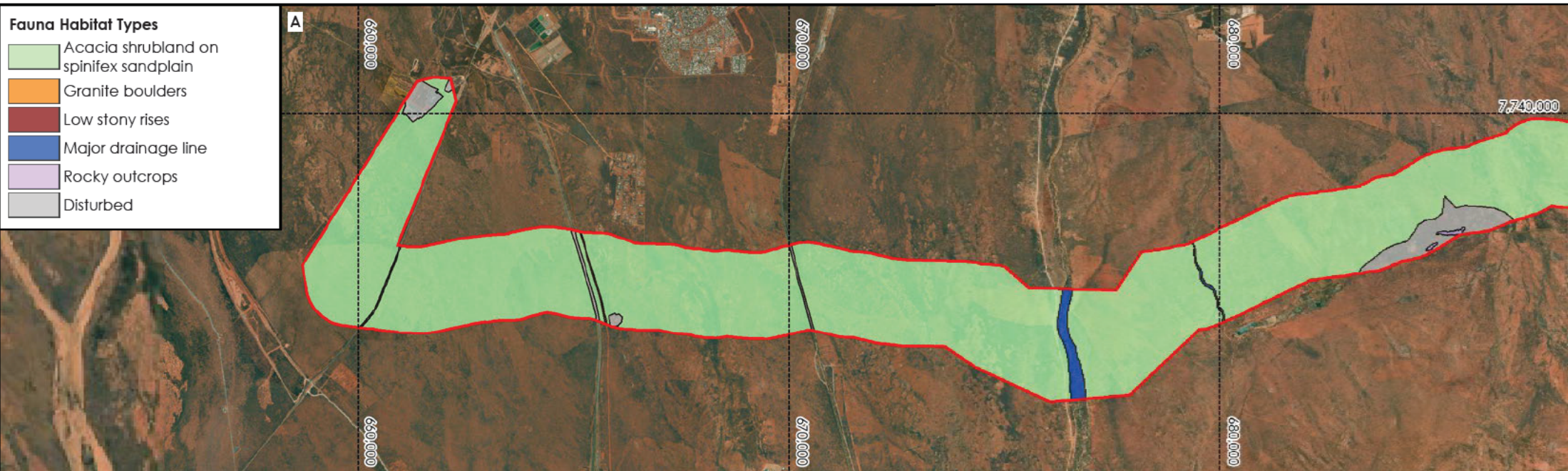
Appendix 12

Fauna Habitat Mapping



Fauna Habitat Types

- Acacia shrubland on spinifex sandplain
- Granite boulders
- Low stony rises
- Major drainage line
- Rocky outcrops
- Disturbed



<i>Geopelia placida</i>	Peaceful Dove		
<i>Geopelia humeralis</i>	Bar-shouldered Dove		
<i>Turnix velox</i>	Little Buttonquail		
<i>Burhinus grallarius</i>	Bush Stone-curlew		
<i>Charadrius melanops</i>	Black-fronted Plover		
<i>Vanellus miles</i>	Masked Lapwing		
<i>Anhinga novaehollandiae</i>	Australasian Darter		
<i>Phalacrocorax varius</i>	Australian Pied Cormorant		
<i>Egretta novaehollandiae</i>	White-faced Heron		
<i>Hieraaetus morphnoides</i>	Little Eagle		
<i>Aquila audax</i>	Wedge-tailed Eagle		
<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk		
<i>Milvus migrans</i>	Black Kite		
<i>Haliastur sphenurus</i>	Whistling Kite		MA
<i>Ichthyophaga leucogaster</i>	White-bellied Sea Eagle		MA
<i>Tyto javanica</i>	Eastern Barn Owl		
<i>Ninox connivens</i>	Barking Owl		
<i>Ninox boobook</i>	Australian Boobook		MA
<i>Dacelo leachii</i>	Blue-winged Kookaburra		
<i>Todiramphus sanctus</i>	Sacred Kingfisher		MA
<i>Merops ornatus</i>	Rainbow Bee-eater		MA
<i>Falco cenchroides</i>	Nankeen Kestrel		MA
<i>Falco berigora</i>	Brown Falcon		
<i>Nymphicus hollandicus</i>	Cockatiel		
<i>Eolophus roseicapilla</i>	Galah		
<i>Cacatua sanguinea</i>	Little Corella		
<i>Barnardius zonarius</i>	Australian Ringneck		
<i>Melopsittacus undulatus</i>	Budgerigar		
<i>Climacteris melanurus</i>	Black-tailed Treecreeper		
<i>Malurus assimilis assimilis</i>	Purple-backed Fairywren (Mainland)		
<i>Malurus leucopterus</i>	White-winged Fairywren		
<i>Conopophila whitei</i>	Grey Honeyeater		
<i>Certhionyx variegatus</i>	Pied Honeyeater		
<i>Lichmera indistincta</i>	Brown Honeyeater		
<i>Gavicalis virescens</i>	Singing Honeyeater		
<i>Ptilotula keartlandi</i>	Grey-headed Honeyeater		
<i>Ptilotula penicillata</i>	White-plumed Honeyeater		
<i>Manorina flavigula</i>	Yellow-throated Miner		
<i>Pardalotus rubricatus</i>	Red-browed Pardalote		
<i>Smicrornis brevirostris</i>	Weebill		
<i>Gerygone fusca</i>	Western Gerygone		
<i>Pomatostomus temporalis</i>	Grey-crowned Babbler		

Appendix 14

Helix Molecular Solutions DNA Sequencing of Potential Black- footed Rock-wallaby Scats



Helix

Molecular
Solutions



Species Identification of Suspected Rock- Wallaby, *Petrogale rothschildi* and/or *P. lateralis*, from Faecal Pellets.



Prepared for

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DRAFT

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1.0 Executive Summary

Helix Molecular Solutions was engaged by Biota Environmental Sciences to perform DNA extractions from faecal (scat) samples. The objective of this project was to identify whether the scats belonged to a rock wallaby, and if so which species. Of the eight scat samples that were suspected to originate from species of rock-wallaby (*Petrogale rothschildi* and/or *P. lateralis*), three contained DNA of sufficient quality for species identification analysis while the remaining five failed to amplify. None of the analysed samples were attributed to the rock-wallaby. Rather, all three were confidently identified as belonging to the common wallaroo (*Macropus robustus*).

2.0 Introduction

2.1 Study Scope

Biota Environmental Sciences (Biota Job #1822) engaged Helix to genetically identify the species origin of eight scat samples that were suspected to belong to the rock-wallaby (*Petrogale rothschildi* and/or *P. lateralis*). Species identification was undertaken by extracting DNA from the collected scat samples, amplification of an internal fragment of the barcoding mtDNA gene COI and comparing the resulting sequences against those submitted to the publicly available database GenBank, to determine the most likely species of origin.

3.0 Methods

Eight scat samples were extracted using the QIAamp DNA Stool mini kit (QIAGEN, Hilden, Germany) following the protocol of Carpenter & Dzimirski (2017). Specimens were sequenced for variation at an approximately 200 base-pair fragment of the COI mtDNA gene. For quality control, DNA extracted from the specimens that failed to amplify with COI were also tested with an alternative more conservative gene (12S) to confirm failure was most likely due to poor quality DNA, rather than the inability of the COI primers to bind to the DNA. The resulting sequence data was edited using GENEIOUS Prime software version 2024.0.7 (Drummond *et al.* 2011). Extraction and PCR negative controls were employed to confirm cross contamination did not occur.

4.0 Results

Three of the eight scat samples successfully amplified for the COI gene (UC05-06 and UC08). Comparison with the GenBank database identified all three scats as originating from the species *Macropus robustus* (98.15% match, Table 1). Five samples failed to amplify using the COI primers, and subsequently also failed with the second set of primers (12S, Figure 1, Figure 2). Given the amplification failure for both mtDNA genes, such a result can most likely be attributed to the presence of degraded DNA potentially from the sample being exposed to degradation factors such as temperature, pH, water and time (very dry/old).

Table 1 **Scat sample distinguishing information and identified species of origin.**
Shaded cells indicate samples that failed to amplify

Helix ID	Sample ID	Site	Latitude	Longitude	Notes	Species ID
UC01	Opp_JG-03	–	-20.956978	118.734361	Small - medium scats, very dry.	No amplification
UC02	Scat2024.06.05. L2FAOpp_RB-01	–	-21.365884	118.736000	Small scats, very dry.	No amplification
UC03	Scat20240607. L2FA174_HN-01	L2FA174MC	-21.371677	118.737556	Medium scats, very dry.	No amplification
UC04	T20240602. L2FAOpp_JE-01	L2FA232MC	-20.929079	118.710125	Medium scats, dry.	No amplification
UC05	site 70, DS, MM, 4/5/24	L1FA70DS_NB	-20.404469	119.920476	Medium scats, very dry.	<i>Macropus robustus</i> (98.15%)
UC06	NS, Site 102, 08/05/24	L1FA102N_MM	-20.351680	119.511334	Large scat, moderately moist, slight smell.	<i>Macropus robustus</i> (98.15%)
UC07	70DS, 03/05/24, RB, 1822	L1FA70DS_NB	-20.403274	119.920200	Large scat, very dry.	No amplification
UC08	site 64, DS, MM, 5/5/24	L1FA64DS_MM	-20.393672	120.041848	Small scats, moderately moist.	<i>Macropus robustus</i> (98.15%)



Figure 1 **Agarose gel image of the species identification reaction using the COI gene.**
 Samples that amplified for the correct gene are signified by a low, bright band in the bottom row,

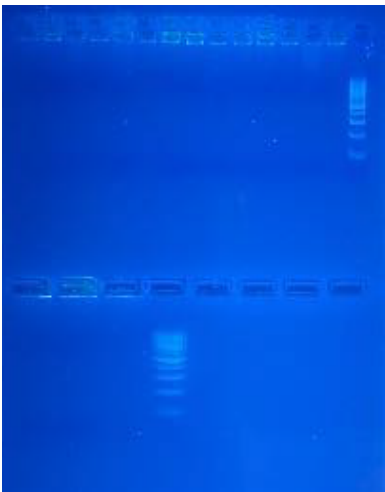


Figure 2 **Agarose gel image of the alternative species identification reaction using the 12S gene.**

5.0 Discussion

Three of the eight submitted scat samples were suitable for genetic sequence analysis and species identification. All three scat samples were determined to originate from the common wallaroo (*Macropus robustus*) with high confidence (98.15% sequence similarity). Five samples failed to produce a useable sequence due to insufficient DNA, most likely as a result of degradation.

6.0 References

Carpenter FM, Dziminski MA. 2017. Breaking down scats: degradation of DNA from greater bilby (*Macrotis lagotis*) faecal pellets. *Australian Mammalogy* **39**: 197-204.
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