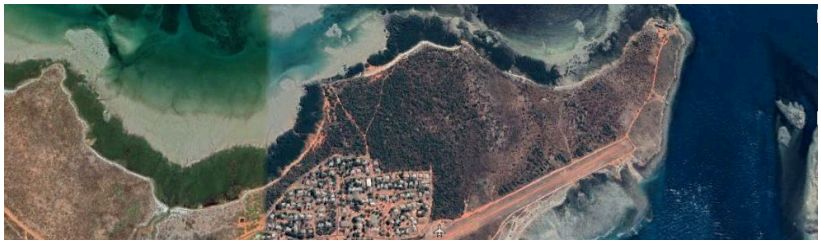
Biota Environmental Sciences

Ardyaloon Walk Trail Biological Assessment



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Ardyaloon Biological Assessment

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1.0 Executive Summary

Tourism Western Australia is investigating the development of the Ardyaloon Walk Trail, comprising a 448 m long 'self-guided' walk trail and a 1,001 m long 'guided' walk trail. The proposed walk trails are located 1-1.5 km northeast of Ardyaloon and cover an area of 0.17 ha.

Biota Environmental Sciences (Biota) was commissioned to undertake a biological assessment of the proposed walk trails. The objective of the assessment was to act as a preliminary risk assessment of any potential key issues identified for the study area, and to gather biological information to support a Native Vegetation Clearing Permit (NVCP) application. This was achieved through a desktop study of existing information and data, and a field survey by a botanist on 11 February 2021.

The desktop study was undertaken to identify features of conservation significance known from the study area or the broader locality (within 40 km). The study considered regional information, previous biological surveys in the locality, and the results of various database searches. The results of the desktop study were used to assist in the compilation of a list of flora and fauna species of significance potentially occurring in the study area.

A total of 61 native vascular flora species from 52 genera and 30 families were recorded from the study area, all of which are typical of the locality. This number of species is in the range expected for a study area of this size in this location. Three weed species were recorded, none of which are considered Weeds of National Significance or listed as declared pests under the WA *Biosecurity and Agriculture Management Act 2007*. No Threatened species were recorded or would be expected to occur. No Priority flora were recorded, and none would be expected to occur within the study area.

One Threatened Ecological Community (TEC), "Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula", is known to occur in the locality of the study area. Two small patches of vegetation consistent with this TEC were identified within the study area during the field survey. A total of 0.005 ha of the TEC intersected the guided walk trail. One Priority Ecological Community (PEC) also occurs within 40 km of the study area, however this did not occur in the study area.

Three fauna habitats were recorded for the study area: low open heathland on Melligo Sandstone; *Acacia* shrubland over tussock grassland; and dense monsoon vine thickets. These habitat types do not represent core habitat for any listed fauna species of significance likely to occur within the study area, but as a refugial habitat, the monsoon vine thickets are likely to support short range endemic (SRE) invertebrates. Given the very small area of this habitat affected by the proposed walk trail (0.005 ha), no significant impacts on SRE taxa would arise from the clearing even if they are present.

Database and literature searches yielded a total of 330 vertebrate fauna species with the potential to occur in the study area, comprising five amphibian species including one introduced amphibian, 53 reptile species including one introduced reptile species, eight native ground-dwelling mammal species, five introduced mammal species, 16 bat species and 243 bird species. Of these, 107 are significant species, of which 26 have been considered directly in this report following the exclusion of marine-listed and coastal bird species. The database searches returned 104 invertebrate specimens belonging to three groups known to exhibit short-range endemism (land snails, mygalomorph spiders and scorpions). None were of elevated significance.

Following the field survey, 16 species of significant fauna were assessed as either 'likely to occur' or 'may occur' based on the fauna habitats present. However, the small extent of the study area and the wider distributions of the species suggest it would be unlikely that significant impacts on any of these species would arise as a result of the proposed clearing, should they be present.

With the current alignment of the guided walk trail, the proposal may be considered at variance with clearing principles D and F of the ten clearing principles under Schedule 5 of the *Environmental Protection Act 1986*. This is due solely to the potential clearing of 0.005 ha of the TEC vegetation by the current walk trail.

However, assuming the final design of the trail can avoid any clearing within the two patches of the TEC vegetation, then appropriate environmental management measures should be able to mitigate any potential impacts on this ecological community and the proposal would not be at variance within any of the clearing principles. Further to this, opportunities could exist for interpretive signage to educate trail users about the TEC, which is the highest conservation value feature in the study area.

2.0 Introduction

2.1 Background

Tourism Western Australia is investigating the development of the Ardyaloon Walk Trail, comprising a 'self-guided' walk trail (448 m long) and a 'guided' walk trail (1,001 m long), located 1-1.5 km northeast of Ardyaloon (Figure 2.1). Construction of the trails would require some clearing of native vegetation (approximately 0.17 ha).

Biota was commissioned to undertake a desktop study followed by a biological assessment to identify vegetation and flora and fauna values of the proposed walk trails (the study area).

2.2 Scope of the Study

The main objective of the study was to determine if there are any significant flora or fauna species, or vegetation types, that could represent constraints to the potential development of the area, or require specific management. This was achieved through an initial desktop study, a field survey, and preparation of this report to support a Native Vegetation Clearing Permit (NVCP) application.

Specifically, the scope of the study was to:

- review and discuss existing information from the study area and the broader locality, including literature describing previous surveys completed in the locality, to establish the biogeographical context;
- review and discuss the results of relevant database searches to determine fauna, flora and vegetation communities of significance that may occur in the study area; specifically Threatened or Priority listed flora or fauna species, and Threatened Ecological Communities (TECs), Priority Ecological Communities (PECs) or other Environmentally Sensitive Areas (ESAs);
- describe, photograph and map the dominant vegetation units occurring within the study area (including a description of dominant species, structure and vegetation condition, and discussion of their representation in a regional context);
- identify any vegetation units of significance within the study area;
- compile a list of vascular flora species recorded in the study area;
- record and photograph flora of significance, including Threatened and Priority species and any other species of interest;
- record any introduced flora species (weeds) occurring in the study area;
- record any opportunistic sightings of fauna and documenting fauna habitats; and
- use the above information to prepare an assessment of the Proposal against the Ten Clearing Principles, as required for a NVCP application.

The approach and methodology used for the biological field assessment was conducted in accordance with the following:

1. Technical Guidance: Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA 2020)[1];
2. Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016c); and
3. Technical Guidance: Sampling of Short Range Endemic Invertebrate Fauna (EPA 2016d); and
4. A guide to the assessment of applications to clear native vegetation under Part V Division 2 of the *Environmental Protection Act 1986* (Department of Environment Regulation 2014)

The field survey essentially comprised a "reconnaissance" flora survey and a "basic" fauna survey as per EPA (EPA 2016c, 2020).

[1] The EPA (2020) Technical Guidance has recently superseded Technical Guidance: Terrestrial Fauna Surveys (EPA 2016a) and Technical Guidance: Sampling Methods for Terrestrial Vertebrate Fauna (EPA 2016b).

Figure 2.1: Location of the proposed Ardyaloon Walk Trails.

3.0 Regional Context of the Study Area

3.1 IBRA Bioregion and Subregion

The Interim Biogeographic Regionalisation for Australia (IBRA) recognises 89 bioregions and 419 subregions within Australia (DSEWPaC 2012). The study area lies within the Dampierland bioregion and the Pindanland subregion, which covers 5,198,904 ha and is described as follows:

> *"The Pindanland subregion (DL2) is the coastal, semi-arid, northwestern margin of the Canning Basin. The region has a semi-arid, hot, tropical climate with summer rainfall. Quaternary sandplains overlay Jurassic and Mesozoic sandstones and support Pindan vegetation on the plains and hummock grasslands on hills. Quaternary marine deposits on coastal plains support mangal, samphire, Sporobolus grasslands, Melaleuca alsophila low forests, and Spinifex-Crotalaria strand communities"* (Graham 2003).

3.2 Land Systems

Land systems mapping covering the study area has been prepared by the WA Department of Agriculture (Payne and Schoknecht 2011). The 'self-guided' walk trail lies entirely within the Reeves land system, while the 'guided' walk trail crosses the Carpentaria land system as well as the Reeves land system.

The Reeves land system is described as "*Sandplains with scattered hills and minor plateaux, reddish sandy soils, pindan*" (Payne and Schoknecht 2011). The Carpentaria land system is described as "*Coastal flats, associated sandy margins and dunes; saline sands and muds; paperbark thickets, samphire meadows, extensive bare mud flats with fringing mangrove forests*" (Payne and Schoknecht 2011). It should be noted that the section of the Carpentaria land system that is apparently intersected by the 'guided' walk trail would be more accurately mapped as Reeves land system.

3.3 Geology, Soils and Hydrology

The study area occurs within the Canning Basin, the largest sedimentary basin in WA, which consists predominantly of Palaeozoic sedimentary rocks with a thin Mesozoic and Tertiary cover (Paul et al. 2013). The study area encompasses two geological surface units, Jowlaena Formation and Melligo Sandstone which are the substrates underlying the habitats present within the study area. These units were mapped by the Geological Survey of Western Australia at a scale of 1:250,000 (2011), (Table 3.1 and Figure 3.1). Note that while this mapping shows the Jowlaenga Formation to be the dominant geological substrate of the study area, the site observations show that Melligo Sanstone is present throughout the 'self-guided' trail (Section 6.1).

The soils of the study area have been mapped, and are available from the Australian Soil Resource Information System (ASRIS) (CSIRO 2014). One broad soil unit was represented in the study area (Table 3.1 and Figure 3.1).

The surface water catchment of the study area is the Cape Leveque Coast Basin of the Western Plateau Division. Drainage within this catchment area is towards the coast, while recharge to the aquifer is via rainfall infiltrating the unconfined Canning Basin (Paul et al. 2013). Sheet flooding is the most widespread pattern of drainage on the Dampier Peninsula, as the gently sloping plains are interrupted by few abrupt rises (McKenzie and Kenneally 1983). No major watercourses or drainage lines occur within the study area.

Table 3.1: Geological and soil units occurring within the study area.

	Unit	Description	Portion of Study Area (ha)
Geology	jsjw	Jowlaenga Formation: Fine to medium grained poorly sorted and commonly ferruginous, fossiliferous, silty sandstone, mudstone, conglomerate.	0.169
	ksme	Melligo Sandstone: Littoral white to pale grey medium to coarse grained silicified quartz sandstone with local large-scale cross bedding	0.005
Soils	Jw1	Low-lying coastal plains with some sand dunes: chief soils are saline clays (Uf1.41) on the flat to very gently sloping plains. Associated are (Ug5) and (Uf) soils along the inland margin of the plains; areas of saline muds (Um1) on slopes and flats submerged at high tide; and very small areas of calcareous sands (Uc1.1) and/or siliceous sands (Uc1.2) on coastal dunes.	0.17

3.4 Beard's Vegetation Units

The vegetation of the Kimberley region was mapped by John Beard (1979) at a scale of 1:1,000,000. The study area lies within the Dampier Botanical District, which broadly corresponds with the Dampierland IBRA bioregion. The district is characterised by pindan vegetation on sandplains, more or less densely wooded according to rainfall; tall grass savanna with or without scattered trees on clay plains; spinifex steppe on sandstone, and limestone outcrops (Beard 1979). The study area occurs in one of Beard's (1979) vegetation units, Dampierland 771, described as "*Acacia thicket with eucalypt woodland over spinifex; Acacia tumida, Eucalyptus tectifica, Corymbia grandifolia, Triodia pungens, T. bitextura*".

Table 3.2: Beard's (1979) vegetation mapping unit occurring within the study area and pre-European extent in the subregion (statistics from Government of Western Australia 2019).

Beard's Vegetation Mapping Unit	Pre-European Extent within Pindanland Subregion (ha)	Current Extent within Pindanland Subregion (ha)	Extent within Study Area (ha)	Percentage (%) of Pindanland Extent Occurring in the Study Area
Dampierland 771	34,906	33,981	0.17	<0.001

3.5 Conservation Reserves and Protected Areas in the Locality

There are no conservation reserves intersected by the study area, but it is located within the Bardi Jawi Indigenous Protected Area.

One conservation reserve is located within 40 km of the study area; the Swan Island Nature Reserve is located 9.7 km northwest.

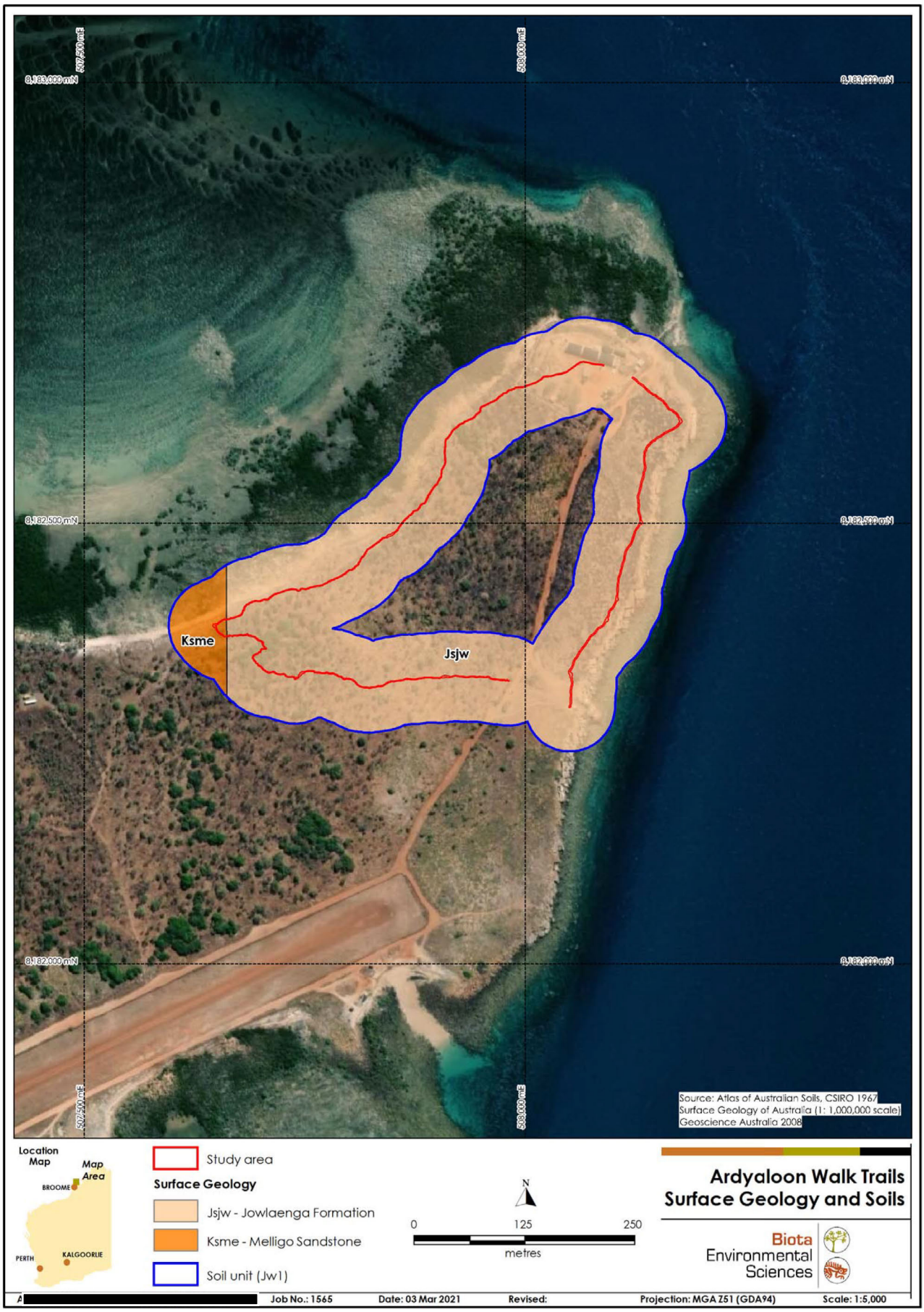

Figure 3.1: Geological and soil units occurring in the study area and surrounds.

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4.0 Methodology

To meet the objectives of this biological assessment an initial desktop study was undertaken (Section 4.1), followed by a field survey (Section 4.2).

4.1 Desktop Study

The desktop study was undertaken to identify features of significance known from the study area or the broader locality (within 40 km). Appendix 1 contains more information regarding the framework for significance ranking of communities and species in WA. The desktop study was also used to assess the level of biological survey work that has previously been completed in or around the study area.

The study considered regional information, previous biological surveys in the locality, and the results of various database searches (see Appendices 2 to 4), as discussed in the following sections. The results of the desktop study were used to assist in the compilation of a list of flora species of significance potentially occurring in the study area (see Appendix 5), as well as lists of fauna, including species of significance, potentially occurring in the study area (Appendix 6).

4.1.1 Database Searches

The following databases were searched for records of fauna, flora and vegetation of significance previously recorded from the study area, or occurring within the locality[2]:

1. NatureMap database (http://NatureMap.dbca.wa.gov.au): a joint project of the Department of Biodiversity, Conservation and Attractions (DBCA) and the Western Australian Museum (WAM). This database represents the most comprehensive source of information on the distribution of Western Australia's flora and fauna, comprising records from the Fauna Survey Returns database, the WA Threatened Flora and Fauna Databases, the WA Herbarium and WAM Specimen databases, and the BirdLife Australia Atlas. The database search was centered on the point -16.4680, 122.9755 and requested the return of records from a 40 km radius (Appendix 2). The database was queried on 29/10/2020.
2. The DBCA databases of Threatened Ecological Communities (TECs) and Priority Ecological Communities (PECs), Declared Rare and Priority Flora, and Threatened Fauna. These data searches requested the return of records from a 40 km radius around the point -16.4680, 122.9755. The databases were queried on 23/10/2020 but the results are not appended here, consistent with normal DBCA expectations on data management.
3. The Atlas of Living Australia (ALA) (http://www.ala.org.au): a joint project between academic collecting institutions, private individual collectors and community groups. The atlas contains occurrence records, environmental data, images and the conservation status of species throughout Australia. The database search requested the return of fauna records from a 40 km buffer around the study area boundary and was conducted on 29/10/2020 (Appendix 3).
4. The Commonwealth EPBC Act Protected Matters database. The database search requested the return of records within a 40 km buffer from central point (-16.4680, 122.9755) (Appendix 4). The database was searched on 29/10/2020.
5. eBird (https://ebird.org/) - A citizen science database for bird records run by the Cornell Lab of Ornithology. This database was searched for supplementary records of conservation significant bird species within 40 km of the survey area. The database was searched on 02/03/2021.
6. Biota's internal flora and fauna databases. The search was within 40 km of the study area and was conducted on 23/10/2020.

[2] The search areas for each database included coastal and marine areas. Mammal and reptile species inhabiting these areas were excluded from consideration. Bird species inhabiting marine/coastal areas have been included in the potential species list for completeness, but are excluded from the likelihood of occurrence assessment. Erroneous records of species returned from the database searches (i.e. those that were outside of known ranges or would not occur in Australia) were also excluded.

4.1.2 Review of Previous Biological Surveys in the Locality

Publicly available literature was searched to identify relevant flora and vegetation surveys and fauna surveys conducted in the locality of the study area. This was limited to surveys conducted within 40 km of the study area.

No publicly available vegetation or flora surveys have been conducted within 40 km of the study area, with the exception of a broad survey of vine thickets on the Dampier Peninsula (Black et al. 2010). This survey assessed vine thicket patches from Broome to the tip of the Dampier Peninsula, but did not include vine thickets at One Arm Point. The desktop study therefore focused on existing mapping of significant communities, and historical records of significant flora held in public databases.

No publicly available fauna surveys have been conducted within 40 km of the study area; results were therefore limited to database search returns only. Two fauna surveys were located within 80 km of the study area: the Irvine Island Seasonal Fauna Survey, located 85 km northeast (Biota 2011); and Beagle Bay Big Tree Country Tropical Timber Plantation Project Fauna Assessment, located 60 km southwest (Ecologia 2004). The next closest area in which a detailed biological survey has been conducted is at James Price Point, located 120 km southwest.

4.1.3 Assessment of Likelihood of Occurrence

To determine which significant species have the potential to occur in the study area, the results of the database and literature searches were examined, while considering the known habitat preferences and distributions of the species identified. Habitats were defined primarily according to the landforms and vegetation that appear to be present in the study area, based on inspection of aerial imagery and knowledge of the locality.

For each species of significance identified for the locality, a set of rankings and criteria that has been developed by Biota was applied to guide the assessment of likelihood of occurrence within the study area (Table 4.1).

Table 4.1: Biota's likelihood ranking system for species that may occur in the study area.

Rank	Criteria
Recorded	1. The species has been recorded in the study area.
Likely to occur	1. There are existing records of the species in close proximity to the study area (within 20 km); and • the species is strongly linked to a specific habitat, which is present in the study area; or • the species has more general habitat preferences, and suitable habitat is present.
May occur	1. There are existing records of the species from the locality (within 40 km), however: • the species is strongly linked to a specific habitat, of which only a small amount is present in the study area; or • the species has more general habitat preferences, but only some suitable habitat is present. 2. There is suitable habitat in the study area, but the species is recorded infrequently in the locality.
Unlikely to occur	1. The species is linked to a specific habitat, which is absent from the study 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 study area, however the species is very infrequently recorded in the locality or the only records are historic (>40 years ago).
Would not occur	1. The species is strongly linked to a specific habitat, which is absent from the study area; or 2. The species' range is very restricted and does not include the study area; or 3. The species is not considered extant in the locality.

Two rankings have been provided:

1. An initial assessment was made during the desktop study (see Appendices 5 and 6). This was based on consideration of the overall distribution of the species, the proximity of the study area to known populations, the reliability and age of any historic records, and, if the species was known to be linked to particular habitats, whether suitable habitat appeared to be present in the study area based on inspection of aerial photography and/or existing information.
2. The likelihood rankings were subsequently revised as necessary based on the findings of the field survey (see Appendices 5 and 6). Where the initial and final likelihood rankings were different, the reason was provided.

4.2 Field Survey

4.2.1 Survey Team

The field survey was undertaken on 11 February 2021 by Tim Willing, a sub-contracted botanist to Biota. Tim has extensive vegetation and flora survey experience in the Kimberley, and is also experienced with identifying fauna habitats and significant vertebrate fauna species. His qualifications and expertise are summarised in Table 4.2.

Table 4.2: Summary of survey team qualifications.

Name	Position at Biota	Qualification	Years of Survey Experience	Survey Role
Tim Willing	Principal Botanist (Kimberley specialist)	BA	35	- Vegetation mapping - Rare flora searches - Fauna assessments

4.2.2 Acknowledgements

The following people are acknowledged for their assistance in completing the field survey:

- Wossy Davey at the Ardyaloon Community Office;
- Daniel Oades, Bibido McCarthy and Mathilda Lipscombe at the Bardi Jawi Rangers Office, Ardyaloon; and
- Rodney Maher Junior (Bardi Jawi Ranger), Shania Dolby and Tamara Moore (Bardi Jawi Oorany Rangers) for assistance in the field.

4.2.3 Survey Timing and Conditions

The weather conditions (particularly rainfall) leading up to a field survey are important factors influencing the number and type of species that are recorded from an area, particularly for flora. As an example, more annual species are likely to be present following high rainfall, particularly when this occurs over the summer period, however annual daisies (family Asteraceae) germinate mainly following winter rainfall. Plants are also more likely to bear reproductive material (flowers and/or fruit) following periods of higher rainfall, which means that specimens can be more easily identified. To characterise rainfall leading up to the current survey, total monthly rainfall data for 2020/2021 were sourced from the Bureau of Meteorology's Cygnet Bay weather station[3], located approximately 7 km southwest of the study area. Data from the 12 months preceding the survey were compared to the monthly median rainfall for the years 1964-2021 from the Cygnet Bay weather station (Figure 4.1).

[3] Station 3057; sourced from http://bom.gov.au

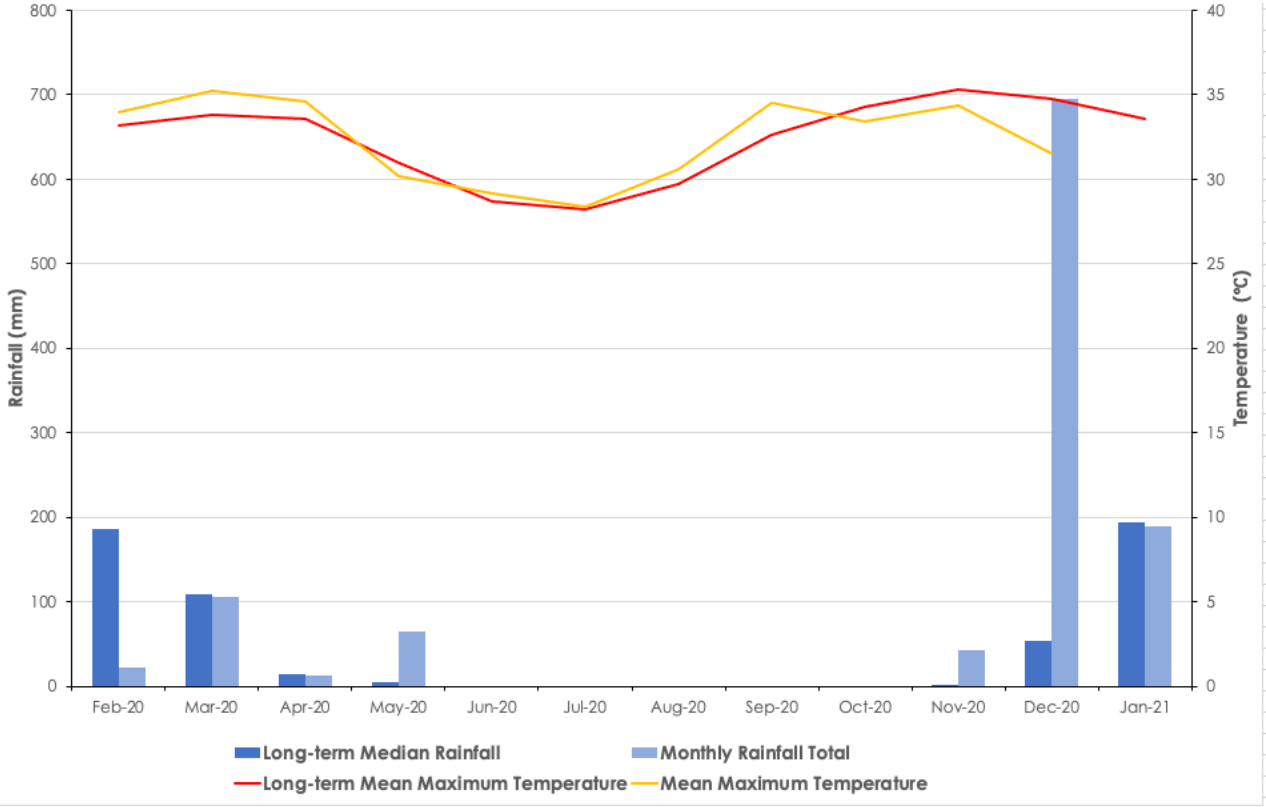

Figure 4.1: Total monthly rainfall at Cygnet Bay weather station (#3057) for the 12 months prior to the field survey, compared to the long-term monthly median rainfall.

The data shows that the rainfall received in the three months prior to the field survey (November 2020- January 2021) was greater than three-times the long-term median for the same period (928.0 mm compared to 247.7 mm). This was due to well above average rainfall in December 2020 from several tropical lows. Weather conditions at the time of field survey were therefore optimal for a post-wet season biological survey. Taking the recent rainfall data into consideration, the conditions at the time of the survey were also considered optimal for the collection of annual and cryptic perennial flora species.

4.2.4 Floristic Data Collection

No floristic sampling sites (quadrats or relevés) were assessed, however the vegetation present was described through several mapping notes, where the following parameters were recorded:

1. Location: MGA coordinates were recorded in WGS84 datum using a hand-held Global Positioning System (GPS) unit;
2. Habitat: A description of the landform and habitat;
3. 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 7);
4. Associated Species: A list of non-dominant species within the area;
5. Fire History: An estimate of time since last fire;
6. Soil: A broad description of the soil surface and stony surface mantle;
7. Disturbance Details: Vegetation condition was ranked according to the scale developed by Trudgen (1988), considering evidence of grazing, physical disturbance, weed invasion etc. (see Appendix 7); and
8. Photograph: A representative digital photograph of the vegetation was taken.

A total of 110 mapping notes were taken in the study area during the survey. The location of these, and the GPS track log showing foot traverses, is presented in Appendix 8.

4.2.5 Vegetation Description and Mapping

The scale of vegetation mapping can be 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 quality aerial photography. The vegetation units for this study were described at the sub-association level (level VI as per the National Vegetation Information System; NVIS)[4], which is the most detailed level under the NVIS. This level of detail would be considered fine-scale (intra-locality) delineation of vegetation units as per EPA (2016c).

Vegetation maps were created and consolidated using Geographical Information System (GIS) software (QGIS and MapInfo Professional), and point locations of mapping note sites, significant flora and weeds were added. All maps in this report were produced by Melissa Robinson (GIS Cartographer at Biota) using MapInfo Professional (version 11).

4.2.6 Searches for Threatened Flora, Priority Flora and Weeds

Targeted, non-systematic searches for significant species were conducted on foot in the entire study area, given its small size. The routes of the foot traverses intersected all major vegetation/habitat units in the study area.

Locations of species of significance, introduced flora species and/or unknown taxa were recorded using a handheld GPS unit (WGS84 datum). The number of individuals and extent of the population were also recorded for each location, along with the habitat and associated species.

4.2.7 Fauna Habitat Assessment

Habitat assessments were based primarily on the descriptions of landforms and habitat features, and aided by the vegetation descriptions, photographs and aerial imagery.

It is important to note that each broad habitat area defined here cannot be used to map the distribution of any one species or group of taxa, as many species utilise a range of ecological niches for specific activities such as foraging, commuting, breeding and nesting. The resultant habitat map may therefore be viewed as a guide to delineate areas that may be of differing ecological importance to the fauna species utilising the study area.

4.2.8 Fauna Sampling

Non-systematic methods were employed to search for fauna, or secondary evidence thereof, during foot traverses of the study area. The aim was to locate, describe and search habitats that may support fauna of significance, habitat-specific species and other species of interest with the potential to occur based on the results of the desktop study. A range of non-systematic techniques were used, including:

- foot traverses to record evidence of terrestrial vertebrate species of significance;
- identification and recording of secondary signs including tracks, scats and diggings; and
- recording of opportunistic sightings and calls.

4.3 Specimen Identification, Nomenclature and Data

4.3.1 Flora

Common species that were well known to the survey botanist were confirmed in the field. A voucher specimen was collected if the specimen was either difficult to determine without closer examination, belonged to a recognised species complex, was poorly collected or otherwise

[4] http://www.environment.gov.au/erin/nvis/publications/avam/section-2-1.htm

unusual, or was in very good condition (healthy specimens with flowers and/or fruits are often useful to submit to the WA Herbarium). 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 flora keys, consulting appropriate publications and checking reference collections. The field botanist identified all specimens.

A flora species list is provided in Appendix 9. Nomenclature and conservation significance rankings used in this report are consistent with the current listing of WA flora recognised by the WA Herbarium on FloraBase[5] at the time of preparation of this report.

4.3.2 Fauna

Biota Zoologist, John Graff, reviewed all data relating to the fauna assessment. As per the Technical Guidance (EPA 2020), species nomenclature for reptiles, amphibians and mammals follows that of the *Western Australian Museum Checklist of the Vertebrates of Western Australia*, last published in September 2017. Species nomenclature for birds follows that of International Ornithological Congress (Gill et al. 2020), as this is regularly updated and is one of the three major global taxonomies currently in use. It also follows a similar approach to species concepts as the WA Museum reptiles, amphibians and mammals.

4.4 Limitations of the Study

As per the EPA's *Technical Guidance for Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016c) and *Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment* (EPA 2020), potential constraints or limitations for this study are addressed in Table 4.3.

Table 4.3: Potential constraints and limitations of the Ardyaloon biological assessment.

Potential Constraint	Statement of Limitations
1. Sources of information	• The broader Ardyaloon locality has not been well surveyed, with no past reports publicly available to be considered as part of the desktop study. However, publicly available databases of rare species and community information were searched, as was the Biota internal database. Regional and local level information is not considered to be a limiting factor for this study.
2. Survey scope	• The survey objective was to provide the necessary information required to support an NVCP application. Given the size of the study area and the scale of the proposed clearing, a desktop study followed by a reconnaissance flora and basic fauna survey as per EPA (2016c, 2020) was considered appropriate, with some targeted sampling also conducted. • No systematic trapping for fauna was performed. This is consistent with a basic fauna survey (EPA 2020).
3. Proportion of flora / fauna collected and identified	• All vascular flora encountered in the study area were recorded. A total of 61 vascular flora species from 30 families were recorded during the current survey. • The basic fauna survey focused on recording significant species from secondary evidence, and did not attempt to record all species (this would require systematic trapping as part of a detailed survey).
4. Completeness of survey	• The study area was surveyed to a satisfactory level to support an NVCP application. As for any study, additional survey effort would lead to additional species being recorded.
5. Mapping reliability	• Vegetation units and fauna habitats were described and mapped based on data collected during systematic and targeted foot traverses throughout the study area. • The mapping is considered to provide a reliable indication of the vegetation units and fauna habitats in the study area.

[5] http://florabase.dpaw.wa.gov.au

Potential Constraint	Statement of Limitations
6. Timing, weather, season, cycle	• The survey intensity was adequate for recording the annual, ephemeral and cryptic perennial flora present at the time, and the list of vascular flora documented from the study area is comprehensive for an area of this size (0.17 ha). • The survey was conducted at the end of the wet season following above average rainfall and timing was considered optimal for the collection of most flora species.
7. Disturbances	• There were no disruptions during the survey, and it was undertaken as planned.
8. Intensity of survey	• A reconnaissance/basic survey with targeted sampling was considered adequate to address the requirements for an NVCP application.
9. Resources and experience levels	• Sufficient time was allocated to the field survey component (a total of 1 person day for the survey botanist). The botanist undertaking the survey was suitably qualified and experienced to identify flora and fauna. Additional assistance was sought as required from other personnel at Biota. There were therefore no limitations due to resourcing.
10. Access issues	• The entirety of the study area could be accessed and surveyed at an appropriate level. There were therefore no limitations due to access issues.

It should also be noted that in relation to vertebrate fauna, only terrestrial fauna species were included in the vertebrate potential species list; species of marine mammals and reptiles were omitted. Birds that rely upon marine, wetland or coastal habitats, including seabirds, wading birds, shorebirds and waterbirds, were included in the potential species list for completeness due to the proximity of marine and coastal habitats to the study area, but were excluded from the likelihood of occurrence assessment (Appendix 6).

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5.0 Desktop Study Results

5.1 Vegetation and Flora

5.1.1 Threatened and Priority Ecological Communities

TECs are defined as biological assemblages that naturally occur in a particular type of habitat, that fit one of the following categories; "Presumed totally destroyed", "Critically Endangered", "Endangered" or "Vulnerable" (DBCA 2013).

One TEC, the "*Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula*", is known to occur in the vicinity of the study area. This TEC is listed as Vulnerable at State level under the BC Act and Endangered at Commonwealth level under the EPBC Act. The Vine Thicket TEC is confined to the landward side of coastal dunes, and comprises discontinuous but discrete pockets of dense evergreen and deciduous vine thicket vegetation (DBCA 2018). The thickets contain many fleshy-fruited plants, which provide an important food resource for native wildlife as well as for Indigenous people (DBCA 2018).

PECs are defined as possible TECs that do not meet survey criteria or that are not adequately defined. These communities are added to the PEC List under priorities 1, 2 and 3 (DBCA 2013). One Priority 3 PEC occurs within 40 km of the study area, comprising:

Vegetation Association 37 as defined by John Beard's vegetation mapping for the Kimberley (Beard 1979): Shrublands, teatree thicket. This PEC occurs along the west coast of the Dampier Peninsula, with the closest stand being approximately 24 km southwest of Ardyaloon (Figure 5.1).

5.1.2 Threatened and Priority Flora

Based on the desktop study, no Threatened species have been recorded from the locality, and none would be expected to occur in the study area.

A total of 10 Priority listed species have been recorded within 40 km (see Figure 5.2 and Appendix 5). None of these species are considered likely to occur in the study area, however three species may occur, comprising:

- the Priority 1 shrub *Cullen candidum*, which appears to be a disturbance opportunist;
- the Priority 3 climber *Parsonsia kimberleyensis*, which would be restricted to the potential areas of vine thicket on the 'guided' walk trail, if it was to occur; and
- the Priority 3 spinifex *Triodia acutispicula*, which could potentially occur along either walk trail.

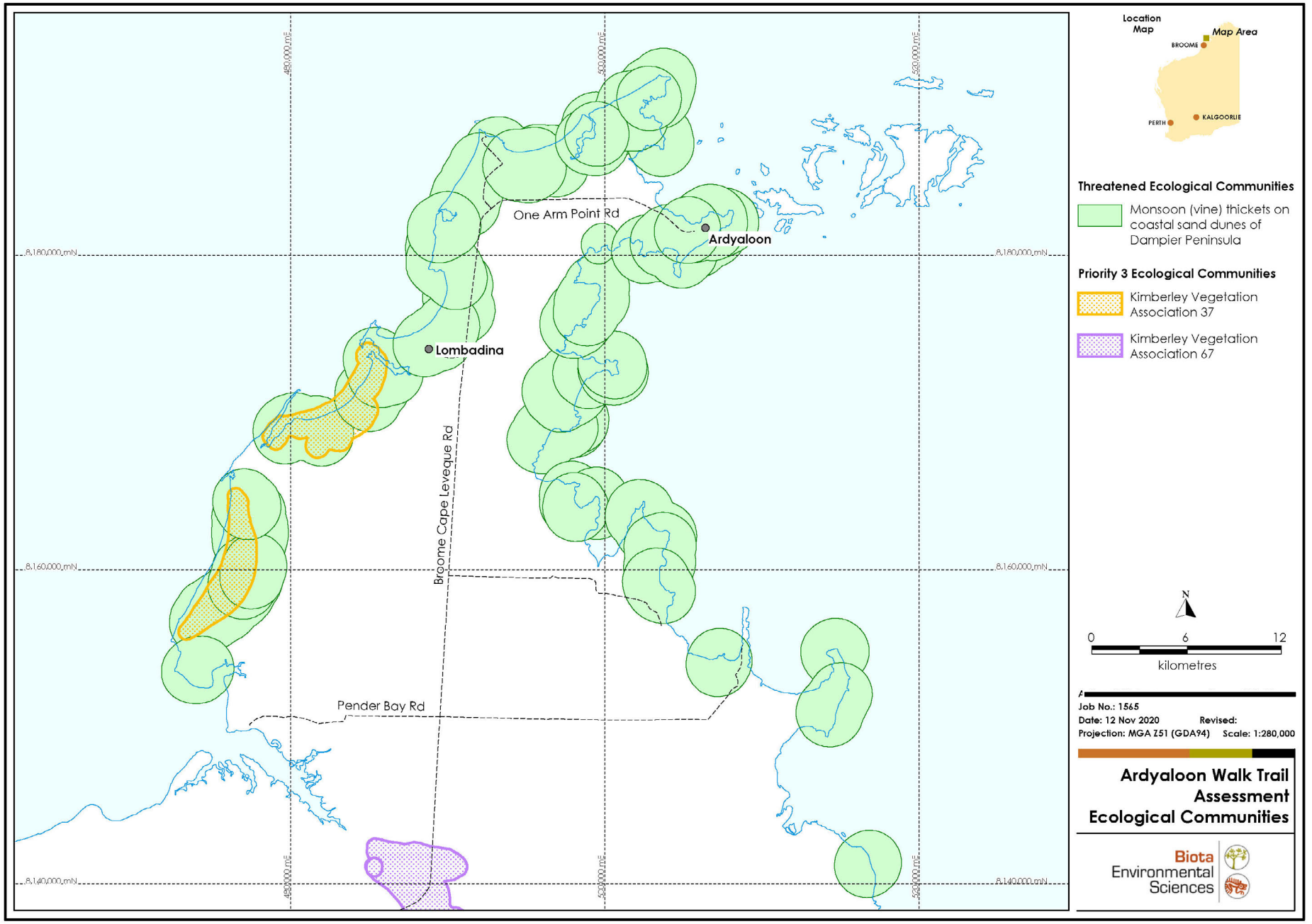

Figure 5.1: Records of TECs and PECs located within 40 km of the study area.
NB. Vegetation Association 67 is 44 km S

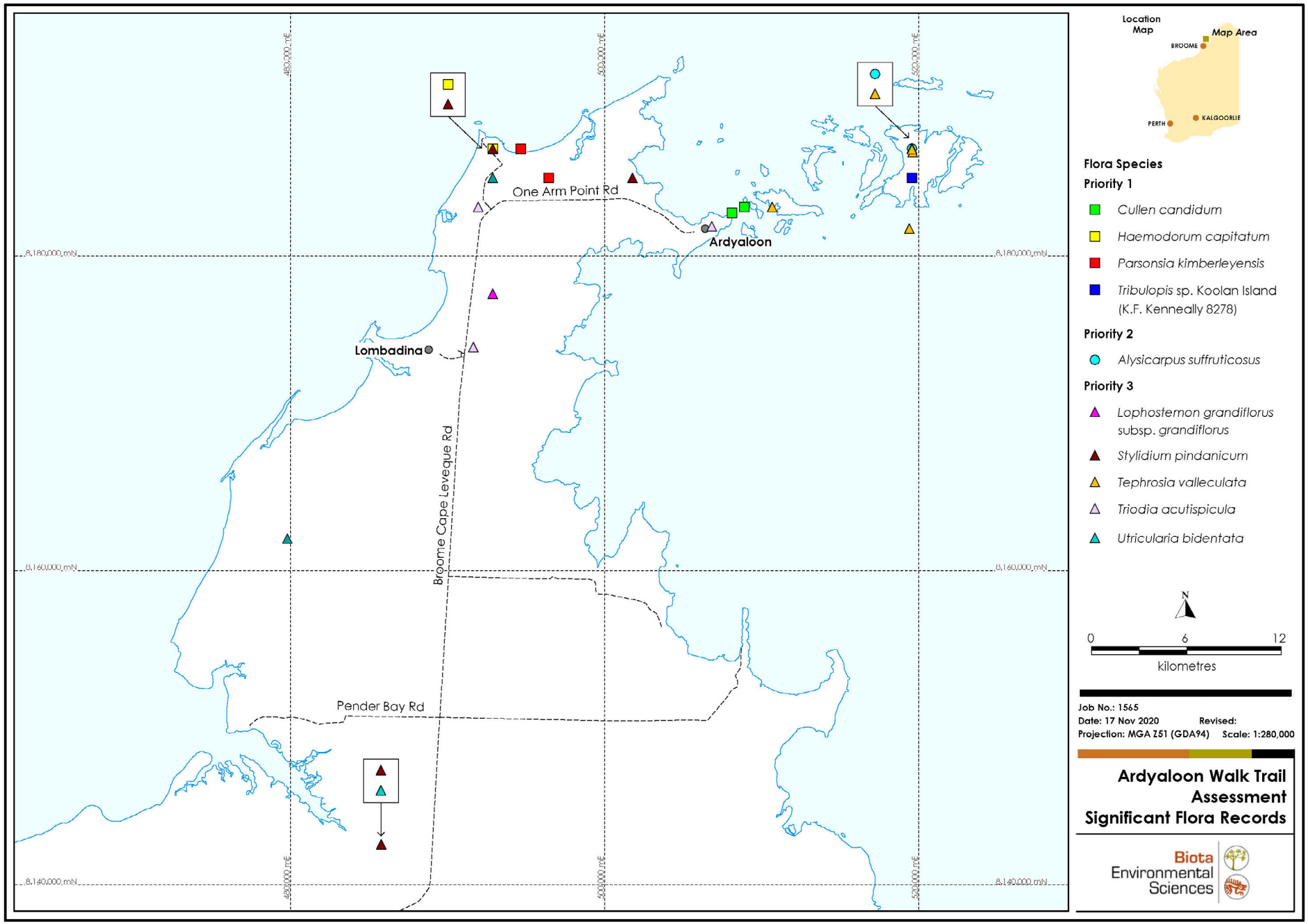

Figure 5.2: Historical priority flora records within 40 km of the study area.

5.2 Fauna

5.2.1 Potential Fauna Assemblage

Database and literature searches yielded a total of 330 vertebrate species with the potential to occur in the study area (Table 5.1). This total comprised six amphibian species including one introduced amphibian, 52 reptile species including one introduced reptile species, eight native ground-dwelling mammal species, five introduced mammal species, 16 bat species and 243 bird species (Table 5.1). Seventeen of these species are significant species (see Section 5.2.2). A full list of potential fauna species is presented in Appendix 10.

Table 5.1: Overview of vertebrate fauna species with the potential to occur in the study area.

Fauna Group	Number of Species	Number of Conservation Significant Species
Amphibians	4	0
Introduced Amphibians	1	0
Reptiles	52	2
Introduced Reptiles	1	0
Ground-dwelling mammals	8	2
Introduced Mammals	5	0
Bats	16	2
Birds	243	101 (20 considered in likelihood of occurrence assessment)
Total	**330**	**107**

The four native amphibian species returned in the database searches of the study area comprised three species of tree frog (Pelodryadidae) and one species of burrowing frog (Limnodynastidae). The introduced amphibian species, the Cane Toad, belongs to the family Bufonidae.

The 52 reptile species from the search area comprised 17 species of skink (Scincidae), nine species of gecko (Gekkonidae and Diplodactylidae), six species of front-fanged snake (Elapidae), five species of monitor lizard (Varanidae), five species of dragon (Agamidae), three species of flap-footed lizard (Pygopodidae), three species of python (Pythonidae), two species of blind snake (Typhlopidae), one species of mangrove snake (Homolapsidae), one species of tree snake (Colubridae), and six species of elapid snake (Elapidae). The introduced reptile species was the Flowerpot Blind Snake, in the family Typhlopidae.

The eight species of native ground-dwelling mammals and five introduced mammal species combined comprised four species of rodent (Muridae) (including two introduced rodents), four species of carnivorous marsupial (Dasyuridae), two species of introduced hoofed mammal (Bovidae), one macropod species (Macropodidae), the Bilby (Thylacomyidae), and the introduced Pig (Suidae).

The 16 bat species comprised eight species of evening bat (Vespertillionidae), two species of sheathtail-bat (Emballonuridae), three species of flying fox (Pteropodidae), one species of Ghost bat (Macrodermatidae), one species of bentwing bat (Miniopteridae) and one species of freetail bat (Molossidae).

The 243 bird species returned from the desktop review comprised 66 families, belonging to 21 orders. Twenty-four families represented by 88 species were passerine birds and 42 families, represented by 159 species were non-passerine birds.

5.2.2 Significant Vertebrate Fauna

Native fauna species that are rare, threatened with extinction, or have high conservation value, are specially protected by law under the WA Biodiversity Conservation Act 2016 and/or the Commonwealth EPBC Act. Migratory and Marine species are also protected under the EPBC Act as species of National Environmental Significance. In addition, the DBCA maintains a list of fauna that are deemed a priority for conservation, which have not been assigned statutory protection under the Biodiversity Conservation Act 2016, but are still considered to be of conservation priority, or are considered to be rare but not threatened and are in need of monitoring (DBCA 2020). Appendix 1 details categories of conservation significance recognised under the above frameworks.

A summary of the conservation significant species that were returned for the search area and have potential to occur in the study area is included in Appendix 6, along with an assessment of their likelihood of occurrence. The likelihood of occurrence of each conservation significant species was considered by assessing species habitat preference, potential habitats available within the study area, current known fauna distributions and last known records. Within each fauna group, species are presented in descending order of likelihood to occur. Previous records of significant fauna species are shown in Figure 5.3 and Figure 5.4. Conservation significant species determined not to occur in the study area are not presented.

A total of two reptiles, two ground-dwelling mammals, two bats, and 101 birds are listed as significant species under State or Federal legislation. Of the 101 listed bird species, likelihood assessments were only made for 20 species that had preferred terrestrial habitat potentially available within the study area. The majority of significant bird species were either listed as Marine under the EPBC Act, and were therefore excluded from the likelihood assessment based on the absence of marine habitats in the study area (further details in Appendix 10). Similarly, shorebirds favouring coastal and intertidal environs were not considered in the likelihood assessment. However, these species have been included within the broader potential species list due to the proximity of marine and coastal environs to the study area.

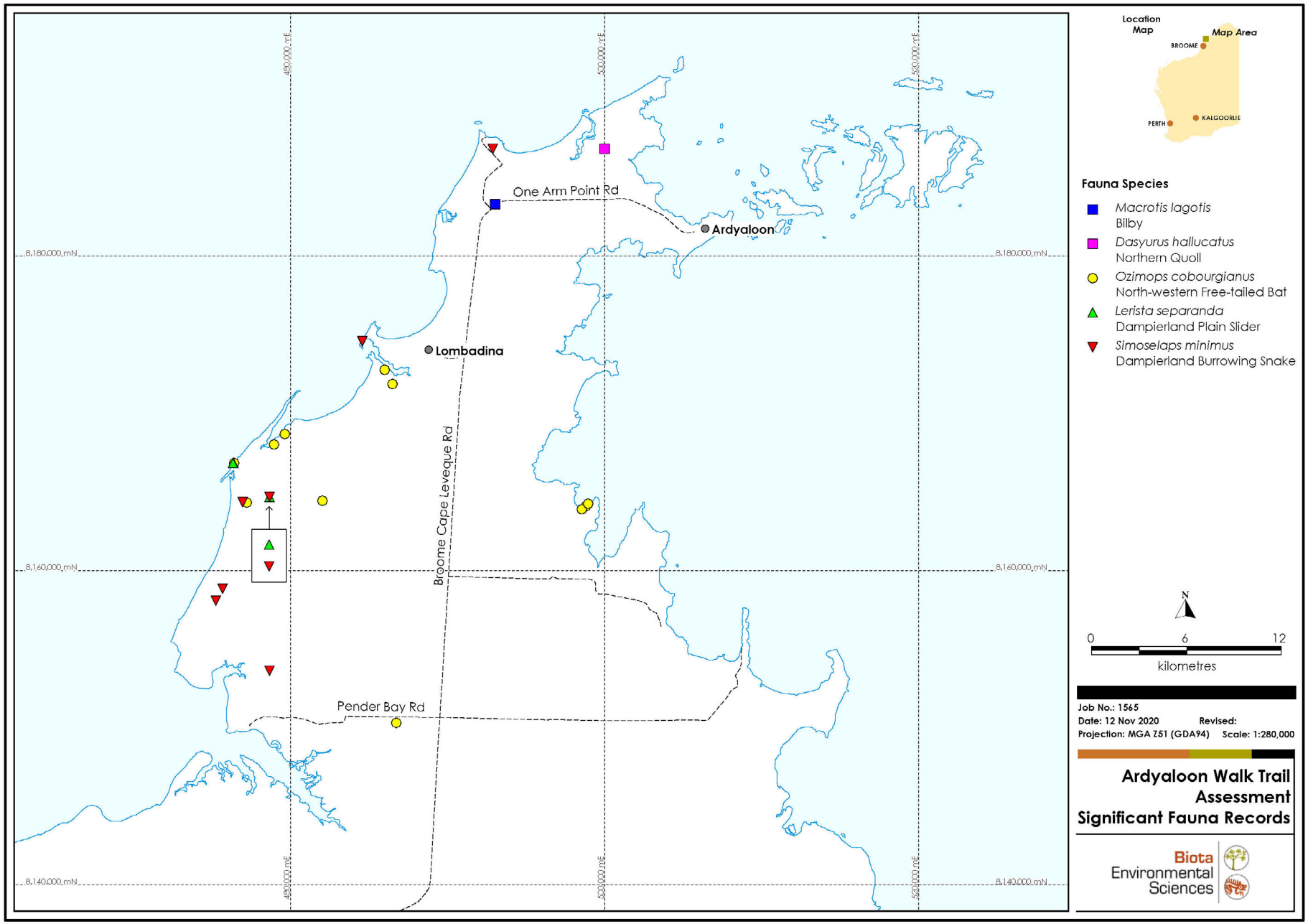

Figure 5.3: Historical records of significant mammal and reptile species occurring within 40 km of the study area.

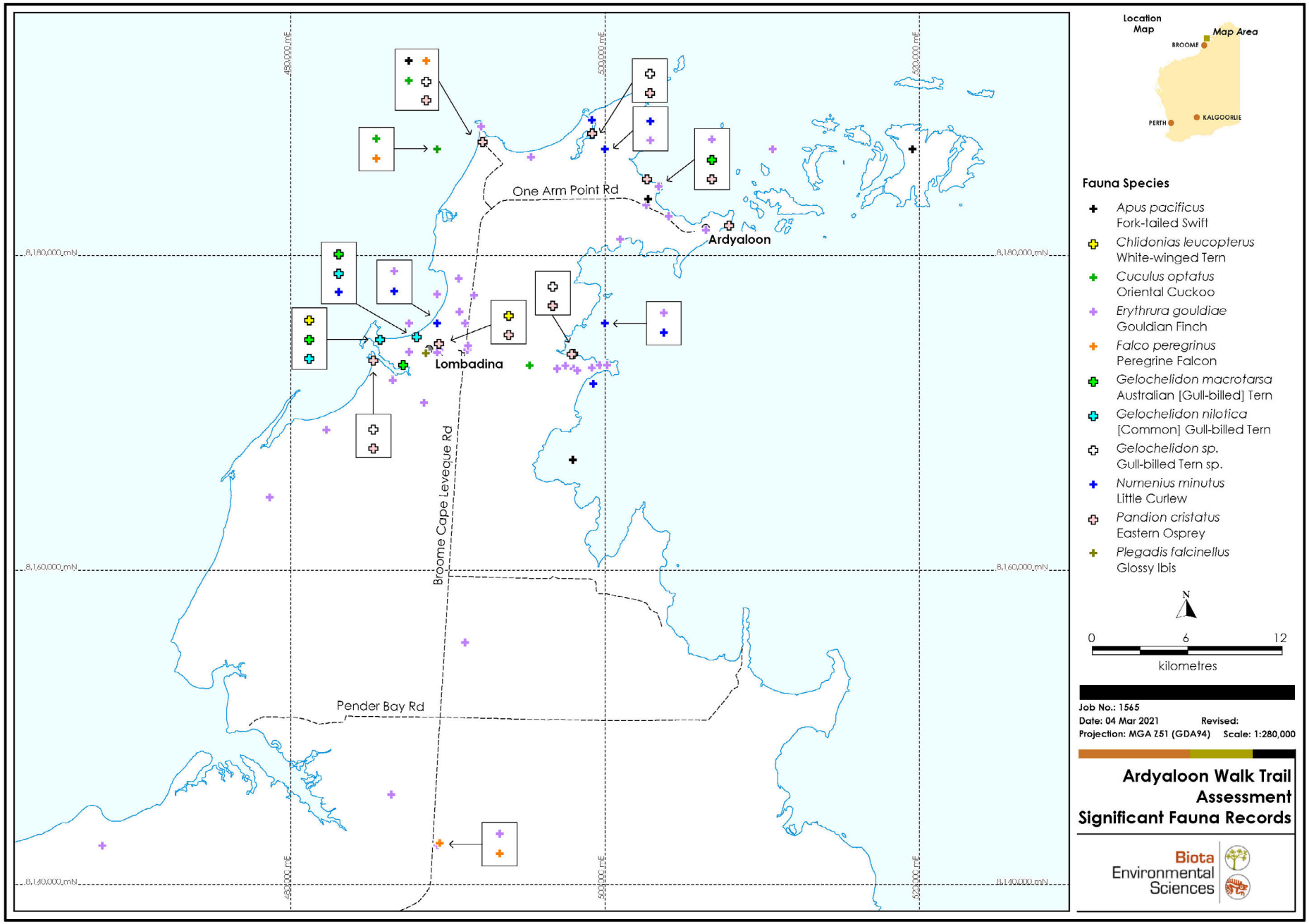

Figure 5.4: Historical records of significant bird species occurring within 40 km of the study area.

5.2.3 Terrestrial Invertebrate Fauna: Short-Range Endemic Invertebrates

Certain terrestrial invertebrate groups that display naturally small distributions (less than 10,000 km^2) and are characterised by poor dispersal capabilities, confinement to disjunct habitats and low fecundity, are referred to as Short-range Endemic (SRE) invertebrates (Harvey 2002, Ponder and Colgan 2002). Given this, SRE fauna are more likely to experience population extinctions than more widely distributed taxa, and as such are important in terms of conservation of biodiversity, particularly when considering impact assessment.

The invertebrate taxa that are most likely to contain SRE fauna include (but may not be limited to) land snails, millipedes, scorpions, pseudoscorpions and mygalomorph spiders. The distribution of these taxa are likely to be threatened by processes such as clearing of native vegetation, changes to fire regimes, introduction/spread of weeds and pathogens, habitat fragmentation and changes to surface hydrology (EPA 2009).

The database searches returned 104 invertebrate specimens belonging to three groups known to exhibit short-range endemism (Table 5.2; Appendix 10). The Kimberley region is a relatively understudied area in relation to the majority of the invertebrate groups likely to exhibit short-range endemism. This is not the case for land snails, however, with the Kimberley being recognised as a significant hotspot of land snail diversity since the late 1980s to early 1990s (Gibson and Köhler 2012). This is reflected in the results from the database searches, with 81% of invertebrate records being land snails (Table 5.2).

Table 5.2: Invertebrate fauna records from database searches.

Invertebrate Group	Number of Records	Number of Species/Taxa
Terrestrial gastropods (land snails)	84	8
Mygalomorph spiders (trapdoor spiders)	8	2
Scorpions	12	2
Total	**104**	**12**

5.2.3.1 Land Snails

For the purpose of this assessment, the land snail fauna of the Kimberley region can be categorised as belonging to two groups: camaenid snails (of the family Camaenidae) and the non-camaenids (or micro-snails). The non-camaenids are considered to have relatively broad distributions which encompass northern Australia, extending into Indonesia and Polynesia (Solem 1991, 1997), with only a few that are confined to the Kimberley – Northern Territory region. The camaenids however are considered most likely to support SREs, as some taxa exhibit highly restricted distributions (Solem 1981, 1984, 1991, 1997, Köhler 2010).

Of the 84 land snail specimens returned from the database searches, all belonged to the family Camaenidae and comprised eight species, of which four are considered to have the potential to occur in the study area (Figure 5.5). None of the species are listed as Threatened, however some may be regarded as potential SREs. The four camaenid species are as follows:

- *Quistrachia leptogramma*: this species is known to occur in woodland, pindan and vine thicket habitat, from Broome in the south to Cape Leveque and One Arm Point in the north (Solem 1997). On the basis of current knowledge, this species is not considered to represent a SRE (R. Teale pers. comm.).
- *Rhagada bulgana* and *Rhagada cygna*: these two species are both distributed in the northern half of the Dampier Peninsula (Burghardt and Köhler 2014), with *R. cygna* replacing *R. bulgana* in the northern part of the peninsula and on several islands to the east (Sunday, Gibbings and Hidden Islands). Uncertainty exists over the species' boundaries and these species may be synonymised in the future (Burghardt and Köhler 2014). The SRE status of these species is uncertain.
- *Rhagada reinga*: limited to the vicinity of Broome (Burghardt and Köhler 2014), this species has previously been collected from vine thicket habitat (Biota 2009). This species is considered likely to represent a SRE species, however it is unlikely to occur in the study area based on its current known distribution.

5.2.3.2 Scorpions

Twelve records of scorpions were returned from the ALA database search comprising five belonging to the genus *Lychas* within the family Buthidae, and seven of the species *Urodacus hoplurus* within the family Urodacidae (Figure 5.5).

The *Lychas* specimens were not identified to species level and as a result could not have their SRE status assessed.

Urodacus hoplurus is distributed throughout Western Australia, South Australia and the Northern Territory and is not considered to be an SRE (Koch 1977).

5.2.3.3 Mygalomorph Spiders

Eight records of mygalomorph spiders were returned from the database search, comprising seven belonging to the genus *Aname* within the family Anamidae (previously Nemesiidae), and one from the genus *Conothele* within the family Halonoproctidae (previously Ctenizidae) (Figure 5.5). None of the eight specimens were identified to species level and so SRE statuses could not be assigned.

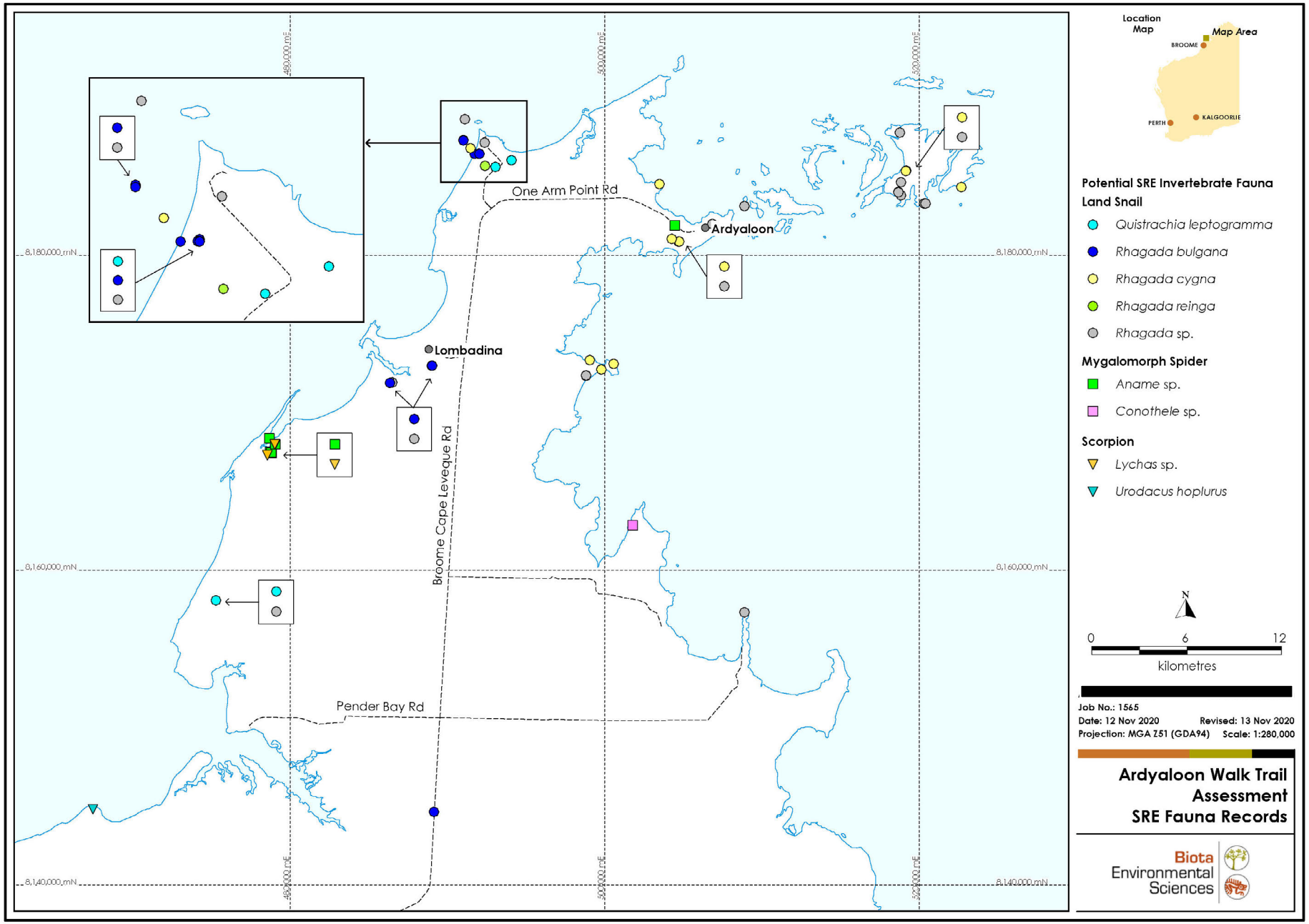

Figure 5.5: Historical locations of potential SRE invertebrate fauna recorded from the locality of the study area.

6.0 Vegetation Results

6.1 Description of the Vegetation

The study area is situated at the edge of Ardyaloon and contains some cleared roads and other areas of ground disturbance. Cleared or heavily disturbed areas comprised approximately 0.01 ha (10%) of the 'guided' trail and 0.005 ha (7%) of the 'self-guided' trail.

The 'self-guided' trail runs parallel to a cliff edge on an elevated sandstone plateau. The 'guided' trail runs parallel to a low elevation shoreline fringed by mangroves, before veering inland across a stony plateau. The remnant vegetation of the trails study area consists of three main vegetation types, described below (Figure 6.1).

P1: Mixed Species low open heathland over mixed herbland
This was the dominant vegetation of the 'self-guided' trail and occurred on areas of exposed Melligo Sandstone (see Plate 6.1 and Plate 6.2). Approximately 0.05 ha of this vegetation was mapped in the Ardyaloon study area, all from the 'self-guided' trail. Common low shrubs that formed the open low open heathland included *Scaevola macrostachya* and *Acacia translucens*. The rich mixed species herbland included species such as *Gomphrena brachystylis*, *Crotalaria medicaginea*, *Spermacoce occidentalis*, and the mat-forming plants *Trianthema pilosum* and *Boerhavia gardneri.* Occasional patches of the tussock grasses *Chrysopogon pallidus* (Irrooloo) and *Sorghum ecarinatum* (Oonbi) were also present. The vegetation was rated as being in Very Good condition and the fire age was less than one year.

P2: AtTfCHpSe *Acacia tumida* tall open shrubland over *Terminalia ferdinandiana* scattered low trees over *Chrysopogon pallidus, Sorghum ecarinatum* tussock grassland
This vegetation type (see Plate 6.3, Plate 6.4) occurred on yellow to grey sand, becoming skeletal sand with occasional stones. This vegetation type was predominantly found on the 'guided' trail (0.09 ha) but small sections were also present on the 'self-guided' trail (0.004 ha). Overall, 0.1 ha (58%) of the study area was mapped as this vegetation type. *Terminalia ferdinandiana* (Madoorr) was present at 5 m high and *Acacia tumida* (Wanggay) occurred to 8 m high, with the dominant tussock grasses being *Chrysopogon pallidus* (Irrooloo) and *Sorghum ecarinatum* (Oonbi). Other species associated with this vegetation type included *Gomphrena brachystylis, Portulaca napiformis, Gomphrena flaccida, Eragrostis eriopoda* and *Bulbostylis barbata*. The vegetation was rated as being in Very Good condition and the fire age was less than one year.

TEC: Monsoon Vine Thicket patches
Two small patches of Monsoon Vine Thicket (MVT) vegetation (see Plate 6.5, Plate 6.6), equivalent to the "*Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula*" TEC, were intersected by the 'guided' trail. These patches were 0.162 ha (southern-most patch on Figure 6.1) and 0.108 ha (northern-most patch on Figure 6.1) in size with a total of 0.005 ha of the TEC overlapping the 'guided' trail. The vegetation within this vegetation type was closed and dense with a shady, humid-environment and a thick humus layer on top of the soil. Dominant species of MVT1 included *Terminalia petiolaris* (Marool), *Mimusops elengi* (Joongoon), *Flueggea virosa* (Goorralgar), *Adenia heterophylla* (Garrgarr) and *Abrus precatorius* (Ngaming-Ngaming). Dominant species of MVT2 included *Grewia breviflora* (Goolmi), *Ehretia saligna* (Jiimany), *Flueggea virosa* (Goorralgar) and *Diospyros rugosula* (Goolarl). The vegetation was rated as being in Very Good condition and had not been affected by recent fire.

Plate 6.1: **Vegetation type P1; looking north on the 'self-guided' trail.**

Plate 6.2: **Trail surface with exposed Melligo Sandstone.**

Plate 6.3: **Vegetation type P2 on the 'guided' trail.**

Plate 6.4: **Vegetation type P2 on the 'guided' trail, with *Terminalia ferdinandiana*.**

Plate 6.5: **The edge of Monsoon Vine Thicket TEC vegetation on the 'guided' trail.**

Plate 6.6: **Inside Monsoon Vine Thicket TEC vegetation on the 'guided' trail.**

6.2 Vegetation Condition

The vegetation condition assessment was based on the ranking scale developed by Trudgen (1988) (see Appendix 2). The rankings include degree of invasion by introduced flora (weeds), impact from humans, feral animals and livestock activities, and the structural integrity of the vegetation.

All remnant vegetation in the Ardyaloon study area was mapped as Very Good condition (Figure 7.1). No grazing impacts from cattle were noted. There was some rubbish scattered throughout the area including rusty items within the P3: Monsoon Vine Thicket vegetation. Three weed species (discussed in Section 7.3) were recorded during the survey, but no significant infestations were noted.

6.3 Vegetation of Significance

6.3.1 TECs and PECs

Two patches of vegetation equivalent to the "*Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula*" TEC were recorded along the 'guided' trail (see Figure 6.1). This TEC is listed as Vulnerable at State level under the BC Act and Endangered at Commonwealth level under the EPBC Act. A total of 0.005 ha of Monsoon Vine Thicket vegetation overlaps the 'guided' trail.

Figure 6.1: The vegetation of the Ardyaloon 'guided' and 'self-guided' walk trails.

7.0 Flora Results

7.1 Flora Species Recorded in the Study Area

A total of 61 native vascular flora species from 52 genera and 30 families were recorded from the Ardyaloon study area during the current survey (see Appendix 9).

The dominant native plant families and genera recorded from the study area are presented in Table 7.1. These families and genera are typically represented in species lists from this region.

Table 7.1: Dominant native families and genera recorded from the study area.

Family	No. of Native Species	Genus	No. of Native Species
Fabaceae (peas, cassias and wattles)	10	*Acacia* (wattles)	2
Poaceae (grasses)	7	*Arivela*	2
Malvaceae (hibiscus, sida etc.)	7	*Crotalaria*	2
		Diospyros	2
		Ficus (figs)	2
		Gomphrena	2
		Tephrosia	2
		Terminalia	2
		Triodia (spinifex)	2

In addition to the above, three introduced flora species (weeds) from three genera and three families were recorded in the study area during the current survey (Section 7.3).

7.2 Flora of Significance

No Threatened or Priority species were recorded in the study area during the survey.

No significant flora species, including annual species, were ranked 'likely to occur' or 'may occur' in the flora likelihood assessment following the field survey (see Appendix 5).

7.3 Introduced Flora

A total of three introduced species were recorded from the study area (Table 7.2, Figure 7.1 and Appendix 11).

None of the introduced species are Weeds of National Significance (see DotEE 2018) or declared pests under the WA *Biosecurity and Agriculture Management Act 2007* (DAFWA 2018).

The then Department of Parks and Wildlife derived a Weed Species Ranking for species in each major region of WA through the Weed Prioritisation Process (WPP) (Department of Parks and Wildlife 2013). This took into account the potential distribution, current distribution, ecological impact, invasiveness and feasibility of control to derive a broad qualitative weed species ranking corresponding to specific management actions (Department of Parks and Wildlife 2014). According to this methodology, one of the species recorded (**Passiflora foetida* var. *hispida*) has a 'High' ranking for ecological impact and a 'Rapid' ranking for invasiveness (Table 7.2).

Table 7.2: Weed species recorded from the study area, including WPP rankings.

Species	Description	WPP – Weed Species Ranking		Distribution in the Study Area	
		Ecol. Imp.	Inv.	'Guided' Trail	'Self-guided' Trail
**Aerva javanica* (Kapok Bush)	Erect perennial herb, often occurs on sandy soils. Originally introduced to assist with the revegetation of disturbed bushland; now widespread from the Kimberley to Carnarvon (Hussey et al. 2007).	L	M	Well established at two locations	Scattered at one location
**Passiflora foetida* var. *hispida*	A woody vine with an unpleasant smell growing up to 9 m high, flowering for most of the year. Typically occurs along river and creek banks, in vine thickets and in coastal areas, from the Kimberley to Shark Bay (WA Herbarium 2021).	H	R	Scattered at two locations	Scattered at four locations
**Stylosanthes hamata* (Verano Stylo)	Erect or decumbent herb or shrub growing to 0.7 m tall with yellow flowers from April to December. Recorded throughout the Kimberley from loam and clay soils in seepage areas, creek banks, pool edges, lawns and in areas of disturbed vegetation; also recorded south as far as Exmouth and Newman, mostly associated with road verges (WA Herbarium 2021).	M	M	Scattered at two locations	Scattered at one location

WPP = Weed Prioritisation Process (Department of Parks and Wildlife 2013); note that only species with rankings in both categories are listed in Department of Parks and Wildlife (2014).
Ecological Impact Ranking: H = High, L = Low, M = Medium, U = Unknown. **Invasiveness Ranking:** M = Moderate, R = Rapid, S = Slow, U = Unknown.

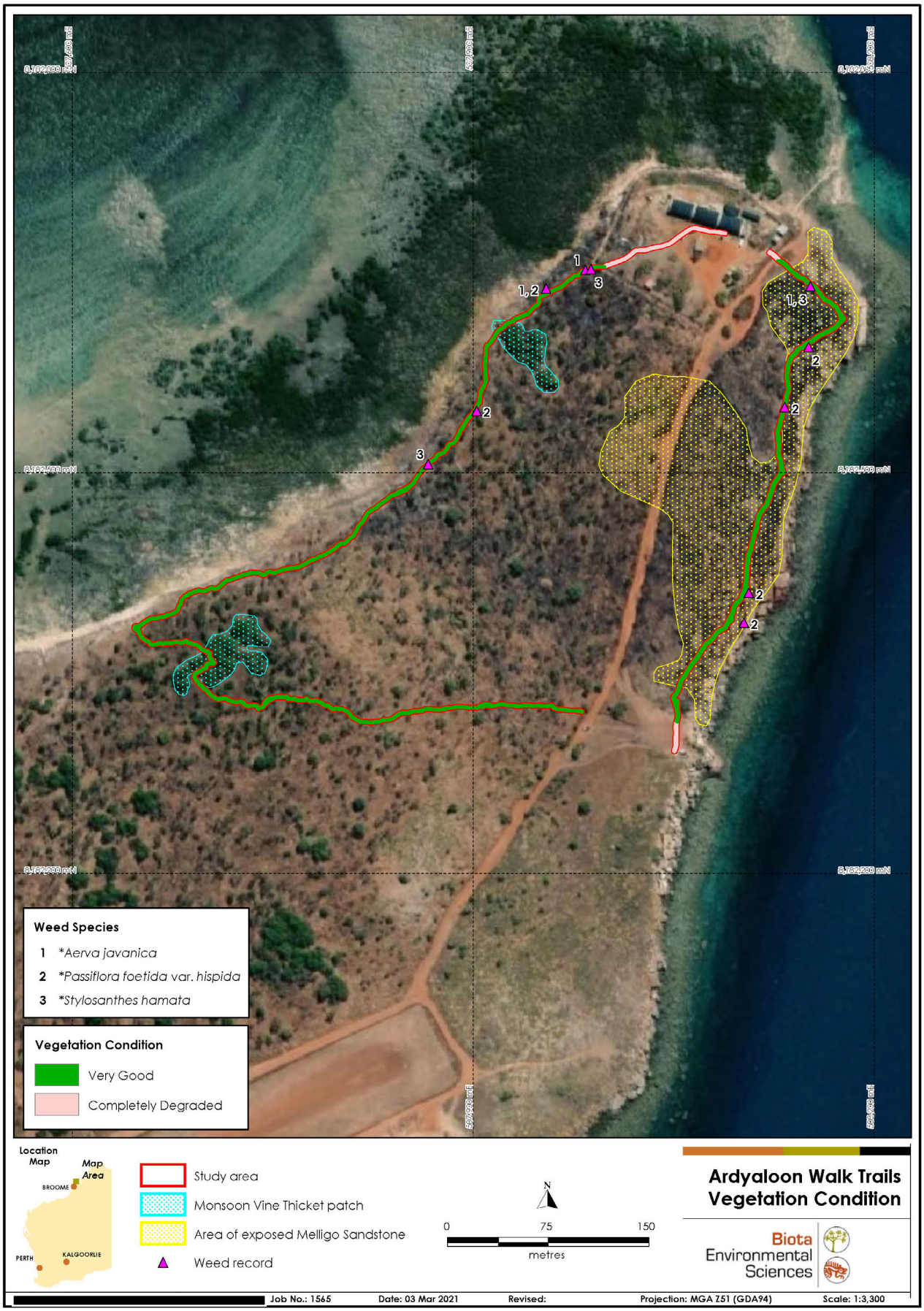

Figure 7.1: Vegetation condition ranking and weed locations within the Ardyaloon study area.

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8.0 Fauna Results

8.1 Fauna Habitats

Three fauna habitats occurred in the study area, corresponding to the three vegetation types described in Section 6.1:

- Low open heathland on Melligo Sandstone;
- *Acacia* shrubland over tussock grassland; and
- Dense monsoon vine thickets.

These habitat types do not represent core habitat for any significant vertebrate fauna species assessed as likely to occur and may occur within the study area. The dense monsoon vine thickets does, however, represent a refugial habitat that is likely to support SRE invertebrates. However, the proposed walk trails development would be unlikely to have a significant impact on these habitat types at either a local or regional scale.

8.2 Field Survey Records

No opportunistic observations of fauna were made during the field survey and no secondary signs of fauna of significance were recorded.

8.3 Likelihood of Significant Fauna

Following the field survey, a final likelihood assessment ranking was made for the 26 significant vertebrate fauna species with the potential to occur in the study area, as identified in the desktop study (Section 5.2.2).

Based on the final likelihood assessment, 16 of the 26 significant species considered were ranked as either 'likely to occur' or 'may occur'. The remaining ten significant species were ranked as 'unlikely to occur' or 'would not occur' (see Appendix 6).

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9.0 Conclusions

9.1 Vegetation of Significance

Three vegetation types were described for the study area. This is within the range expected for a study area of this size in this locality, taking into account the habitats present and the scale at which the vegetation mapping was completed. The vegetation in the study area was in Very Good condition.

One of the vegetation types mapped during the survey was equivalent to the "*Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula*" TEC. This TEC is listed as Vulnerable at State level under the BC Act and Endangered at Commonwealth level under the EPBC Act. A total of 0.005 ha of the TEC intersects the current alignment of the guided trail. Final design of the guided trail should avoid the clearing of any Monsson Vine Thicket TEC vegetation.

While the remaining two vegetation types both have inherent value as relatively intact and good quality examples of native vegetation, neither are representative of any TEC or PEC, nor are they considered to have any elevated conservation value beyond this.

9.2 Flora of Significance

A total of 61 native vascular flora species were recorded during the survey. This is within the range expected for a study area of this size in this locality. No Threatened or Priority flora species were recorded during the current survey, and none are considered as likely to occur.

9.3 Introduced Flora

A total of three introduced (weed) species were recorded from the study area. None are considered to be WoNS (DotEE 2018) or listed as declared pests under the WA *Biosecurity and Agriculture Management Act 2007* (DAFWA 2018).

9.4 Fauna of Significance

No evidence of fauna of significance were recorded in the study area during the survey. On the basis of the desktop study, 26 species of fauna of significance have potential to occur in the study area. Following the field survey, 16 of the 26 significant species considered were ranked as either 'likely to occur' or 'may occur'. The remaining ten significant species were ranked as 'unlikely to occur' or 'would not occur'.

The small extent of proposed clearing in the study area and the wider distributions of the species suggest it would be unlikely that major impacts on any significant species would arise as a result of the walk trails development, should they be present.

9.5 Assessment Against the Ten Clearing Principles

A general assessment of the proposal to clear land within the survey area against each of the ten clearing principles, as outlined in Schedule 5 of the *Environmental Protection Act 1986* (EP Act), is provided in Table 9.1.

Table 9.1: Assessment of remnant native vegetation within the survey area against the ten clearing principles.

Principle	Assessment	Conclusion
A	**Native vegetation should not be cleared if it comprises a high level of biological diversity.**	
	Flora The survey area is not located within a known biodiversity hotspot of WA (Department of the Agriculture, Water and the Environment 2020). Vascular flora species diversity recorded within the study area was considered to be moderate; a total of 61 native flora species from 52 genera and 30 families were recorded within the study area. This number is not considered to represent an unusually high level of species diversity given the location and the vegetation types present. No significant flora species were recorded in the study area, and following the field survey none would be expected to occur. **Fauna** The scope of the assessment did not include a comprehensive census of vertebrate fauna in the study area however on the basis of the desktop study, 330 vertebrate fauna species have the potential to occur in the study area, of which 26 are significant species. Sixteen of the 26 significant species were ranked as either 'likely to occur' or 'may occur' based on the habitats present in the study area. The clearing footprint for the proposed corridor is a maximum of 0.17 ha; neither the vascular flora species diversity nor the fauna species diversity would be affected by clearing at this small scale.	Unlikely to be at variance.
B	**Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.**	
	Three fauna habitats were recorded in the study area. The proposal's clearing footprint is minor (0.17 ha) and the remnant vegetation is unlikely to be considered significant habitat for any significant fauna species.	Unlikely to be at variance.
C	**Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.**	
	The results of the desktop study show that no records of any Threatened flora species occur within 40 km of the study area. No Threatened flora, nor any Priority flora, were recorded in the study area during the field survey or are considered to have potential to occur given the habitats present.	Unlikely to be at variance.
D	**Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.**	
	One TEC, the "*Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula*", occurs in the study area. This TEC is listed as Vulnerable at State level under the BC Act and Endangered at Commonwealth level under the EPBC Act. Two small but dense patches of vegetation consistent with this TEC were mapped in the study area, both intersecting the guided walk trail. The current alignment of the guided walk trail would result in clearing of approximately 0.005 ha of this TEC, which would be at variance with this clearing principle. However, inspection of the aerial photography shows that there are options for the track to detour around both patches of the TEC. Therefore, as long as the final design of the guided walk trail is adjusted to avoid clearing of the TEC, this proposal is unlikely to be at variance with this clearing principle.	Likely to be at variance.

Principle	Assessment	Conclusion
E	**Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**	
	The study area comprises one broad-scale regional vegetation unit: Dampierland 771, described as "*Acacia thicket with eucalypt woodland over spinifex; Acacia tumida, Eucalyptus tectifica, Corymbia grandifolia, Triodia pungens, T. bitextura"* (Beard 1979). The current extent of this vegetation unit in the Pindanland IBRA subregion is 33,981 ha (97% of the pre-European extent) (Government of Western Australia 2019). The proposed clearing area in not within a significantly cleared landscape and does not represent a significant ecological linkage. Clearing of 0.17 ha of remnant vegetation would represent a very minor increment on historical clearing.	Unlikely to be at variance.
F	**Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.**	
	The proposed walk trails are situated on the Ardyaloon coastline, with low Mangal community adjacent to the guided walk trail. The nearest Ramsar wetland is Roebuck Bay located approximately 188 km to the southwest (Department of Agriculture, Water and the Environment 2019). The nearest wetland listed in the Directory of Important Wetlands in Australia is Willie Creek, approximately 170 km southwest of the study area (Environment Australia 2001). Given the small scale of proposed clearing it is considered that there would be no impact on these systems. The Monsoon Vine Thickets mapped in the study area are likely to have some dependence on groundwater (DBCA 2020b), therefore could be considered "wetland" or "riparian" vegetation within the study area. The proposal is therefore likely to be at variance with this principal unless the final track design for the guided trail can avoid any clearing of the Monsoon Vine Thickets.	Likely to be at variance.
G	**Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.**	
	The remnant vegetation of the study area is predominantly intact and encompasses a mostly flat landscape. No impacts from cattle were noted during the survey. The soil unit mapped for the study area, Jw1, is described as predominantly saline clays (CSIRO 2014); and field observations showed that the soil is skeletal in areas, with some areas of outcropping Melligo Sandstone. The study area intersects the Reeves Land System, which is noted to have minor susceptibility to wind erosion following fire but stabilises rapidly after rain. Three weed species were recorded in the study area. The area may be susceptible to weed invasion following disturbance, although this would not be evident until after significant rainfall. Strict weed hygiene measures should be implemented to ensure weeds are not further spread into the study area and surrounds, especially to the Monsoon Vine Thickets TEC. It is considered unlikely that the proposal would contribute significantly to land degradation in the study area.	Unlikely to be at variance.
H	**Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.**	
	No conservation reserves occur within the study area. The closest conservation estate to the study area is the Swan Island Nature Reserve, approximately 10 km south-southeast of the study area (DBCA 2017).	Unlikely to be at variance.

Principle	Assessment	Conclusion
I	**Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.**	
	The proposed alignment of the walk trails does not intersect any surface water bodies. Given that clearing associated with the walk trails is minimal (maximum of 0.17 ha over both trails), and the surrounding vegetation is intact, there is no reason to expect that clearing would affect the quality of surface or underground water.	Unlikely to be at variance.
J	**Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.**	
	Clearing associated with the walk trails is minimal (maximum of 0.17 ha over both trails), and the surrounding vegetation is intact. No permanent surface water sources or wetlands occur in the study area. Therefore, it is not anticipated that clearing in the study area would cause or exacerbate flooding in the area.	Unlikely to be at variance.

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Appendix 1

Framework for Conservation Significance Ranking of Species and Communities in WA

A. Definitions, Categories and Criteria for Threatened and Priority Ecological Communities

Species and Communities Branch, Department of Environment and Conservation, December 2010.

1. General Definitions

Ecological Community
A naturally occurring biological assemblage that occurs in a particular type of habitat.

Note: The scale at which biological 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) is one which is found to fit into one of the following categories; "presumed totally destroyed", "critically endangered", "endangered" or "vulnerable".

Possible threatened ecological communities that do not meet survey criteria are added to the Department of Parks and Wildlife's Priority Ecological Community Lists under Priorities 1, 2 and 3. Ecological Communities that are adequately known, are rare but not threatened, or meet criteria for Near Threatened, or that have been recently removed from the threatened list, are placed in Priority 4. These ecological communities require regular monitoring. Conservation Dependent ecological communities are placed in Priority 5.

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

Habitat is defined as the areas in which an organism and/or assemblage of organisms lives. It includes the abiotic factors (e.g. substrate and topography), and the biotic factors.

Occurrence: a discrete example of an ecological community, separated from other examples of the same community by more than 20 metres of a different ecological community, an artificial surface or a totally destroyed community.

By ensuring that every discrete occurrence is recognised and recorded future changes in status can be readily monitored.

Adequately Surveyed is defined as follows:
"An ecological community that has been searched for thoroughly in most likely habitats, by relevant experts."

Community structure is defined as follows:
"The spatial organisation, construction and arrangement of the biological elements comprising a biological assemblage" (e.g. *Eucalyptus salmonophloia* woodland over scattered small shrubs over dense herbs; structure in a faunal assemblage could refer to trophic structure, e.g. dominance by feeders on detritus as distinct from feeders on live plants).

Definitions of **Modification** and **Destruction** of an ecological community:

Modification: "changes to some or all of ecological processes (including abiotic processes such as hydrology), species composition and community structure as a direct or indirect result of human activities. The level of damage involved could be ameliorated naturally or by human intervention."

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

Note: Modification and destruction are difficult concepts to quantify, and their application will be determined by scientific judgement. Examples of modification and total destruction are cited below:

Modification of ecological processes: The hydrology of Toolibin Lake has been altered by clearing of the catchment such that death of some of the original flora has occurred due to dependence on fresh water. The system may be bought back to a semblance of the original state by redirecting saline runoff and pumping waters of the rising underground watertable away to restore the hydrological balance. Total destruction of downstream lakes has occurred due to hydrology being altered to the point that few of the original flora or fauna species are able to tolerate the level of salinity and/or water logging.

Modification of structure: The understorey of a plant community may be altered by weed invasion due to nutrient enrichment by addition of fertiliser. Should the additional nutrients be removed from the system the balance may be restored, and the original plant species better able to compete. Total destruction may occur if additional nutrients continue to be added to the system causing the understorey to be completely replaced by weed species, and death of overstorey species due to inability to tolerate high nutrient levels.

Modification of species composition: Pollution may cause alteration of the invertebrate species present in a freshwater lake. Removal of pollutants may allow the return of the original inhabitant species. Addition of residual highly toxic substances may cause permanent changes to water quality, and total destruction of the community.

Threatening processes are defined as follows:
"Any process or activity that threatens to destroy or significantly modify the ecological community and/or affect the continuing evolutionary processes within any ecological community."

Examples of some of the continuing threatening processes in Western Australia include: general pollution; competition, predation and change induced in ecological communities as a result of introduced animals; competition and displacement of native plants by introduced species; hydrological changes; inappropriate fire regimes; diseases resulting from introduced micro-organisms; 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.

2. Definitions and Criteria for Presumed Totally Destroyed, Critically Endangered, Endangered and Vulnerable Ecological Communities

ECOLOGICAL COMMUNITIES

Presumed Totally Destroyed (PD)
An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future.

An ecological community will be listed as presumed totally destroyed if there are no recent records of the community being extant and either of the following applies (A or B):

A) Records within the last 50 years have not been confirmed despite thorough searches of known or likely habitats or

B) All occurrences recorded within the last 50 years have since been destroyed

Critically Endangered (CR)
An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.

An ecological community will be listed as Critically Endangered when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future. This will be determined on the basis of the best available information, by it meeting any one or more of the following criteria (A, B or C):

A) The estimated geographic range, and/or total area occupied, and/or number of discrete occurrences since European settlement have been reduced by at least 90% and either or both of the following apply (i or ii):

   i) geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is imminent (within approximately 10 years);

   ii) modification throughout its range is continuing such that in the immediate future (within approximately 10 years) the community is unlikely to be capable of being substantially rehabilitated.

B) Current distribution is limited, and one or more of the following apply (i, ii or iii):

   i) geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the immediate future (within approximately 10 years);

   ii) there are very few occurrences, each of which is small and/or isolated and extremely vulnerable to known threatening processes;

iii) there may be many occurrences but total area is very small and each occurrence is small and/or isolated and extremely vulnerable to known threatening processes.

C) The ecological community exists only as highly modified occurrences that may be capable of being rehabilitated if such work begins in the immediate future (within approximately 10 years).

Endangered (EN)
An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.

An ecological community will be listed as Endangered when it has been adequately surveyed and is not Critically Endangered but is facing a very high risk of total destruction in the near future. This will be determined on the basis of the best available information by it meeting any one or more of the following criteria (A, B, or C):

A) The geographic range, and/or total area occupied, and/or number of discrete occurrences have been reduced by at least 70% since European settlement and either or both of the following apply (i or ii):

i) the estimated geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is likely in the short term future (within approximately 20 years);

ii) modification throughout its range is continuing such that in the short term future (within approximately 20 years) the community is unlikely to be capable of being substantially restored or rehabilitated.

B) Current distribution is limited, and one or more of the following apply (i, ii or iii):

i) geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the short term future (within approximately 20 years);

ii) there are few occurrences, each of which is small and/or isolated and all or most occurrences are very vulnerable to known threatening processes;

iii) there may be many occurrences but total area is small and all or most occurrences are small and/or isolated and very vulnerable to known threatening processes.

C) The ecological community exists only as very modified occurrences that may be capable of being substantially restored or rehabilitated if such work begins in the short-term future (within approximately 20 years).

Vulnerable (VU)
An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.

An ecological community will be listed as Vulnerable when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing a high risk of total destruction or significant modification in the medium to long-term future. This will be determined on the basis of the best available information by it meeting any one or more of the following criteria (A, B or C):

A) The ecological community exists largely as modified occurrences that are likely to be capable of being substantially restored or rehabilitated.

B) The ecological community may already be modified and would be vulnerable to threatening processes, is restricted in area and/or range and/or is only found at a few locations.

C) The ecological community may be still widespread but is believed likely to move into a category of higher threat in the medium to long term future because of existing or impending threatening processes.

3. Definitions and Criteria for Priority Ecological Communities

PRIORITY ECOLOGICAL COMMUNITY LIST
Possible threatened ecological communities that do not meet survey criteria or that are not adequately defined are added to the 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

1. Western Australian *Biodiversity Conservation Act 2016,* 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 conservation 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 conservation 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.

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

CONSERVATION CODES

For Western Australian Flora and Fauna

Threatened, Extinct and Specially Protected fauna or flora[1] are species[2] which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such.

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

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

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 that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR **Critically endangered species**

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

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN **Endangered species**

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

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

VU **Vulnerable species**

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

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

Extinct species

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

EX Extinct species

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

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW Extinct in the wild species

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

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species

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).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

CD Species of special conservation interest (conservation dependent fauna)

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

OS Other specially protected species

Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

P Priority species

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

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

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

1 Priority 1: Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

2 Priority 2: Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

3 Priority 3: Poorly-known species

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

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 Conservation Dependent.
(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

[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).

Department of Environment and Conservation
January 2013

DEFINITIONS, CATEGORIES AND CRITERIA FOR THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES

1. GENERAL DEFINITIONS

Ecological Community
A naturally occurring biological assemblage that occurs in a particular type of habitat.

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) is one which is found to fit into one of the following categories; "presumed totally destroyed", "critically endangered", "endangered" or "vulnerable".

Possible threatened ecological communities that do not meet survey criteria are added to DEC's Priority Ecological Community Lists under Priorities 1, 2 and 3. Ecological Communities that are adequately known, are rare but not threatened, or meet criteria for Near Threatened, or that have been recently removed from the threatened list, are placed in Priority 4. These ecological communities require regular monitoring. Conservation Dependent ecological communities are placed in Priority 5.

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

Habitat is defined as the areas in which an organism and/or assemblage of organisms lives. It includes the abiotic factors (eg. substrate and topography), and the biotic factors.

Occurrence: a discrete example of an ecological community, separated from other examples of the same community by more than 20 metres of a different ecological community, an artificial surface or a totally destroyed community.

By ensuring that every discrete occurrence is recognised and recorded future changes in status can be readily monitored.

Adequately Surveyed is defined as follows:
"An ecological community that has been searched for thoroughly in most likely habitats, by relevant experts."

Community structure is defined as follows:
"The spatial organisation, construction and arrangement of the biological elements comprising a biological assemblage" (eg. *Eucalyptus salmonophloia* woodland over scattered small shrubs over dense herbs; structure in a faunal assemblage could refer to trophic structure, eg. dominance by feeders on detritus as distinct from feeders on live plants).

Definitions of Modification and Destruction of an ecological community:

Modification: "changes to some or all of ecological processes (including abiotic processes such as hydrology), species composition and community structure as a

direct or indirect result of human activities. The level of damage involved could be ameliorated naturally or by human intervention."

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

Note: Modification and destruction are difficult concepts to quantify, and their application will be determined by scientific judgement. Examples of modification and total destruction are cited below:

Modification of ecological processes: The hydrology of Toolibin Lake has been altered by clearing of the catchment such that death of some of the original flora has occurred due to dependence on fresh water. The system may be bought back to a semblance of the original state by redirecting saline runoff and pumping waters of the rising watertable away to restore the hydrological balance. Total destruction of downstream lakes has occurred due to hydrology being altered to the point that few of the original flora or fauna species are able to tolerate the level of salinity and/or water logging.

Modification of structure: The understorey of a plant community may be altered by weed invasion due to nutrient enrichment by addition of fertiliser. Should the additional nutrients be removed from the system the balance may be restored, and the original plant species better able to compete. Total destruction may occur if additional nutrients continue to be added to the system causing the understorey to be completely replaced by weed species, and death of overstorey species due to inability to tolerate high nutrient levels.

Modification of species composition: Pollution may cause alteration of the invertebrate species present in a freshwater lake. Removal of pollutants may allow the return of the original inhabitant species. Addition of residual highly toxic substances may cause permanent changes to water quality, and total destruction of the community.

Threatening processes are defined as follows:
"Any process or activity that threatens to destroy or significantly modify the ecological community and/or affect the continuing evolutionary processes within any ecological community."

Examples of some of the continuing threatening processes in Western Australia include: general pollution; competition, predation and change induced in ecological communities as a result of introduced animals; competition and displacement of native plants by introduced species; hydrological changes; inappropriate fire regimes; diseases resulting from introduced microorganisms; 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.

2. DEFINITIONS AND CRITERIA FOR PRESUMED TOTALLY DESTROYED, CRITICALLY ENDANGERED, ENDANGERED AND VULNERABLE ECOLOGICAL COMMUNITIES

Presumed Totally Destroyed (PD)
An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future.

An ecological community will be listed as presumed totally destroyed if there are no recent records of the community being extant **and either** of the following applies (A or B):

A) Records within the last 50 years have not been confirmed despite thorough searches of known or likely habitats **or**

B) All occurrences recorded within the last 50 years have since been destroyed

Critically Endangered (CR)
An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.

An ecological community will be listed as **Critically Endangered** when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future. This will be determined on the basis of the best available information, by it meeting **any one or more of** the following criteria (A, B or C):

A) The estimated geographic range, and/or total area occupied, and/or number of discrete occurrences since European settlement have been reduced by at least 90% **and either or both** of the following apply (i or ii):

i) geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is imminent (within approximately 10 years);

ii) modification throughout its range is continuing such that in the immediate future (within approximately 10 years) the community is unlikely to be capable of being substantially rehabilitated.

B) Current distribution is limited, **and one or more** of the following apply (i, ii or iii):

i) geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the immediate future (within approximately 10 years);

ii) there are very few occurrences, each of which is small and/or isolated and extremely vulnerable to known threatening processes;

iii) there may be many occurrences but total area is very small and each occurrence is small and/or isolated and extremely vulnerable to known threatening processes.

C) The ecological community exists only as highly modified occurrences that may be capable of being rehabilitated if such work begins in the immediate future (within approximately 10 years).

Endangered (EN)
An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.

An ecological community will be listed as **Endangered** when it has been adequately surveyed and is not Critically Endangered but is facing a very high risk of total destruction in the near future. This will be determined on the basis of the best available information by it meeting **any one or more of** the following criteria (A, B, or C):

A) The geographic range, and/or total area occupied, and/or number of discrete occurrences have been reduced by at least 70% since European settlement **and either or both** of the following apply (i or ii):

i) the estimated geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is likely in the short term future (within approximately 20 years);

ii) modification throughout its range is continuing such that in the short term future (within approximately 20 years) the community is unlikely to be capable of being substantially restored or rehabilitated.

B) Current distribution is limited, **and one or more** of the following apply (i, ii or iii):

i) geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the short term future (within approximately 20 years);

ii) there are few occurrences, each of which is small and/or isolated and all or most occurrences are very vulnerable to known threatening processes;

iii) there may be many occurrences but total area is small and all or most occurrences are small and/or isolated and very vulnerable to known threatening processes.

C) The ecological community exists only as very modified occurrences that may be capable of being substantially restored or rehabilitated if such work begins in the short-term future (within approximately 20 years).

Vulnerable (VU)
An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.

An ecological community will be listed as **Vulnerable** when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing a high risk of total destruction or significant modification in the medium (within approximately 50 years) to long-term future. This will be determined on the basis of the best available information by it meeting **any one or more of** the following criteria (A, B or C):

A) The ecological community exists largely as modified occurrences that are likely to be capable of being substantially restored or rehabilitated.

B) The ecological community may already be modified and would be vulnerable to threatening processes, is restricted in area and/or range and/or is only found at a few locations.

C) The ecological community may be still widespread but is believed likely to move into a category of higher threat in the medium to long-term future because of existing or impending threatening processes.

3. DEFINITIONS AND CRITERIA FOR PRIORITY ECOLOGICAL COMMUNITIES

Possible threatened ecological communities that do not meet survey criteria or that are not adequately defined are added to the Priority Ecological Community List under priorities 1, 2 and 3. These three categories are ranked in order of priority for survey and/or definition of the community. Ecological communities that are adequately known, and are rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list, are placed in Priority 4. These ecological communities require regular monitoring. Conservation Dependent ecological communities are placed in Priority 5.

Priority One: Poorly-known ecological communities

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

Priority Two: Poorly-known ecological communities

Communities that are known from few occurrences with a restricted distribution (generally ≤10 occurrences or a total area of ≤200ha). At least some occurrences are not believed to be under immediate threat (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.

Priority Three: Poorly known ecological communities

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

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

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

(i) Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These communities are usually represented on conservation lands.

(ii) Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for a higher threat category.

(iii) Ecological communities that have been removed from the list of threatened communities during the past five years.

Priority Five: Conservation Dependent ecological communities

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

2. 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:

1. **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.
2. **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.
3. **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.
4. **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 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:

1. Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention);
2. China-Australia Migratory Bird Agreement (CAMBA);
3. Japan-Australia Migratory Bird Agreement (JAMBA); and,
4. Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA).

Marine 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.

Appendix 2

NatureMap Database Search Results

NatureMap
Mapping Western Australia's biodiversity

NatureMap Species Report

Created By [redacted] on 29/10/2020

Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 122° 58' 32" E,16° 28' 05" S
Buffer 2. km
Group By Kingdom

Kingdom	Species	Records
Animalia	397	2802
Chromista	26	100
Fungi	22	40
Plantae	628	1897
TOTAL	**1073**	**4839**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Animalia					
1.		*? ?*			
2.		*Abudefduf bengalensis*			
3.		*Abudefduf sp.*			
4.		*Acanthopagrus latus*			
5.		*Acanthurus grammoptilus*			
6.	25535	*Accipiter cirrocephalus (Collared Sparrowhawk)*			
7.	24281	*Accipiter cirrocephalus subsp. cirrocephalus (Collared Sparrowhawk)*			
8.	25536	*Accipiter fasciatus (Brown Goshawk)*			
9.		*Acentrogobius gracilis*			
10.	41323	*Actitis hypoleucos (Common Sandpiper)*		IA	
11.	25544	*Aegotheles cristatus (Australian Owlet-nightjar)*			
12.	42372	*Amalosia rhombifer (Zigzag velvet gecko)*			
13.		*Amblygobius bynoensis*			
14.	30831	*Amphibolurus gilberti (Ta-ta, Gilbert's Dragon)*			
15.		*Amphiprion rubrocinctus*			
16.	24316	*Anas superciliosa (Pacific Black Duck)*			
17.	47414	*Anhinga novaehollandiae (Australasian Darter)*			
18.	25634	*Anous stolidus (Common Noddy)*		IA	
19.	24505	*Anous stolidus subsp. pileatus (Common Noddy)*		IA	
20.	25317	*Antaresia childreni (Children's Python)*			
21.	25241	*Antaresia stimsoni subsp. stimsoni (Stimson's Python)*			
22.		*Apogon cookii*			
23.		*Apogon rueppellii*			
24.		*Apogon sp.*			
25.		*Apogon timorensis*			
26.	24719	*Aprosmictus erythropterus (Red-winged Parrot)*			
27.	25554	*Apus pacificus (Fork-tailed Swift, Pacific Swift)*		IA	
28.	24285	*Aquila audax (Wedge-tailed Eagle)*			
29.	25559	*Ardea intermedia (Intermediate Egret)*			
30.	41324	*Ardea modesta (great egret, white egret)*			
31.	24340	*Ardea novaehollandiae (White-faced Heron)*			
32.	25560	*Ardea sacra (Eastern Reef Egret, Eastern Reef Heron)*			
33.	24343	*Ardea sacra subsp. sacra (Eastern Reef Egret, Eastern Reef Heron)*			
34.	24344	*Ardea sumatrana (Great-billed Heron)*			
35.	24610	*Ardeotis australis (Australian Bustard)*			
36.	25736	*Arenaria interpres (Ruddy Turnstone)*		IA	
37.		*Arothron hispidus*			
38.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
39.	25567	*Artamus leucorynchus (White-breasted Woodswallow)*			
40.	24354	*Artamus leucorynchus subsp. leucopygialis (White-breasted Woodswallow)*			
41.	24355	*Artamus minor (Little Woodswallow)*			
42.	24356	*Artamus personatus (Masked Woodswallow)*			
43.		*Assiculoides desmonotus*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
44.		*Atelomycterus macleayi*			
45.		*Atherinid sp.*			
46.		*Austracantha minax*			
47.	24318	*Aythya australis (Hardhead)*			
48.		*Bathygobius fuscus*			
49.		*Batrachomoeus dahli*			
50.		*Blennodesmus scapularis*			
51.	24251	*Bos taurus (European Cattle)*	Y		
52.	24359	*Burhinus grallarius (Bush Stone-curlew)*			
53.	47897	*Butorides striata (Striated Heron, Mangrove Heron)*			
54.	25716	*Cacatua sanguinea (Little Corella)*			
55.	24728	*Cacatua sanguinea subsp. sanguinea (Little Corella)*			
56.	42307	*Cacomantis pallidus (Pallid Cuckoo)*			
57.	25599	*Cacomantis variolosus (Brush Cuckoo)*			
58.	24428	*Cacomantis variolosus subsp. variolosus (Brush Cuckoo)*			
59.	24779	*Calidris acuminata (Sharp-tailed Sandpiper)*		IA	
60.	24780	*Calidris alba (Sanderling)*		IA	
61.	25738	*Calidris canutus (Red Knot, knot)*		IA	
62.	24784	*Calidris ferruginea (Curlew Sandpiper)*		T	
63.	24788	*Calidris ruficollis (Red-necked Stint)*		IA	
64.	24790	*Calidris tenuirostris (Great Knot)*		T	
65.		*Callionymus sp.*			
66.	25717	*Calyptorhynchus banksii (Red-tailed Black-Cockatoo)*			
67.	24730	*Calyptorhynchus banksii subsp. macrorhynchus (Northern Red-tailed Black-Cockatoo)*			
68.	24253	*Capra hircus (Goat)*	Y		
69.	25015	*Carlia munda (Shaded-litter Rainbow Skink)*			
70.	25017	*Carlia triacantha (Desert Rainbow Skink)*			
71.		*Centrogenys vaigiensis*			
72.	25600	*Centropus phasianinus (Pheasant Coucal)*			
73.	30884	*Centropus phasianinus subsp. phasianinus (Pheasant Coucal)*			
74.	47905	*Ceyx azureus (Azure Kingfisher)*			
75.		*Chaetodontoplus mesoleucus*			
76.	25583	*Chalcophaps indica (Emerald Dove)*			
77.	24186	*Chalinolobus gouldii (Gould's Wattled Bat)*			
78.	24188	*Chalinolobus nigrogriseus (Hoary Wattled Bat)*			
79.	25575	*Charadrius leschenaultii (Greater Sand Plover)*		T	
80.	25576	*Charadrius mongolus (Lesser Sand Plover)*		T	
81.	24377	*Charadrius ruficapillus (Red-capped Plover)*			
82.		*Chelmon marginalis*			
83.	25336	*Chelonia mydas (Green Turtle)*		T	
84.	24862	*Chelosania brunnea (Chameleon Dragon)*			
85.	24863	*Chlamydosaurus kingii (Frill-necked Lizard)*			
86.		*Choerodon cyanodus*			
87.		*Choeroichthys brachysoma*			
88.		*Chroicocephalus novaehollandiae*			
89.	25602	*Chrysococcyx minutillus (Little Bronze Cuckoo)*			
90.	24433	*Chrysococcyx minutillus subsp. minutillus (Little Bronze Cuckoo)*			
91.	24289	*Circus assimilis (Spotted Harrier)*			
92.	24565	*Cissomela pectoralis (Banded Honeyeater)*			
93.		*Clupeid sp.*			
94.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
95.	24611	*Colluricincla harmonica subsp. brunnea (Grey Shrike-thrush)*			
96.		*Congrogadus subducens*			
97.	24566	*Conopophila rufogularis (Rufous-throated Honeyeater)*			
98.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
99.	25593	*Corvus orru (Torresian Crow)*			
100.	25701	*Coturnix ypsilophora (Brown Quail)*			
101.	24672	*Coturnix ypsilophora subsp. cervina (Brown Quail)*			
102.	24420	*Cracticus nigrogularis (Pied Butcherbird)*			
103.	25595	*Cracticus tibicen (Australian Magpie)*			
104.		*Craterocephalus pauciradiatus*			
105.	30891	*Cryptoblepharus tytthos*			
106.		*Cryptocentroides insignis*			
107.	25033	*Ctenotus colletti*			
108.	25048	*Ctenotus inornatus*			
109.	25371	*Cyclorana australis (Giant Frog)*			
110.		*Cymbacephalus bosschei*			
111.		*Cymbacephalus nematophthalmus*			
112.	25547	*Dacelo leachii (Blue-winged Kookaburra)*			
113.	25673	*Daphoenositta chrysoptera (Varied Sittella)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
114.	24605	*Daphoenositta chrysoptera subsp. leucoptera (Varied Sittella, White-winged Sitella)*			
115.	24996	*Delma borea*			
116.	25004	*Delma tincta*			
117.	42390	*Demansia angusticeps*			
118.	25294	*Demansia papuensis (Great Black Whipsnake)*			
119.	25325	*Dendrelaphis punctulata (Green Tree Snake)*			
120.	25607	*Dicaeum hirundinaceum (Mistletoebird)*			
121.	24441	*Dicaeum hirundinaceum subsp. hirundinaceum (Mistletoebird)*			
122.	24442	*Dicrurus bracteatus subsp. bracteatus (Spangled Drongo)*			
123.		*Didymothallus mizolepis*			
124.		*Dinematichthys trilobatus*			
125.	24896	*Diporiphora pindan (Pindan Dragon)*			
126.		*Dischistodus darwiniensis*			
127.		*Dischistodus fasciatus*			
128.	24084	*Dugong dugon (Dugong)*		S	
129.		*Egretta garzetta*			
130.		*Egretta novaehollandiae*			
131.		*Elanus axillaris*			
132.	25540	*Elanus caeruleus (Black-shouldered Kite)*			
133.	47937	*Elseyornis melanops (Black-fronted Dotterel)*			
134.		*Enneapterygius sp.*			
135.		*Eolophus roseicapillus*			
136.	24653	*Eopsaltria pulverulenta (Mangrove Robin)*			
137.	25578	*Ephippiorhynchus asiaticus (Black-necked Stork)*			
138.	24387	*Ephippiorhynchus asiaticus subsp. australis (Black-necked Stork)*			
139.		*Epinephelus coioides*			
140.		*Epinephelus corallicola*			
141.		*Epinephelus ongus*			
142.		*Epinephelus quoyanus*			
143.	24569	*Epthianura crocea (Yellow Chat)*			
144.	42404	*Eremiascincus isolepis*			
145.		*Eremiascinus isolepis*			
146.	24632	*Erythrura gouldiae (Gouldian Finch)*		P4	
147.	47938	*Esacus magnirostris (Beach Stone-curlew, Beach Thick-knee)*			
148.	24760	*Eulabeornis castaneoventris subsp. castaneoventris (Chestnut Rail)*			
149.	24368	*Eurostopodus argus (Spotted Nightjar)*			
150.	25591	*Eurystomus orientalis (Dollarbird)*			
151.	25621	*Falco berigora (Brown Falcon)*			
152.	25622	*Falco cenchroides (Australian Kestrel, Nankeen Kestrel)*			
153.	24472	*Falco cenchroides subsp. cenchroides (Australian Kestrel, Nankeen Kestrel)*			
154.	25623	*Falco longipennis (Australian Hobby)*			
155.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
156.		*Favonigobius n. sp.*			Y
157.		*Fistularia commersonii*			
158.	25327	*Fordonia leucobalia (White-bellied Mangrove Snake)*			
159.		*Fowleria aurita*			
160.	24478	*Fregata ariel (Lesser Frigatebird)*		IA	
161.	25301	*Furina ornata (Moon Snake)*			
162.	24765	*Gallirallus philippensis subsp. mellori (Buff-banded Rail)*			
163.	42314	*Gavicalis virescens (Singing Honeyeater)*			
164.	24952	*Gehyra australis*			
165.	24954	*Gehyra nana*			
166.	24955	*Gehyra occidentalis*			
167.	24956	*Gehyra pilbara*			
168.	24959	*Gehyra variegata*			
169.	47954	*Gelochelidon nilotica (Gull-billed Tern)*		IA	
170.	24401	*Geopelia cuneata (Diamond Dove)*			
171.	24402	*Geopelia humeralis (Bar-shouldered Dove)*			
172.	25585	*Geopelia striata (Zebra Dove)*			
173.	24403	*Geopelia striata subsp. placida (Peaceful Dove)*			
174.		*Gerres oyena*			
175.		*Gerres sp.*			
176.	25531	*Gerygone levigaster (Mangrove Gerygone)*			
177.	24273	*Gerygone levigaster subsp. levigaster (Mangrove Gerygone)*			
178.	24274	*Gerygone magnirostris subsp. magnirostris (Large-billed Gerygone)*			
179.	24276	*Gerygone tenebrosa (Dusky Gerygone)*			
180.		*Gnatholepis argus*			
181.		*Gobiid n. sp.*			Y
182.		*Gobiid sp.*			
183.		*Gobiodon quinquestrigatus*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
184.	24443	*Grallina cyanoleuca (Magpie-lark)*			
185.	24484	*Grus rubicunda (Brolga)*			
186.	25627	*Haematopus fuliginosus (Sooty Oystercatcher)*			
187.	24486	*Haematopus fuliginosus subsp. ophthalmicus (Sooty Oystercatcher)*			
188.	24487	*Haematopus longirostris (Pied Oystercatcher)*			
189.	24293	*Haliaeetus leucogaster (White-bellied Sea-Eagle)*			
190.	25541	*Haliastur indus (Brahminy Kite)*			
191.	24295	*Haliastur sphenurus (Whistling Kite)*			
192.		*Halichoeres melanurus*			
193.		*Halichoeres nigrescens*			
194.		*Halophryne diemensis*			
195.	24961	*Heteronotia binoei (Bynoe's Gecko)*			
196.	48587	*Hydroprogne caspia (Caspian Tern)*		IA	
197.		*Hypoatherina temminckii*			
198.		*Hyporhamphus quoyi*			
199.		*Istiblennius meleagris*			
200.		*Istiblennius meleagris?*			Y
201.		*Istigobius ornatus*			
202.	25571	*Lalage leucomela (Varied Triller)*			
203.	24511	*Larus novaehollandiae subsp. novaehollandiae (Silver Gull)*			
204.	25343	*Lepidochelys olivacea (Olive Ridley Turtle, Pacific Ridley Turtle)*		T	
205.	25121	*Lerista apoda*			
206.	25125	*Lerista bipes*			
207.	25138	*Lerista griffini*			
208.	25170	*Lerista separanda (Dampierland plain slider, skink)*		P2	
209.		*Lethrinus laticaudis*			
210.	25005	*Lialis burtonis*			
211.	25239	*Liasis olivaceus subsp. olivaceus (Olive Python)*			
212.	25661	*Lichmera indistincta (Brown Honeyeater)*			
213.	24582	*Lichmera indistincta subsp. indistincta (Brown Honeyeater)*			
214.	30932	*Limosa lapponica (Bar-tailed Godwit)*		IA	
215.	25741	*Limosa limosa (Black-tailed Godwit)*		IA	
216.	25380	*Litoria caerulea (Green Tree Frog)*			
217.	25391	*Litoria rothii (Northern Laughing Tree Frog)*			
218.		*Liza vaigiensis*			
219.	25683	*Lonchura castaneothorax (Chestnut-breasted Mannikin)*			
220.		*Lophiocharon trisignatus*			
221.		*Lutjanus carponotatus*			
222.		*Lutjanus russellii*			
223.	24171	*Macroglossus minimus (Northern Blossom-bat)*			
224.	24168	*Macrotis lagotis (Bilby, Dalgyte, Ninu)*		T	
225.	25651	*Malurus lamberti (Variegated Fairy-wren)*			
226.	25653	*Malurus melanocephalus (Red-backed Fairy-wren)*			
227.	24051	*Megaptera novaeangliae (Humpback Whale)*		S	
228.	47997	*Melanodryas cucullata (Hooded Robin)*			
229.	24585	*Melithreptus albogularis (White-throated Honeyeater)*			
230.	25665	*Melithreptus gularis (Black-chinned Honeyeater)*			
231.	24589	*Melithreptus gularis subsp. laetior (Black-chinned Honeyeater)*			
232.	24220	*Melomys burtoni (Grassland Melomys)*			
233.	24736	*Melopsittacus undulatus (Budgerigar)*			
234.	25185	*Menetia maini*			
235.	24598	*Merops ornatus (Rainbow Bee-eater)*			
236.		*Microcarbo melanoleucos*			
237.		*Microdesmid sp.*			Y
238.	25693	*Microeca fascinans (Jacky Winter)*			
239.	24654	*Microeca fascinans subsp. assimilis (Jacky Winter)*			
240.	25694	*Microeca flavigaster (Lemon-breasted Flycatcher)*			
241.	24657	*Microeca flavigaster subsp. tormenti (Kimberley Flycatcher)*			
242.	25542	*Milvus migrans (Black Kite)*			
243.	24298	*Milvus migrans subsp. affinis (Black Kite)*			
244.	25493	*Miniopterus schreibersii (Common Bentwing-bat)*			
245.	24190	*Miniopterus schreibersii subsp. orianae (Northern Bentwing-bat)*			
246.	25195	*Morethia storri*			
247.		*Mormopterus (Ozimops) cobourgianus*			
248.	24183	*Mormopterus loriae (Little Northern Freetail-bat)*			
249.		*Muraenichthys sp.*			
250.	25609	*Myiagra alecto (Shining Flycatcher)*			
251.	24445	*Myiagra alecto subsp. melvillensis (Shining Flycatcher)*			
252.	25610	*Myiagra inquieta (Restless Flycatcher)*			
253.	25611	*Myiagra rubecula (Leaden Flycatcher)*			

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254.	24449	*Myiagra rubecula subsp. concinna (Leaden Flycatcher)*			
255.	25612	*Myiagra ruficollis (Broad-billed Flycatcher)*			
256.	24450	*Myiagra ruficollis subsp. mimikae (Broad-billed Flycatcher)*			
257.	25666	*Myzomela erythrocephala (Red-headed Honeyeater)*			
258.	24590	*Myzomela erythrocephala subsp. erythrocephala (Red-headed Honeyeater)*			
259.	25747	*Ninox connivens (Barking Owl)*			
260.		*Notograptus sp.*			
261.	25198	*Notoscincus ornatus subsp. wotjulum*			
262.	24798	*Numenius madagascariensis (Eastern Curlew)*		T	
263.	24799	*Numenius minutus (Little Curlew, Little Whimbrel)*		IA	
264.	25742	*Numenius phaeopus (Whimbrel)*		IA	
265.	25564	*Nycticorax caledonicus (Rufous Night Heron)*			
266.	24192	*Nyctophilus arnhemensis (Arnhem Land Long-eared Bat)*			
267.	42365	*Nyctophilus daedalus (Northwestern Long-eared Bat, Pallid Long-eared Bat)*			
268.	24975	*Oedura gracilis*			
269.		*Omobranchus germaini*			
270.		*Omobranchus lineolatus*			
271.	41347	*Onychoprion anaethetus (Bridled Tern)*		IA	
272.		*Onychoprion fuscata*			
273.		*Opistognathus darwiniensis*			
274.	24060	*Orcaella heinsohni (Australian Snubfin Dolphin)*		P4	
275.	24607	*Oriolus flavocinctus (Yellow Oriole)*			
276.	24608	*Oriolus sagittatus (Olive-backed Oriole)*			
277.	24620	*Pachycephala lanioides (White-breasted Whistler)*			
278.	25678	*Pachycephala melanura (Mangrove Golden Whistler)*			
279.	24621	*Pachycephala melanura subsp. melanura (Mangrove Golden Whistler)*			
280.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
281.	24624	*Pachycephala rufiventris subsp. rufiventris (Rufous Whistler)*			
282.	48591	*Pandion cristatus (Osprey, Eastern Osprey)*		IA	
283.		*Paracentropogon vespa*			
284.		*Parachaetodon ocellatus*			
285.		*Paradiplogrammus enneactis*			
286.		*Paraplotosus albilabris*			
287.	24627	*Pardalotus rubricatus (Red-browed Pardalote)*			
288.	25682	*Pardalotus striatus (Striated Pardalote)*			
289.		*Pelates quadrilineatus*			
290.	24648	*Pelecanus conspicillatus (Australian Pelican)*			
291.		*Periophthalmus argentilineatus*			
292.	48060	*Petrochelidon ariel (Fairy Martin)*			
293.	48061	*Petrochelidon nigricans (Tree Martin)*			
294.	24663	*Phaethon rubricauda (Red-tailed Tropicbird)*		P4	
295.	25699	*Phalacrocorax varius (Pied Cormorant)*			
296.	24409	*Phaps chalcoptera (Common Bronzewing)*			
297.	25667	*Philemon argenticeps (Silver-crowned Friarbird)*			
298.	24591	*Philemon argenticeps subsp. argenticeps (Silver-crowned Friarbird)*			
299.	25668	*Philemon citreogularis (Little Friarbird)*			
300.	24198	*Pipistrellus westralis (Northern Pipistrelle)*			
301.	24102	*Planigale maculata (Common Planigale)*			
302.	24842	*Platalea regia (Royal Spoonbill)*			
303.		*Platycephalid sp.*			
304.	42305	*Platyplectrum ornatum (Ornate Burrowing Frog)*			
305.		*Plectropomus maculatus*			
306.	24382	*Pluvialis fulva (Pacific Golden Plover)*		IA	
307.	24383	*Pluvialis squatarola (Grey Plover)*		IA	
308.	25703	*Podargus strigoides (Tawny Frogmouth)*			
309.	24643	*Poephila acuticauda (Long-tailed Finch)*			
310.	24908	*Pogona minor subsp. mitchelli (Dwarf Bearded Dragon)*			
311.		*Pomacentrus littoralis*			
312.		*Pomacentrus milleri*			
313.	25706	*Pomatostomus temporalis (Grey-crowned Babbler)*			
314.	24771	*Porzana tabuensis (Spotless Crake)*			
315.		*Psammoperca waigiensis*			
316.	24104	*Pseudantechinus ningbing (Ningbing Pseudantechinus)*			
317.	25261	*Pseudechis australis (Mulga Snake)*			
318.	24234	*Pseudomys delicatulus (Delicate Mouse)*			
319.	42416	*Pseudonaja mengdeni (Western Brown Snake)*			
320.		*Pterapogon mirifica*			
321.		*Ptereleotris microlepis*			
322.	24172	*Pteropus alecto (Black Flying-fox)*			
323.	24173	*Pteropus scapulatus (Little Red Flying-fox)*			

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324.	25588	*Ptilinopus regina (Rose-crowned Fruit-dove)*			
325.	30946	*Ptilinopus regina subsp. ewingii (Rose-crowned Fruit-dove)*			
326.	25725	*Ptilonorhynchus nuchalis (Great Bowerbird)*			
327.	24758	*Ptilonorhynchus nuchalis subsp. nuchalis (Great Bowerbird)*			
328.	42322	*Ptilotula flavescens subsp. flavescens (Yellow-tinted Honeyeater)*			
329.	24597	*Ramsayornis fasciatus (Bar-breasted Honeyeater)*			
330.	24245	*Rattus rattus (Black Rat)*	Y		
331.	48096	*Rhipidura albiscapa (Grey Fantail)*			
332.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
333.	24457	*Rhipidura phasiana (Mangrove Grey Fantail)*			
334.	25616	*Rhipidura rufiventris (Northern Fantail)*			
335.	24456	*Rhipidura rufiventris subsp. isura (Northern Fantail)*			
336.	24174	*Saccolaimus flaviventris (Yellow-bellied Sheath-tailed Bat)*			
337.		*Salarias sexfilum*			
338.		*Scaevius milii*			
339.		*Scarus ghobban*			
340.		*Scolecenchelys macroptera*			
341.	24200	*Scotorepens greyii (Little Broad-nosed Bat)*			
342.	24201	*Scotorepens sanborni (Northern Broad-nosed Bat)*			
343.	25605	*Scythrops novaehollandiae (Channel-billed Cuckoo)*			
344.		*Siganus doliatus*			
345.		*Siganus fuscescens*			
346.		*Siganus punctatus*			
347.	25268	*Simoselaps minimus (Dampierland Burrowing Snake)*		P2	
348.	30948	*Smicrornis brevirostris (Weebill)*			
349.	48108	*Sphecotheres vieilloti (Australasian Figbird)*			
350.	24522	*Sterna bergii (Crested Tern)*			
351.	25640	*Sterna dougallii (Roseate Tern)*		IA	
352.	24524	*Sterna dougallii subsp. gracilis (Roseate Tern)*		IA	
353.	25642	*Sterna hirundo (Common Tern)*		IA	
354.	24527	*Sterna hirundo subsp. longipennis (Common Tern)*		IA	
355.	48593	*Sternula albifrons (Little Tern)*		IA	
356.	42347	*Stomiopera unicolor (White-gaped Honeyeater)*			
357.	42348	*Stomiopera unicolor subsp. unicolor (White-gaped Honeyeater)*			
358.	24924	*Strophurus ciliaris subsp. aberrans*			
359.	25754	*Sula leucogaster (Brown Booby)*		IA	
360.	24828	*Sula leucogaster subsp. plotus (Brown Booby)*		IA	
361.	24259	*Sus scrofa (Pig)*	Y		
362.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
363.	30872	*Taeniopygia bichenovii (Double-barred Finch)*			
364.	30873	*Taeniopygia bichenovii subsp. annulosa (Double-barred Finch)*			
365.	30870	*Taeniopygia guttata (Zebra Finch)*			
366.	30871	*Taeniopygia guttata subsp. castanotis (Zebra Finch)*			
367.	24175	*Taphozous georgianus (Common Sheath-tailed Bat)*			
368.		*Thalasseus bengalensis*			
369.	48597	*Thalasseus bergii (Crested Tern)*		IA	
370.	24845	*Threskiornis spinicollis (Straw-necked Ibis)*			
371.	25202	*Tiliqua multifasciata (Central Blue-tongue)*			
372.	25548	*Todiramphus chloris (Collared Kingfisher)*			
373.	42351	*Todiramphus pyrrhopygius (Red-backed Kingfisher)*			
374.	25549	*Todiramphus sanctus (Sacred Kingfisher)*			
375.	24309	*Todiramphus sanctus subsp. sanctus (Sacred Kingfisher)*			
376.	25723	*Trichoglossus haematodus (Rainbow Lorikeet)*			
377.	24803	*Tringa brevipes (Grey-tailed Tattler)*		P4	
378.	24806	*Tringa glareola (Wood Sandpiper)*		IA	
379.	24808	*Tringa nebularia (Common Greenshank, greenshank)*		IA	
380.	24810	*Tringa totanus (Common Redshank, redshank)*		IA	
381.	24851	*Turnix velox (Little Button-quail)*			
382.	30954	*Tursiops aduncus (Indo-Pacific Bottlenose Dolphin)*			
383.		*Tylosurus sp.*			
384.		*Upeneus tragula*			
385.		*Valamugil buchanani*			
386.		*Valenciennea longipinnis*			
387.		*Valenciennea muralis*			
388.	25217	*Varanus glauerti (Kimberley Rock Monitor)*			
389.	25213	*Varanus glebopalma (Black-palmed Rock Monitor)*			
390.	25218	*Varanus gouldii (Bungarra or Sand Monitor)*			
391.	25214	*Varanus scalaris (Spotted Tree Monitor)*			
392.	25526	*Varanus tristis (Racehorse Monitor)*			
393.	24203	*Vespadelus caurinus (Western Cave Bat, Northern Cave-bat)*			

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394.	41351	*Xenus cinereus (Terek Sandpiper)*		IA	
395.		*Yongeichthys nebulosus*			
396.		*Zenarchopterus gilli*			
397.	24857	*Zosterops luteus (Yellow White-eye)*			
Chromista					
398.	35220	*Canistrocarpus cervicornis*			
399.	35910	*Canistrocarpus crispatus*			
400.	36197	*Chnoospora implexa*			
401.	26693	*Colpomenia peregrina*			
402.	26694	*Colpomenia sinuosa*			
403.	26764	*Dictyopteris australis*			
404.	29954	*Dictyopteris woodwardia*			
405.	26775	*Dictyota ciliolata*			
406.	48244	*Feldmannia mitchelliae*			
407.	26946	*Hormophysa cuneiformis*			
408.	26949	*Hydroclathrus clathratus*			
409.	27043	*Lobophora variegata*			
410.	27113	*Padina australis*			
411.	27115	*Padina boryana*			
412.	27225	*Rosenvingea intricata*			
413.	35908	*Rosenvingea nhatrangensis*			
414.	44573	*Sargassopsis decurrens*			
415.	42641	*Sargassum aquifolium*			
416.	27242	*Sargassum flavicans*			
417.	27255	*Sargassum polycystum*			
418.	48301	*Sargassum rasta*			
419.	42785	*Sirophysalis trinodis*			
420.	27304	*Sporochnus comosus*			
421.	27321	*Stypopodium flabelliforme*			
422.	27345	*Turbinaria gracilis*			
423.	27346	*Turbinaria ornata*			
Fungi					
424.	27585	*Arthopyrenia analepta*			Y
425.	38761	*Auricularia cornea*			
426.	27662	*Chrysothrix candelaris*			
427.		*Daldinia concentrica*			
428.	27714	*Diploicia canescens*			
429.	27728	*Dirinaria applanata*			
430.	27730	*Dirinaria confluens*			
431.	27731	*Dirinaria picta*			
432.		*Hypoxylon rubiginosum*			
433.		*Lecanora sp.*			
434.	44002	*Lithothelium nanosporum*			
435.	27948	*Pertusaria leioplacella*			
436.	27956	*Pertusaria thiospoda*			
437.		*Phellinus gilvus*			
438.	28012	*Pyrenula nitida*			
439.	28225	*Ramalina subfraxinea var. norstictica*			
440.	28226	*Ramalina subfraxinea var. subfraxinea*			
441.	28055	*Roccella montagnei*			
442.	45882	*Sporisorium ryleyi*			
443.	45846	*Tilletia whiteochloae*			
444.	48858	*Trametes muelleri*			
445.	28082	*Trypethelium eluteriae*			Y
Plantae					
446.	19262	*Abildgaardia schoenoides*			
447.	3678	*Abrus precatorius (Crabs Eyes)*			
448.	16979	*Abrus precatorius subsp. precatorius*			
449.	11325	*Abutilon indicum var. australiense*			
450.	4901	*Abutilon otocarpum (Desert Chinese Lantern)*			
451.	40300	*Acacia calligera*			
452.	17013	*Acacia colei var. colei*			
453.	17014	*Acacia colei var. ileocarpa*			
454.	3288	*Acacia delibrata*			
455.	12085	*Acacia deltoidea subsp. deltoidea*			
456.	3371	*Acacia hippuroides*			
457.	3447	*Acacia monticola (Gawar, Lilwardi)*			
458.	13401	*Acacia neurocarpa*			
459.	3483	*Acacia pellita*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
460.	3491	*Acacia platycarpa (Pindan Wattle)*			
461.	29210	*Acacia sp. Kununurra (Lullfitz 6195)*			
462.	3579	*Acacia trachycarpa (Minni Ritchi, Balgali)*			
463.	3580	*Acacia translucens (Poverty Bush, Banmung)*			
464.	19641	*Acacia tumida var. tumida*			
465.	3601	*Acacia wickhamii*			
466.	16155	*Acacia wickhamii subsp. wickhamii*			
467.	26440	*Acanthophora dendroides*			
468.	26441	*Acanthophora spicifera*			
469.	2645	*Achyranthes aspera (Chaff Flower)*			
470.	44	*Acrostichum speciosum*			
471.	26448	*Actinotrichia fragilis*			
472.	5224	*Adenia heterophylla*			
473.	11305	*Adenia heterophylla subsp. australis*			
474.	6486	*Aegialitis annulata (Club Mangrove)*			
475.	6478	*Aegiceras corniculatum (River Mangrove)*			
476.	2646	*Aerva javanica (Kapok Bush)*	Y		
477.	3680	*Aeschynomene indica (Budda Pea)*			
478.	2653	*Alternanthera pungens (Khaki Weed)*	Y		
479.	17574	*Alysicarpus ovalifolius*	Y		
480.	17573	*Alysicarpus suffruticosus*		P2	
481.	20018	*Amaranthus undulatus*			
482.	5277	*Ammannia baccifera*			
483.	43680	*Ammannia muelleri*			
484.	5278	*Ammannia multiflora*			
485.	26459	*Amphiroa crassa*			
486.	26461	*Amphiroa foliacea*			
487.	26462	*Amphiroa fragilissima*			
488.	26463	*Amphiroa gracilis*			
489.	43480	*Amphiroa tribulus*			
490.	2369	*Amyema benthamii*			
491.	13700	*Amyema bifurcata*			
492.	14109	*Amyema mackayensis*			
493.	11874	*Amyema sanguinea var. sanguinea*			
494.	2386	*Amyema thalassia*			
495.	11392	*Amyema villiflora subsp. villiflora*			
496.	35872	*Anadyomene plicata*			
497.	210	*Aristida holathera*			
498.	12063	*Aristida holathera var. holathera*			
499.	211	*Aristida hygrometrica (Northern Kerosene Grass)*			
500.	26486	*Asparagopsis taxiformis*			
501.	8781	*Asparagus racemosus*			
502.	4742	*Atalaya variifolia (Wingleaf Whitewood)*			
503.	6828	*Avicennia marina (White Mangrove)*			
504.	48138	*Avrainvillea carteri*			
505.	36362	*Avrainvillea erecta*			
506.	26498	*Avrainvillea obscura*			
507.	7045	*Bacopa floribunda*			
508.	1743	*Batis argillicola*			
509.	12757	*Bauhinia cunninghamii*			
510.	5183	*Bergia ammannioides*			
511.	5184	*Bergia pedicellaris*			
512.	7860	*Blumea integrifolia*			
513.	7865	*Blumea saxatilis*			
514.	26507	*Boergesenia forbesii*			
515.	2769	*Boerhavia burbidgeana*			
516.	2770	*Boerhavia coccinea (Tar Vine, Wituka)*			
517.	2771	*Boerhavia dominii*			
518.	2772	*Boerhavia gardneri*			
519.	6605	*Bonamia linearis*			
520.	26508	*Boodlea composita*			
521.	26509	*Bornetella oligospora*			
522.	26516	*Botryocladia leptopoda*			
523.	13010	*Brachychiton diversifolius subsp. diversifolius*			
524.	4602	*Breynia cernua*			
525.	4603	*Bridelia tomentosa*			
526.	5291	*Bruguiera exaristata (Ribbed Mangrove)*			
527.	44550	*Bryopsis pennata var. secunda*			Y
528.	29703	*Buchanania oblongifolia*			
529.	4718	*Buchanania obovata (Wild Mango, Walangga)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
530.	13682	*Buchnera asperata*			
531.	7047	*Buchnera linearis (Blackrod)*			
532.	7050	*Buchnera urticifolia (Blackrod)*			
533.	750	*Bulbostylis barbata*			
534.	18073	*Byblis filifolia*			
535.	17854	*Byblis rorida*			
536.	3624	*Caesalpinia major*			
537.	10852	*Cajanus acutifolius*			
538.	11055	*Cajanus cinereus*			
539.	10972	*Cajanus marmoratus*			
540.	10863	*Cajanus reticulatus*			
541.	2871	*Calandrinia strophiolata*			
542.	2872	*Calandrinia tepperiana*			
543.	14925	*Calotropis gigantea*	Y		
544.	6582	*Calotropis procera (Calotrope)*	Y		
545.	5457	*Calytrix exstipulata (Kimberley Heather)*			
546.	4997	*Camptostemon schultzii (Kapok Mangrove)*			
547.	11617	*Canarium australianum var. glabrum*			
548.	3749	*Canavalia rosea (Wild Jack Bean)*			
549.	2976	*Capparis lasiantha (Split Jack, Balqarda)*			
550.	2980	*Capparis sepiaria*			
551.	2981	*Capparis spinosa*			
552.	48291	*Capparis spinosa subsp. nummularia*			
553.	6567	*Carissa lanceolata (Conkerberry, Marnuwiji)*			
554.	1161	*Cartonema parviflorum (Wiridjagu)*			
555.	2949	*Cassytha capillaris*			
556.	2950	*Cassytha filiformis (Love Vine, Jirawan)*			
557.	6569	*Catharanthus roseus (Pink Periwinkle)*	Y		
558.	42620	*Caulerpa chemnitzia*			
559.	26559	*Caulerpa cupressoides*			
560.	44539	*Caulerpa cylindracea*			
561.	44546	*Caulerpa dichotoma*			Y
562.	44547	*Caulerpa lamourouxii*			
563.	26568	*Caulerpa lentillifera*			
564.	44551	*Caulerpa macrodisca*			
565.	26573	*Caulerpa racemosa*			
566.	35122	*Caulerpa racemosa var. racemosa*			
567.	26576	*Caulerpa serrulata*			
568.	26577	*Caulerpa sertularioides*			
569.	26579	*Caulerpa taxifolia*			
570.	35125	*Caulerpa taxifolia var. falcifolia*			
571.	35124	*Caulerpa taxifolia var. taxifolia*			
572.	26582	*Caulerpa verticillata*			
573.	48913	*Celtis strychnoides*			
574.	257	*Cenchrus biflorus (Gallon's Curse)*	Y		
575.	258	*Cenchrus ciliaris (Buffel Grass)*	Y		
576.	259	*Cenchrus echinatus (Burrgrass)*	Y		
577.	29721	*Cenchrus setiger (Birdwood Grass)*	Y		
578.	26606	*Ceratodictyon spongiosum*			
579.	39680	*Ceriops australis*			
580.	13713	*Chamaecrista absus*			
581.	13756	*Chamaecrista mimosoides*			
582.	14811	*Chamaecrista moorei*			
583.	20064	*Chamaecrista rotundifolia*	Y		
584.	26618	*Champia parvula*			
585.	266	*Chloris barbata (Purpletop Chloris)*	Y		
586.	26628	*Chondria armata*			
587.	273	*Chrysopogon fallax (Golden Beard Grass)*			
588.	275	*Chrysopogon pallidus (Ribbongrass)*			
589.	48838	*Citrullus amarus*	Y		
590.	36316	*Cladophora herpestica*			
591.	44726	*Cladophoropsis vaucheriiformis*			
592.	2983	*Cleome cleomoides (Justago)*			
593.	31553	*Cleome sp. Bonaparte Archipelago (A.A. Mitchell 4774)*			
594.	2986	*Cleome tetrandra*			
595.	11886	*Cleome tetrandra var. tetrandra*			
596.	2988	*Cleome viscosa (Tickweed, Tjinduwadhu)*			
597.	6729	*Clerodendrum floribundum (Lollybush)*			
598.	13693	*Clerodendrum floribundum var. coriaceum*			
599.	13691	*Clerodendrum floribundum var. ovatum*			

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600.	3769	*Clitoria ternatea*	Y		
601.	5214	*Cochlospermum fraseri (Kapok Bush, Malindjarr)*			
602.	35917	*Codium arabicum*			
603.	35857	*Codium dwarkense*			
604.	26673	*Codium geppiorum*			
605.	26683	*Codium spongiosum*			
606.	2778	*Codonocarpus cotinifolius (Native Poplar, Kundurangu)*			
607.	26691	*Coelothrix irregularis*			
608.	32999	*Colocasia esculenta var. esculenta*	Y		
609.	1165	*Commelina ensifolia (Wandering Jew, Buargu)*			
610.	12767	*Corchorus aestuans*			
611.	4863	*Corchorus pumilio*			
612.	4864	*Corchorus sidoides (Flannel Weed)*			
613.	18415	*Corchorus sidoides subsp. sidoides*			
614.	16788	*Corymbia bella*			
615.	14650	*Corymbia flavescens*			
616.	17089	*Corymbia greeniana*			
617.	17100	*Corymbia polycarpa*			
618.	48175	*Crinum arenarium*			
619.	13466	*Crotalaria brevis*			
620.	3774	*Crotalaria cunninghamii (Green Birdflower, Bilbun)*			
621.	20176	*Crotalaria cunninghamii subsp. cunninghamii*			
622.	20179	*Crotalaria medicaginea var. neglecta*			
623.	19398	*Crotalaria ramosissima*			
624.		*Crotalaria sp.*			
625.	13711	*Croton habrophyllus*			
626.	12683	*Cryptostegia madagascariensis*	Y		
627.	17433	*Cullen badocanum*			
628.	17435	*Cullen candidum*		P1	
629.	26712	*Curdiea obesa*			
630.	31213	*Cuscuta chinensis*			
631.	1166	*Cyanotis axillaris*			
632.	45973	*Cyanthillium cinereum var. lanatum*	Y		
633.	54	*Cyclosorus interruptus*			
634.	1628	*Cymbidium canaliculatum*			
635.	279	*Cymbopogon ambiguus (Scentgrass)*			
636.	282	*Cymbopogon procerus (Lemon Grass)*			
637.	129	*Cymodocea serrulata*			
638.	48278	*Cynanchum brevipedicellatum*			
639.	6585	*Cynanchum pedunculatum*			
640.	48280	*Cynanchum viminale subsp. australe*			
641.	48281	*Cynanchum viminale subsp. brunonianum*			
642.	283	*Cynodon dactylon (Couch)*	Y		
643.	12801	*Cyperus blakeanus*			
644.	777	*Cyperus bulbosus (Bush Onion, Tjanmata)*			
645.	778	*Cyperus carinatus*			
646.	784	*Cyperus conicus*			
647.	12810	*Cyperus cunninghamii subsp. uniflorus*			
648.	11024	*Cyperus latzii*			
649.	803	*Cyperus microcephalus*			
650.	12807	*Cyperus microcephalus subsp. microcephalus*			
651.	804	*Cyperus nervulosus*			
652.	806	*Cyperus polystachyos (Bunchy Sedge)*			
653.	813	*Cyperus sexflorus*			
654.	290	*Dactyloctenium radulans (Button Grass)*			
655.	14174	*Decaisnina angustata*			
656.	11407	*Dendrophthoe acacioides subsp. acacioides*			
657.	3853	*Desmodium filiforme*			
658.	3858	*Desmodium trichostachyum*			
659.	18230	*Desmodium triflorum*	Y		
660.	29616	*Dichotomaria marginata*			
661.	7166	*Dicliptera armata*			
662.	26769	*Dictyosphaeria cavernosa*			
663.	26782	*Digenea simplex*			
664.	309	*Digitaria bicornis (Finger Grass)*			
665.	311	*Digitaria ciliaris (Summer Grass)*	Y		
666.	1508	*Dioscorea bulbifera (Ganmanggu, Gunu)*			
667.	1510	*Dioscorea transversa*			
668.	17902	*Diospyros humilis*			
669.	19085	*Diospyros rugosula*			

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670.	48738	*Distimake dissectus var. dissectus*	Y		
671.	38461	*Dodonaea hispidula var. arida*			
672.	38462	*Dodonaea hispidula var. phylloptera*			
673.	4776	*Dodonaea platyptera*			
674.	4782	*Dodonaea viscosa (Sticky Hopbush)*			
675.	17213	*Drosera broomensis*			
676.	17215	*Drosera derbyensis*			
677.	43588	*Drosera serpens*			
678.	19079	*Ectrosia schultzii var. annua*			Y
679.	11453	*Ectrosia schultzii var. schultzii*			
680.	6682	*Ehretia saligna (False Cedar)*			
681.	14301	*Ehretia saligna var. saligna*			
682.	36142	*Endosiphonia spinuligera*			
683.	160	*Enhalus acoroides*			
684.	363	*Enneapogon pallidus (Conetop Nineawn)*			
685.	367	*Enteropogon dolichostachyus*			
686.	375	*Eragrostis cumingii (Cuming's Love Grass)*			
687.	381	*Eragrostis falcata (Sickle Lovegrass)*			
688.	393	*Eragrostis setifolia (Neverfail Grass)*			
689.	395	*Eragrostis speciosa (Handsome Lovegrass)*			
690.	402	*Eriachne avenacea*			
691.	404	*Eriachne ciliata (Slender Wandarrie Grass)*			
692.	410	*Eriachne glauca (Pan Wandarrie Grass)*			
693.	12055	*Eriachne glauca var. glauca*			
694.	412	*Eriachne melicacea*			
695.	414	*Eriachne obtusa (Northern Wandarrie Grass)*			
696.	48185	*Eriachne pindanica (Pindan Wiregrass)*			
697.	5564	*Eucalyptus brachyandra (Tropical Red Box)*			
698.	5715	*Eucalyptus miniata (Woollybutt, Manawan)*			
699.	5785	*Eucalyptus tectifica (Darwin Box)*			
700.	38182	*Eucheuma arnoldii*			
701.	26827	*Eucheuma denticulatum*			
702.	42841	*Euphorbia armstrongiana var. distans*			
703.	42849	*Euphorbia hassallii*			
704.	4629	*Euphorbia hirta (Asthma Plant)*	Y		
705.	42863	*Euphorbia mitchelliana var. mitchelliana*			
706.	4635	*Euphorbia myrtoides*			
707.	42879	*Euphorbia trigonosperma*			
708.	11416	*Evolvulus alsinoides var. decumbens*			
709.	15126	*Excoecaria ovalis*			
710.	11169	*Exocarpos latifolius (Broad-leaved Cherry)*			
711.	26831	*Exophyllum wentii*			
712.	31578	*Ficus aculeata var. indecora (Ranji)*			
713.	19643	*Ficus atricha*			
714.	19648	*Ficus brachypoda*			
715.	43508	*Ficus geniculata var. insignis*			
716.	1753	*Ficus platypoda (Native Fig, Makartu)*			
717.	1759	*Ficus virens (Albayi)*			
718.	12096	*Ficus virens var. virens*			
719.	49126	*Fimbristylis crosslandii*			
720.	847	*Fimbristylis cymosa*			
721.	850	*Fimbristylis depauperata*			
722.	855	*Fimbristylis ferruginea*			
723.	881	*Fimbristylis sericea*			
724.	890	*Fimbristylis tetragona*			
725.	1055	*Flagellaria indica (Gadji)*			
726.	12013	*Flueggea virosa subsp. melanthesoides (Dogwood, Guwal)*			
727.	896	*Fuirena ciliaris*			
728.	3886	*Galactia tenuiflora*			
729.	26835	*Galaxaura rugosa*			
730.	26837	*Ganonema farinosum*			
731.	26839	*Ganonema pinnatum*			
732.	15234	*Gardenia pyriformis subsp. keartlandii*			
733.	17560	*Gardenia pyriformis subsp. pyriformis*			
734.	17561	*Gardenia resinosa subsp. resinosa*			
735.	26842	*Gelidiella acerosa*			
736.	2836	*Glinus oppositifolius*			
737.	3942	*Glycine tomentella (Woolly Glycine)*			
738.	4485	*Glycosmis trifoliata*			
739.	18229	*Gomphrena brachystylis subsp. pindanensis*			

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740.	2676	*Gomphrena canescens (Batchelors Buttons)*			
741.	2677	*Gomphrena celosioides (Gomphrena Weed)*	Y		
742.	18226	*Gomphrena connata*			
743.	2681	*Gomphrena diffusa*			
744.	18364	*Gomphrena diffusa subsp. arenicola*			Y
745.	2682	*Gomphrena flaccida (Gomphrena Weed)*			
746.	2687	*Gomphrena tenella*			
747.	6158	*Gonocarpus leptothecus*			
748.	7500	*Goodenia coronopifolia*			
749.	13163	*Goodenia sepalosa var. sepalosa*			
750.	4916	*Gossypium populifolium*			
751.	13043	*Gossypium rotundifolium*			
752.	35899	*Gracilaria canaliculata*			
753.	26873	*Gracilaria salicornia*			
754.	26874	*Gracilaria textorii*			
755.	2016	*Grevillea heliosperma (Rock Grevillea)*			
756.	2079	*Grevillea pyramidalis (Caustic Bush, Tjungu)*			
757.	15975	*Grevillea pyramidalis subsp. pyramidalis*			
758.	16476	*Grevillea refracta subsp. refracta*			
759.	13441	*Grevillea wickhamii subsp. wickhamii*			
760.	4868	*Grewia breviflora*			
761.	13565	*Grewia glabra*			
762.	4872	*Grewia retusifolia (Dog's Balls)*			
763.	13228	*Gymnanthera oblonga*			
764.	2960	*Gyrocarpus americanus (Helicopter Tree, Bilangkamar)*			
765.	13748	*Gyrocarpus americanus subsp. pachyphyllus*			
766.	2789	*Gyrostemon tepperi*			
767.	45678	*Haemodorum capitatum*		P1	
768.	2129	*Hakea arborescens (Common Hakea)*			
769.	2178	*Hakea macrocarpa (Dyaridany, Jaradinty)*			
770.	26891	*Halimeda cylindracea*			
771.	26892	*Halimeda discoidea*			
772.	26894	*Halimeda macroloba*			
773.	35906	*Halimeda opuntia*			
774.	26896	*Halimeda simulans*			
775.	26898	*Halimeda velasquezii*			
776.	47273	*Halimeda xishaensis*			
777.	131	*Halodule uninervis*			
778.	162	*Halophila decipiens*			
779.	164	*Halophila ovalis (Sea Wrack)*			
780.	38081	*Halymenia dilatata*			
781.	37642	*Halymenia durvillei*			
782.	38100	*Halymenia maculata*			
783.	5020	*Helicteres rhynchocarpa*			
784.	6708	*Heliotropium diversifolium*			
785.	10882	*Heliotropium foliatum*			
786.	10992	*Heliotropium glabellum*			
787.	13126	*Heliotropium leptaleum*			
788.	29960	*Heliotropium microsalsoloides*			
789.	6713	*Heliotropium ovalifolium*			
790.	6714	*Heliotropium paniculatum*			
791.	17312	*Heliotropium ramulipatens*			
792.	26915	*Hennedya crispa*			
793.	4920	*Herissantia crispa*			
794.	443	*Heteropogon contortus (Bunch Speargrass)*			
795.	26930	*Heterosiphonia crassipes*			
796.	29358	*Hibiscus apodus*			
797.	4929	*Hibiscus geranioides*			
798.	4933	*Hibiscus leptocladus*			
799.	4934	*Hibiscus meraukensis (Merauke Hibiscus)*			
800.	4945	*Hibiscus vitifolius*			
801.	5215	*Hybanthus aurantiacus*			
802.	5219	*Hybanthus enneaspermus*			
803.	11346	*Hybanthus enneaspermus subsp. enneaspermus*			
804.	26956	*Hydrolithon reinboldii*			
805.	35871	*Hydropuntia urvillei*			
806.	26970	*Hypnea pannosa*			
807.	26972	*Hypnea spinella*			
808.	26978	*Hypoglossum harveyanum*			Y
809.	3973	*Indigofera colutea (Sticky Indigo)*			

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810.	3976	*Indigofera haplophylla*			
811.	3978	*Indigofera hirsuta (Hairy Indigo)*			
812.	3980	*Indigofera linifolia*			
813.	3981	*Indigofera linnaei (Birdsville Indigo)*			
814.	6623	*Ipomoea coptica*			
815.	6632	*Ipomoea macrantha*			
816.	6633	*Ipomoea muelleri (Poison Morning Glory, Yumbu)*			
817.	11312	*Ipomoea pes-caprae subsp. brasiliensis*			
818.	6637	*Ipomoea polymorpha*			
819.	13761	*Ischaemum australe var. arundinaceum*			
820.	6643	*Jacquemontia paniculata*			
821.	26983	*Jania adhaerens*			
822.	26985	*Jania micrarthrodia*			
823.	11315	*Jasminum didymum subsp. didymum*			
824.	12059	*Jasminum didymum subsp. lineare (Desert Jasmine)*			
825.	6502	*Jasminum molle*			
826.	4656	*Jatropha gossypiifolia (Bellyache Bush)*	Y		
827.	7118	*Josephinia eugeniae (Josephinia Burr)*			
828.	6733	*Lantana camara (Common Lantana)*	Y		
829.	26998	*Laurencia brongniartii*			
830.	48408	*Laurencia dendroidea*			
831.	27004	*Laurencia intricata*			
832.		*Laurencia papillosa*			
833.	3613	*Leucaena leucocephala (Leucaena)*	Y		
834.	27021	*Liagora ceranoides*			
835.	19073	*Lithomyrtus retusa*			
836.	27037	*Lithophyllum kotschyanum*			
837.	11425	*Lophostemon grandiflorus subsp. grandiflorus*		P3	
838.	6136	*Ludwigia perennis*			
839.	5296	*Lumnitzera racemosa (White-flowered Black Mangrove)*			
840.	18376	*Luvunga monophylla*			
841.	11809	*Lysiana spathulata subsp. spathulata*			
842.	4070	*Macroptilium atropurpureum (Purple Bean)*	Y		
843.	4658	*Mallotus nesophilus*			
844.	4719	*Mangifera indica (Mango)*	Y		
845.	16540	*Marsdenia geminata*			
846.	27057	*Martensia fragilis*			Y
847.	35902	*Mastophora rosea*			
848.	20638	*Megathyrsus maximus*	Y		
849.	9178	*Melaleuca alsophila*			
850.	5875	*Melaleuca argentea (Silver Cadjeput, Bandaran)*			
851.	17791	*Melaleuca cajuputi subsp. cajuputi*			
852.	5901	*Melaleuca dealbata (Karnbor)*			
853.	5942	*Melaleuca nervosa (Fibrebark)*			
854.	5989	*Melaleuca viridiflora (Broadleaf Paperbark)*			
855.	5051	*Melhania oblongifolia*			
856.	4516	*Melia azedarach (White Cedar)*			
857.	5052	*Melochia corchorifolia*			
858.	38200	*Merremia incisa*			
859.	48283	*Mesosphaerum suaveolens*	Y		
860.	27074	*Microdictyon umbilicatum*			
861.	31374	*Microstachys chamaelea*			
862.	6492	*Mimusops elengi (Walara)*			
863.	6525	*Mitrasacme hispida*			
864.	6531	*Mitrasacme nummularia*			
865.	15074	*Mitrasacme scrithicola*			
866.	7335	*Morinda citrifolia*			
867.	1167	*Murdannia graminea (Baniyu)*			
868.	20774	*Musa acuminata*	Y		
869.	17158	*Myoporum montanum (Native Myrtle)*			
870.	2573	*Neobassia astrocarpa*			
871.	44525	*Neoizziella divaricata*			
872.	27099	*Neomeris van-bosseae*			
873.	13340	*Oldenlandia corymbosa var. corymbosa*	Y		
874.	7339	*Oldenlandia galioides*			
875.	7340	*Oldenlandia mitrasacmoides*			
876.	6651	*Operculina aequisepala*			
877.	6652	*Operculina brownii (Potato Vine, Bara)*			
878.	6005	*Osbornia octodonta (Myrtle Mangrove)*			
879.	4518	*Owenia reticulata (Native Walnut, Bandal)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
880.	4519	*Owenia vernicosa (Emu Apple)*			
881.	36400	*Palisada perforata*			
882.	104	*Pandanus spiralis (Screwpine, Wakirri)*			
883.	11737	*Pandanus spiralis var. convexus*			
884.	503	*Panicum decompositum (Native Millet, Kaltu-kaltu)*			
885.	505	*Panicum laevinode*			
886.	509	*Panicum schinzii*	Y		
887.	3193	*Parinari nonda*			
888.	17362	*Parsonsia kimberleyensis*		P1	
889.	523	*Paspalidium rarum (Rare Paspalidium)*			
890.	5226	*Passiflora foetida (Stinking Passion Flower)*	Y		
891.	14096	*Passiflora foetida var. hispida*	Y		
892.	13570	*Pavetta kimberleyana*			
893.	5284	*Pemphis acidula*			
894.	546	*Perotis rara (Comet Grass)*			
895.	2263	*Persoonia falcata (Wild Pear, Gandala)*			
896.	6734	*Phyla nodiflora var. nodiflora*	Y		
897.	9056	*Phyllanthus baccatus*			
898.	14462	*Phyllanthus exilis*			
899.	4680	*Phyllanthus maderaspatensis*			
900.	20652	*Physalis angulata*	Y		
901.	5290	*Planchonia careya (Mangaloo, Yundu)*			
902.	47	*Platyzoma microphyllum (Braid Fern)*			
903.	43944	*Pluchea longiseta*			
904.	8168	*Pluchea rubelliflora*			
905.	6491	*Plumbago zeylanica (Native Plumbago)*			
906.	2902	*Polycarpaea involucrata*			
907.	2903	*Polycarpaea longiflora*			
908.	4577	*Polygala tepperi*			
909.	6653	*Polymeria ambigua (Morning Glory)*			
910.	27171	*Polysiphonia blandii*			
911.	27180	*Polysiphonia subtilissima*			
912.	4691	*Poranthera microphylla (Small Poranthera)*			
913.	27186	*Portieria hornemannii*			
914.	2876	*Portulaca bicolor*			
915.	2881	*Portulaca filifolia*			
916.	2883	*Portulaca napiformis*			
917.	2884	*Portulaca oleracea (Purslane, Wakati)*			
918.	2886	*Portulaca pilosa (Djanggara)*	Y		
919.	6735	*Premna acuminata (Ngalinginkal)*			
920.		*Premna sp.*			
921.	18208	*Psydrax pendulina*			
922.	41223	*Pterocaulon paradoxum*			
923.		*Pterocaulon sp.*			
924.	8192	*Pterocaulon sphacelatum (Apple Bush, Fruit Salad Plant)*			
925.	41220	*Pterocaulon tricholobum*			
926.	2713	*Ptilotus corymbosus*			
927.	2721	*Ptilotus exaltatus (Tall Mulla Mulla)*			
928.	2725	*Ptilotus fusiformis*			
929.	37980	*Ptilotus giganteus*			
930.	2737	*Ptilotus lanatus*			
931.	2751	*Ptilotus polystachyus (Prince of Wales Feather)*			
932.	19509	*Pupalia micrantha*	Y		
933.	5295	*Rhizophora stylosa (Spotted-leaved Red Mangrove)*			
934.	4190	*Rhynchosia australis (Rhynchosia)*			
935.		*Rhynchospora sp.*			
936.	7360	*Richardia scabra (White Eye)*	Y		
937.	17890	*Ruellia tuberosa*	Y		
938.	30434	*Salsola australis*			
939.	2357	*Santalum lanceolatum (Northern Sandalwood, Yarnguli)*			
940.	27230	*Sarconema filiforme*			
941.	7623	*Scaevola macrostachya*			
942.	13153	*Scaevola taccada*			
943.	1027	*Scleria brownii*			
944.	12303	*Senna costata*			
945.	12310	*Senna goniodes*			
946.	12312	*Senna notabilis*			
947.	10848	*Senna occidentalis*	Y		
948.	12316	*Senna surattensis*			
949.	12317	*Senna surattensis subsp. sulfurea*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
950.	12319	*Senna venusta*			
951.	31172	*Sersalisia sericea (Nangi)*			
952.	4196	*Sesbania cannabina (Sesbania Pea)*			
953.	4198	*Sesbania formosa (White Dragon Tree)*			
954.	2818	*Sesuvium portulacastrum*			
955.	605	*Setaria apiculata (Pigeon Grass)*			
956.	32984	*Sida acuta subsp. acuta*	Y		
957.	4979	*Sida hackettiana*			
958.	4981	*Sida intricata (Tangled Sida)*			
959.	18150	*Sida rohlenae subsp. occidentalis*			
960.	16993	*Sida sp. Rabbit Flat (B.J. Carter 626)*			
961.	7000	*Solanum cunninghamii*			
962.	7001	*Solanum dioicum (Gilu)*			
963.	7027	*Solanum petraeum*			
964.	27281	*Solieria robusta*			
965.	5288	*Sonneratia alba (Pornupan)*			
966.	12921	*Sorghum ecarinatum*			
967.	12920	*Sorghum interjectum*			
968.	619	*Sorghum plumosum (Plume Canegrass)*			
969.	620	*Sorghum stipoideum (Annual Sorghum)*			
970.	28347	*Spermacoce occidentalis*			
971.		*Spermacoce sp.*			
972.	43943	*Sphaeromorphaea littoralis*			
973.	38441	*Sphagneticola trilobata*	Y		
974.	625	*Spinifex longifolius (Beach Spinifex)*			
975.	44523	*Spongophloea tissotii*			
976.	635	*Sporobolus virginicus (Marine Couch)*			
977.	27310	*Spyridia filamentosa*			
978.	7101	*Stemodia lythrifolia (Bunu Bunu)*			
979.	7103	*Striga curviflora*			
980.	45717	*Stylidium pindanicum (Pindan Triggerplant)*		P3	
981.	12353	*Stylosanthes hamata (Verano Stylo)*	Y		
982.	4214	*Stylosanthes humilis (Townsville Stylo)*	Y		
983.	12354	*Stylosanthes scabra*	Y		
984.	14491	*Stylosanthes viscosa*	Y		
985.	2638	*Suaeda arbusculoides*			
986.	132	*Syringodium isoetifolium*			
987.	12113	*Syzygium eucalyptoides subsp. bleeseri*			
988.	6047	*Syzygium suborbiculare*			
989.	33236	*Tecticornia halocnemoides (Shrubby Samphire)*			
990.	33238	*Tecticornia halocnemoides subsp. tenuis*			
991.	33356	*Tecticornia indica subsp. indica*			
992.	4253	*Templetonia hookeri*			
993.	4266	*Tephrosia crocea (Baynjood)*			
994.	4269	*Tephrosia flammea*			
995.	13922	*Tephrosia laxa var. angustata*			
996.	4272	*Tephrosia leptoclada*			
997.	4274	*Tephrosia oblongata*			
998.	4280	*Tephrosia rosea (Flinders River Poison, Bungoo'dah)*			
999.	19531	*Tephrosia rosea var. clementii*			
1000.	19529	*Tephrosia rosea var. rosea*			
1001.	4281	*Tephrosia simplicifolia*			
1002.	34716	*Tephrosia sp. Pentecost River (I.D. Cowie 4168)*			
1003.	20777	*Tephrosia valleculata*		P3	
1004.	4287	*Tephrosia virens*			
1005.	5300	*Terminalia canescens (Joolal)*			
1006.	5303	*Terminalia ferdinandiana (Mador)*			
1007.	5306	*Terminalia hadleyana*			
1008.	5307	*Terminalia latipes*			
1009.	5309	*Terminalia petiolaris (Masroorl)*			
1010.	169	*Thalassia hemprichii*			
1011.	133	*Thalassodendron ciliatum*			
1012.	4992	*Thespesia populneoides (Laba)*			
1013.	1326	*Thysanotus chinensis*			
1014.	2942	*Tinospora smilacina (Snakevine, Oondala)*			
1015.	27334	*Titanophora weberae*			
1016.	27335	*Tolypiocladia calodictyon*			
1017.	27336	*Tolypiocladia glomerulata*			
1018.	6270	*Trachymene didiscoides*			
1019.	1745	*Trema tomentosa*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1020.	44305	*Trianthema pilosum*			
1021.	2830	*Trianthema portulacastrum (Giant Pigweed)*	Y		
1022.	4368	*Tribulopis angustifolia*			
1023.	19138	*Tribulopis sp. Koolan Island (K.F. Kenneally 8278)*		P1	
1024.	4375	*Tribulus cistoides*			
1025.	4383	*Tribulus terrestris (Caltrop)*	Y		
1026.	6727	*Trichodesma zeylanicum (Camel Bush, Kumbalin)*			
1027.	27339	*Trichogloea requienii*			
1028.	27340	*Tricleocarpa cylindrica*			
1029.	8252	*Tridax procumbens (Tridax, Tridax Daisy)*	Y		
1030.	17888	*Triodia acutispicula*		P3	
1031.	17883	*Triodia bynoei*			
1032.	696	*Triodia pungens (Soft Spinifex)*			
1033.	17539	*Triumfetta breviaculeata*			
1034.	14961	*Triumfetta carteri*			
1035.	4880	*Triumfetta micracantha*			
1036.	4881	*Triumfetta plumigera*			
1037.	17534	*Triumfetta ryeae*			
1038.	13469	*Triumfetta triandra*			
1039.	27348	*Udotea argentea*			
1040.	27349	*Udotea flabellum*			
1041.	35302	*Udotea glaucescens*			
1042.	35261	*Ulva clathrata*			
1043.	715	*Urochloa mosambicensis (Sabi Grass)*	Y		
1044.	10865	*Urochloa subquadripara*			
1045.	48823	*Utricularia bidentata*		P3	
1046.	7140	*Utricularia kimberleyensis (Kimberley Bladderwort)*			
1047.	29526	*Vachellia pachyphloia subsp. brevipinnula*			
1048.	29525	*Vachellia pachyphloia subsp. pachyphloia*			
1049.	36143	*Valonia fastigiata*			
1050.	46438	*Valonia ventricosa*			
1051.	27357	*Valoniopsis pachynema*			
1052.	35904	*Vanvoorstia spectabilis*			
1053.	7663	*Velleia panduriformis (Cabbage Poison)*			
1054.	11800	*Vigna lanceolata var. filiformis*			
1055.	4324	*Vigna radiata (Mung Bean)*			
1056.	18503	*Vigna radiata var. sublobata*			
1057.	14398	*Vigna vexillata*			
1058.	48985	*Vincetoxicum carnosum*			
1059.	48983	*Vincetoxicum cinerascens*			
1060.	48987	*Vincetoxicum flexuosum*			
1061.	6742	*Vitex glabrata (Vitex, Yauru)*			
1062.	11359	*Vitex trifolia var. subtrisecta*	Y		
1063.	12725	*Wahlenbergia caryophylloides*			
1064.	5106	*Waltheria indica*			
1065.	725	*Whiteochloa airoides*			
1066.	6578	*Wrightia saligna*			
1067.	6661	*Xenostegia tridentata*			
1068.	730	*Xerochloa imberbis (Rice Grass)*			
1069.	1142	*Xyris complanata*			
1070.	735	*Yakirra pauciflora*			
1071.	27370	*Yamadaella caenomyce*			
1072.	4327	*Zornia chaetophora*			
1073.	12680	*Zornia prostrata var. prostrata*			

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

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

NatureMap
Mapping Western Australia's biodiversity

NatureMap Species Report - Lombadina flora

Created By [redacted] on 29/10/2020

Kingdom	Plantae
Conservation Status	Conservation Taxon (T, X, IA, S, P1-P5)
Current Names Only	Yes
Core Datasets Only	Yes
Species Group	All Plants
Method	'By Circle'
Centre	122° 58' 32" E,16° 28' 05" S
Buffer	40km
Group By	Conservation Status

Conservation Status	Species	Records
Priority 1	4	6
Priority 2	1	2
Priority 3	5	15
TOTAL	**10**	**23**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Priority 1					
1.	17435	*Cullen candidum*		P1	
2.	45678	*Haemodorum capitatum*		P1	
3.	17362	*Parsonsia kimberleyensis*		P1	
4.	19138	*Tribulopis sp. Koolan Island (K.F. Kenneally 8278)*		P1	
Priority 2					
5.	17573	*Alysicarpus suffruticosus*		P2	
Priority 3					
6.	11425	*Lophostemon grandiflorus subsp. grandiflorus*		P3	
7.	45717	*Stylidium pindanicum (Pindan Triggerplant)*		P3	
8.	20777	*Tephrosia valleculata*		P3	
9.	17888	*Triodia acutispicula*		P3	
10.	48823	*Utricularia bidentata*		P3	

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Appendix 3

Atlas of Living Australia Database Search Results

Reptiles

Family	Species	Common Name	Number
Agamidae	*Chelosania brunnea*	Chameleon Dragon	1
Agamidae	*Chlamydosaurus kingii*	Frilled Lizard	4
Agamidae	*Diporiphora pindan*	Pindan Two-line Dragon	18
Agamidae	*Lophognathus gilberti*	Gilbert's Dragon	11
Agamidae	*Pogona minor mitchelli*	Dwarf Bearded Dragon	7
Cheloniidae	*Chelonia mydas*	Green Turtle	37
Cheloniidae	*Lepidochelys olivacea*	Pacific Ridley	1
Colubridae	*Dendrelaphis punctulatus*	Common Tree Snake	2
Colubridae	*Fordonia leucobalia*	White-bellied Mangrove Snake	1
Diplodactylidae	*Amalosia rhombifer*	Zigzag Velvet Gecko	1
Diplodactylidae	*Diplodactylus*	Western Fat-tailed Gecko	1
Diplodactylidae	*Oedura gracilis*	Gracile Velvet Gecko	3
Diplodactylidae	*Strophurus ciliaris*	Northern Spiny-tailed Gecko	1
Diplodactylidae	*Strophurus ciliaris aberrans*	Northern Spiny-tailed Gecko	7
Elapidae	*Demansia angusticeps*		1
Elapidae	*Demansia papuensis*	Greater Black Whipsnake	1
Elapidae	*Furina ornata*	Orange-naped Snake	1
Elapidae	*Pseudechis australis*	King Brown Snake	3
Elapidae	*Pseudonaja mengdeni*	Western Brown Snake	4
Elapidae	*Simoselaps minimus*	Dampierland Burrowing Snake	3
Gekkonidae	*Gehyra australis*	Northern Dtella	9
Gekkonidae	*Gehyra nana*	Northern Spotted Rock Dtella	6
Gekkonidae	*Gehyra occidentalis*	Kimberley Plateau Dtella	17
Gekkonidae	*Gehyra pilbara*	Pilbara Dtella	18
Gekkonidae	*Gehyra punctata*	Spotted Dtella	8
Gekkonidae	*Gehyra variegata*	Tree Dtella	1
Gekkonidae	*Heteronotia binoei*	Bynoe's Gecko	43
Pygopodidae	*Delma borea*	Rusty-topped Delma	5
Pygopodidae	*Delma tincta*	Excitable Delma	1
Pygopodidae	*Lialis burtonis*	Burton's Snake-lizard	8
Pythonidae	*Antaresia childreni*	Children's Python	3
Pythonidae	*Antaresia stimsoni stimsoni*		1
Pythonidae	*Liasis olivaceus olivaceus*		1
Scincidae	*Carlia amax*	Bauxite Rainbow-skink	2
Scincidae	*Carlia munda*	Shaded-litter Rainbow-skink	3
Scincidae	*Carlia triacantha*	Desert Rainbow-skink	11
Scincidae	*Cryptoblepharus tytthos*	Pygmy Snake-eyed Skink	7
Scincidae	*Ctenotus colletti*	Buff-tailed Finesnout Ctenotus	1
Scincidae	*Ctenotus helenae*	Clay-soil Ctenotus	4
Scincidae	*Ctenotus inornatus*	Bar-shouldered Ctenotus	31
Scincidae	*Ctenotus serventyi*	North-western Sandy-loam Ctenotus	1
Scincidae	*Eremiascincus isolepis*	Northern Bar-lipped Skink	49
Scincidae	*Lerista apoda*	Dampier Land Limbless Slider	7
Scincidae	*Lerista bipes*	North-western Sandslider	57
Scincidae	*Lerista greeri*	South-eastern Kimberley Sandslider	1

Family	Species	Common Name	Number
Scincidae	*Lerista griffini*	Stout Sandslider	33
Scincidae	*Lerista separanda*	Dampierland Plain Slider	1
Scincidae	*Menetia maini*	Northern Dwarf Skink	1
Scincidae	*Morethia ruficauda ruficauda*		1
Scincidae	*Morethia storri*	Top End Firetail Skink	3
Scincidae	*Notoscincus ornatus*	Ornate Soil-crevice Skink	1
Scincidae	*Notoscincus ornatus wotjulum*		9
Scincidae	*Tiliqua multifasciata*	Centralian Blue-tongue	1
Scincidae	*Tiliqua scincoides intermedia*	Northern Blue-tongued Skink	2
Typhlopidae	*Anilios diversus*	Northern Blind Snake	4
Varanidae	*Varanus glauerti*	Kimberley Rock Monitor	2
Varanidae	*Varanus glebopalma*	Black-palmed Monitor	1
Varanidae	*Varanus gouldii*	Gould's Goanna	1
Varanidae	*Varanus scalaris*	Spotted Tree Monitor	1
Varanidae	*Varanus tristis*	Black-headed Monitor	2

Mammals

Family	Species	Common Name	Number
Balaenopteridae	*Megaptera novaeangliae*	Humpback whale	23
Dasyuridae	*Dasyurus hallucatus*	Northern Quoll	1
Dasyuridae	*Planigale maculata*	Common Planigale	1
Dasyuridae	*Pseudantechinus ningbing*	Ningbing Pseudantechinus	2
Dasyuridae	*Sminthopsis macroura froggatti*	Froggatt's Stripe-faced Dunnart	3
Delphinidae	*Sousa sahulensis*	Australian humpbacked dolphin	1
Dugongidae	*Dugong dugon*	dugong	45
Emballonuridae	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	2
Emballonuridae	*Taphozous georgianus*	Common Sheathtail-bat	3
Macropodidae	*Onychogalea unguifera*	Northern Nailtail Wallaby	1
Molossidae	*Ozimops cobourgianus*	North-western Free-tailed Bat	2
Muridae	*Conilurus penicillatus*	Brush-tailed Tree-rat	1
Muridae	*Melomys burtoni*	Grassland Melomys	24
Muridae	*Pseudomys delicatulus*	Delicate Mouse	4
Muridae	*Rattus exulans*	Pacific Rat	1
Muridae	*Rattus rattus*	Black Rat	7
Pteropodidae	*Macroglossus minimus*	Northern Blossom-bat	6
Pteropodidae	*Pteropus alecto*	Black Flying-fox	4
Pteropodidae	*Pteropus scapulatus*	Little Red Flying-fox	2
Suidae	*Sus scrofa*	Pig	1
Vespertilionidae	*Chalinolobus gouldii*	Gould's Wattled Bat	8
Vespertilionidae	*Chalinolobus nigrogriseus*	Hoary Wattled Bat	7
Vespertilionidae	*Nyctophilus arnhemensis*	Arnhem Long-eared Bat	20
Vespertilionidae	*Nyctophilus daedalus*	Pallid Long-eared Bat	3
Vespertilionidae	*Pipistrellus westralis*	Northern Pipistrelle	8
Vespertilionidae	*Scotorepens greyii*	Little Broad-nosed Bat	15
Vespertilionidae	*Scotorepens sanborni*	Northern Broad-nosed Bat	1
Vespertilionidae	*Vespadelus caurinus*	Northern Cave Bat	5

Avifauna

Family	Species	Common Name	Number
Acanthizidae	*Gerygone chloronota*		1
Acanthizidae	*Gerygone fusca*	Western Gerygone	2
Acanthizidae	*Gerygone levigaster*	Mangrove Gerygone	21
Acanthizidae	*Gerygone olivacea*	White-throated Gerygone	32
Acanthizidae	*Gerygone tenebrosa*	Dusky Gerygone	14
Acanthizidae	*Smicrornis brevirostris*	Weebill	12
Accipitridae	*Accipiter cirrocephalus*	Collared Sparrowhawk	14
Accipitridae	*Accipiter fasciatus*	Brown Goshawk	26
Accipitridae	*Aquila audax*	Wedge-tailed Eagle	9
Accipitridae	*Circus approximans*	Swamp Harrier	3
Accipitridae	*Circus assimilis*	Spotted Harrier	3
Accipitridae	*Elanus axillaris*	Black-shouldered Kite	3
Accipitridae	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	62
Accipitridae	*Haliastur indus*	Brahminy Kite	78
Accipitridae	*Haliastur sphenurus*	Whistling Kite	44
Accipitridae	*Hieraaetus morphnoides*	Little Eagle	3
Accipitridae	*Lophoictinia isura*	Square-tailed Kite	4
Accipitridae	*Milvus migrans*	Black Kite	22
Accipitridae	*Pandion cristatus*	Eastern Osprey	32
Accipitridae	*Pandion haliaetus*	Osprey	32
Aegothelidae	*Aegotheles cristatus*	Australian Owlet-nightjar	4
Alcedinidae	*Ceyx azureus*	Azure Kingfisher	1
Alcedinidae	*Dacelo leachii*	Blue-winged Kookaburra	21
Alcedinidae	*Todiramphus chloris*	Collared Kingfisher	2
Alcedinidae	*Todiramphus pyrrhopygius*	Red-backed Kingfisher	4
Alcedinidae	*Todiramphus sanctus*	Sacred Kingfisher	30
Anatidae	*Anas gracilis*	Grey Teal	9
Anatidae	*Anas superciliosa*	Pacific Black Duck	29
Anatidae	*Apus pacificus*	Pacific Swift	6
Anatidae	*Aythya australis*	Hardhead	4
Anatidae	*Dendrocygna arcuata*	Wandering Whistling-Duck	7
Anatidae	*Nettapus pulchellus*	Green Pygmy-goose	1
Anhingidae	*Anhinga novaehollandiae*	Australasian Darter	5
Ardeidae	*Ardea alba*	Great Egret	5
Ardeidae	*Ardea intermedia*	Intermediate Egret	4
Ardeidae	*Ardea modesta*		7
Ardeidae	*Ardea pacifica*	White-necked Heron	4
Ardeidae	*Ardea sumatrana*	Great-billed Heron	4
Ardeidae	*Butorides striatus*	Striated Heron	32
Ardeidae	*Egretta garzetta*	Little Egret	17
Ardeidae	*Egretta novaehollandiae*	White-faced Heron	26
Ardeidae	*Egretta sacra*	Pacific Reef-Heron	100
Ardeidae	*Nycticorax caledonicus*	Rufous Night Heron	4
Artamidae	*Artamus cinereus*	Black-faced Woodswallow	27

Family	Species	Common Name	Number
Artamidae	*Artamus leucorynchus*	White-breasted Woodswallow	60
Artamidae	*Artamus minor*	Little Woodswallow	26
Artamidae	*Artamus personatus*	Masked Woodswallow	13
Artamidae	*Cracticus nigrogularis*	Pied Butcherbird	49
Artamidae	*Gymnorhina tibicen*	Australian Magpie	1
Burhinidae	*Burhinus grallarius*	Bush Thick-knee	8
Burhinidae	*Esacus magnirostris*	Beach Thick-knee	48
Burhinidae	*Esacus neglectus*	Beach Stone-curlew	2
Cacatuidae	*Cacatua sanguinea*	Little Corella	46
Cacatuidae	*Calyptorhynchus banksii*	Red-tailed Black-Cockatoo	62
Cacatuidae	*Eolophus roseicapilla*		1
Cacatuidae	*Nymphicus hollandicus*	Cockatiel	1
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckooshrike	118
Campephagidae	*Coracina papuensis*	White-bellied Cuckooshrike	1
Campephagidae	*Lalage leucomela*	Varied Triller	3
Campephagidae	*Lalage sueurii*	White-winged Triller	33
Caprimulgidae	*Eurostopodus argus*	Spotted Nightjar	7
Centropodidae	*Centropus phasianinus*	Pheasant Coucal	16
Charadriidae	*Calidris acuminata*		8
Charadriidae	*Calidris alba*		10
Charadriidae	*Calidris canutus*	Red Knot	2
Charadriidae	*Calidris ferruginea*		9
Charadriidae	*Calidris ruficollis*		33
Charadriidae	*Calidris subminuta*		1
Charadriidae	*Calidris tenuirostris*		15
Charadriidae	*Charadrius leschenaultii*		52
Charadriidae	*Charadrius mongolus*		18
Charadriidae	*Charadrius ruficapillus*	Red-capped Plover	70
Charadriidae	*Elseyornis melanops*	Black-fronted Dotterel	18
Charadriidae	*Erythrogonys cinctus*	Red-kneed Dotterel	3
Charadriidae	*Pluvialis fulva*	Pacific golden plover	12
Charadriidae	*Pluvialis squatarola*	Grey plover	25
Charadriidae	*Vanellus miles*	Masked Lapwing	17
Charadriiformes	*Tringa brevipes*		58
Charadriiformes	*Tringa glareola*		6
Charadriiformes	*Tringa nebularia*		39
Charadriiformes	*Tringa stagnatilis*		3
Charadriiformes	*Tringa totanus*		1
Ciconiidae	*Ephippiorhynchus asiaticus*	Black-necked Stork	18
Cisticolidae	*Cisticola exilis*	Golden-headed Cisticola	3
Climacteridae	*Climacteris melanura*	Black-tailed Treecreeper	5
Columbidae	*Chalcophaps indica*	Emerald Dove	1
Columbidae	*Geopelia cuneata*	Diamond Dove	13
Columbidae	*Geopelia humeralis*	Bar-shouldered Dove	170
Columbidae	*Geopelia striata*	Peaceful Dove	167
Columbidae	*Ocyphaps lophotes*	Crested Pigeon	5

Family	Species	Common Name	Number
Columbidae	*Petrophassa albipennis*	White-quilled Rock-Pigeon	1
Columbidae	*Ptilinopus regina*	Rose-crowned Fruit-Dove	22
Coraciidae	*Eurystomus orientalis*	Dollarbird	5
Corvidae	*Corvus orru*	Torresian Crow	62
Cuculidae	*Cacomantis pallidus*	Pallid Cuckoo	7
Cuculidae	*Cacomantis variolosus*	Brush Cuckoo	24
Cuculidae	*Chalcites basalis*	Horsfield's Bronze-Cuckoo	13
Cuculidae	*Chalcites minutillus*	Little Bronze-Cuckoo	8
Cuculidae	*Chalcites osculans*	Black-eared Cuckoo	1
Cuculidae	*Cuculus optatus*		2
Cuculidae	*Scythrops novaehollandiae*	Channel-billed Cuckoo	4
Dicruridae	*Dicrurus bracteatus*		2
Estrildidae	*Emblema pictum*	Painted Firetail	1
Estrildidae	*Erythrura gouldiae*	Gouldian Finch	35
Estrildidae	*Heteromunia pectoralis*	Pictorella Munia	1
Estrildidae	*Lonchura castaneothorax*	Chestnut-breasted Munia	10
Estrildidae	*Poephila acuticauda*	Long-tailed Finch	83
Estrildidae	*Stizoptera bichenovii*		127
Estrildidae	*Taeniopygia guttata*	Zebra Finch	19
Falconidae	*Falco berigora*	Brown Falcon	25
Falconidae	*Falco cenchroides*	Australian Kestrel	14
Falconidae	*Falco longipennis*	Australian Hobby	8
Falconidae	*Falco peregrinus*	Peregrine Falcon	2
Fregatidae	*Fregata ariel*	Lesser Frigatebird	21
Fregatidae	*Fregata minor*	Great Frigatebird	1
Glareolidae	*Stiltia isabella*	Australian Pratincole	4
Gruidae	*Grus rubicunda*	Brolga	3
Haematopodidae	*Haematopus fuliginosus*	Sooty Oystercatcher	88
Haematopodidae	*Haematopus longirostris*	Pied Oystercatcher	92
Hirundinidae	*Petrochelidon ariel*	Fairy Martin	3
Hirundinidae	*Petrochelidon nigricans*	Tree Martin	28
Laridae	*Anous stolidus*		5
Laridae	*Chlidonias hybrida*	Whiskered Tern	29
Laridae	*Chlidonias leucopterus*		2
Laridae	*Chroicocephalus novaehollandiae*	Silver Gull	154
Laridae	*Gelochelidon nilotica*	Gull-billed Tern	32
Laridae	*Hydroprogne caspia*	Caspian Tern	10
Laridae	*Onychoprion anaethetus*	Bridled Tern	9
Laridae	*Onychoprion fuscata*	Sooty Tern	3
Laridae	*Sterna dougallii*		8
Laridae	*Sterna hirundo*		7
Laridae	*Sternula albifrons*	Little Tern	12
Laridae	*Thalasseus bengalensis*	Lesser Crested Tern	23
Laridae	*Thalasseus bergii*		64
Maluridae	*Malurus assimilis*	Purple-backed Fairywren	14
Maluridae	*Malurus elegans*	Red-winged Fairywren	1

Family	Species	Common Name	Number
Maluridae	*Malurus lamberti*	Variegated Fairy-wren	8
Maluridae	*Malurus melanocephalus*	Red-backed Fairywren	97
Megaluridae	*Cincloramphus cruralis*	Brown Songlark	1
Megaluridae	*Cincloramphus mathewsi*	Rufous Songlark	4
Meliphagidae	*Certhionyx pectoralis*		18
Meliphagidae	*Certhionyx variegatus*	Pied Honeyeater	3
Meliphagidae	*Conopophila rufogularis*	Rufous-throated Honeyeater	74
Meliphagidae	*Epthianura crocea*	Yellow Chat	1
Meliphagidae	*Gavicalis virescens*	Singing Honeyeater	85
Meliphagidae	*Lichmera indistincta*	Brown Honeyeater	162
Meliphagidae	*Melithreptus albogularis*	White-throated Honeyeater	11
Meliphagidae	*Melithreptus gularis*	Black-chinned Honeyeater	12
Meliphagidae	*Myzomela erythrocephala*	Red-headed Myzomela	39
Meliphagidae	*Philemon argenticeps*	Silver-crowned Friarbird	9
Meliphagidae	*Philemon citreogularis*	Little Friarbird	98
Meliphagidae	*Ptilotula flavescens*	Yellow-tinted Honeyeater	94
Meliphagidae	*Ptilotula keartlandi*		1
Meliphagidae	*Ptilotula plumula*		1
Meliphagidae	*Puffinus assimilis*		1
Meliphagidae	*Ramsayornis fasciatus*	Bar-breasted Honeyeater	1
Meliphagidae	*Stomiopera unicolor*	White-gaped Honeyeater	146
Meropidae	*Merops ornatus*	Rainbow Bee-eater	107
Monarchidae	*Grallina cyanoleuca*	Magpie-lark	79
Monarchidae	*Myiagra alecto*	Shining Flycatcher	16
Monarchidae	*Myiagra inquieta*	Restless Flycatcher	24
Monarchidae	*Myiagra rubecula*	Leaden Flycatcher	23
Monarchidae	*Myiagra ruficollis*	Broad-billed Flycatcher	31
Motacillidae	*Anthus novaeseelandiae*	Australasian Pipit	6
Nectariniidae	*Dicaeum hirundinaceum*	Mistletoebird	122
Neosittidae	*Daphoenositta chrysoptera*	Varied Sittella	14
Oceanitidae	*Oceanites oceanicus*	Wilson's Storm Petrel	1
Oriolidae	*Oriolus flavocinctus*	Yellow Oriole	1
Oriolidae	*Oriolus sagittatus*	Olive-backed Oriole	30
Oriolidae	*Sphecotheres vieilloti*	Australasian Figbird	1
Otididae	*Ardeotis australis*	Australian Bustard	1
Pachycephalidae	*Colluricincla harmonica*	Gray Shrikethrush	39
Pachycephalidae	*Pachycephala lanioides*	White-breasted Whistler	13
Pachycephalidae	*Pachycephala melanura*	Black-tailed Whistler	33
Pachycephalidae	*Pachycephala pectoralis*	Golden Whistler	1
Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler	131
Pardalotidae	*Pardalotus rubricatus*	Red-browed Pardalote	3
Pardalotidae	*Pardalotus striatus*	Striated Pardalote	28
Pelecanidae	*Pelecanus conspicillatus*	Australian Pelican	25
Petroicidae	*Melanodryas cucullata*	Hooded Robin	18
Petroicidae	*Microeca fascinans*	Jacky-winter	63
Petroicidae	*Microeca flavigaster*		19

Family	Species	Common Name	Number
Phaethontidae	*Phaethon rubricauda*	Red-tailed Tropicbird	2
Phalacrocoracidae	*Microcarbo melanoleucos*	Little Pied Cormorant	9
Phalacrocoracidae	*Phalacrocorax melanoleucos*	Little Pied Cormorant	5
Phalacrocoracidae	*Phalacrocorax sulcirostris*	Little Black Cormorant	4
Phalacrocoracidae	*Phalacrocorax varius*	Pied Cormorant	33
Phasianidae	*Coturnix ypsilophora*	Brown Quail	11
Podargidae	*Podargus strigoides*	Tawny Frogmouth	5
Podicipedidae	*Poliocephalus poliocephalus*	Hoary-headed Grebe	1
Podicipedidae	*Tachybaptus novaehollandiae*	Australasian Grebe	23
Pomatostomidae	*Pomatostomus temporalis*	Gray-crowned Babbler	75
Psittacidae	*Aprosmictus erythropterus*	Red-winged Parrot	83
Psittacidae	*Melopsittacus undulatus*	Budgerigar	6
Psittacidae	*Psitteuteles versicolor*	Varied Lorikeet	15
Psittacidae	*Trichoglossus haematodus*	Rainbow Lorikeet	37
Ptilonorhynchidae	*Ptilonorhynchus nuchalis*	Great Bowerbird	63
Rallidae	*Eulabeornis castaneoventris*	0	1
Rallidae	*Fulica atra*	Eurasian Coot	2
Rallidae	*Gallirallus philippensis*		1
Rallidae	*Porphyrio porphyrio*	Purple Swamphen	1
Rallidae	*Porzana tabuensis*	Spotless Crake	1
Recurvirostridae	*Himantopus himantopus*	Black-winged Stilt	9
Rhipiduridae	*Rhipidura albiscapa*	Grey Fantail	6
Rhipiduridae	*Rhipidura leucophrys*	Willie-wagtail	168
Rhipiduridae	*Rhipidura phasiana*	Mangrove Fantail	18
Rhipiduridae	*Rhipidura rufiventris*	Northern Fantail	75
Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	53
Scolopacidae	*Arenaria interpres*		35
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	33
Scolopacidae	*Limosa limosa*	Black-tailed Godwit	3
Scolopacidae	*Numenius madagascariensis*	Eastern curlew	23
Scolopacidae	*Numenius minutus*	Little Curlew	3
Scolopacidae	*Numenius phaeopus*	Whimbrel	51
Scolopacidae	*Xenus cinereus*	Terek Sandpiper	11
Strigidae	*Ninox connivens*	Barking Owl	9
Strigidae	*Ninox novaeseelandiae*	Southern Boobook	1
Sulidae	*Sula leucogaster*		58
Threskiornithidae	*Platalea regia*	Royal Spoonbill	15
Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis	6
Threskiornithidae	*Threskiornis moluccus*	Australian Ibis	42
Threskiornithidae	*Threskiornis spinicollis*	Straw-necked Ibis	28
Timaliidae	*Zosterops lateralis*		2
Timaliidae	*Zosterops luteus*	Australian Yellow White-eye	72
Turnicidae	*Turnix castanotus*	Chestnut-backed Button-quail	6
Turnicidae	*Turnix maculosus*	Red-backed Buttonquail	2
Turnicidae	*Turnix velox*	Little Button-quail	1
Tytonidae	*Tyto javanica*	Eastern Barn Owl	3

Amphibians

Family	Species	Common	Number
Pelodryadidae	*Cyclorana australis*	Giant Frog	4
	Litoria caerulea	Green Tree Frog	4
	Litoria rothii	Northern Laughing Tree Frog	3
Limnodynastidae	*Platyplectrum ornatum*	Ornate Burrowing Frog	1

Invertebrates

Family	Species	Number
Camaenidae	*Quistrachia leptogramma*	6
	Quistrachia monogramma	1
	Rhagada bulgana	15
	Rhagada cygna	18
	Rhagada dominica	3
	Rhagada primigena	1
	Rhagada reinga	1
	Rhagada sp.	38
	Westraltrachia oscarensis	1
Buthidae	*Lychas* sp.	5
Urodacidae	*Urodacus hoplurus*	7
Anamidae	*Aname* sp.	7
Halonoproctidae	*Conothele* sp.	1

Appendix 4

EPBC Act Protected Matters Database Search Results

Australian Government

Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

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

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

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

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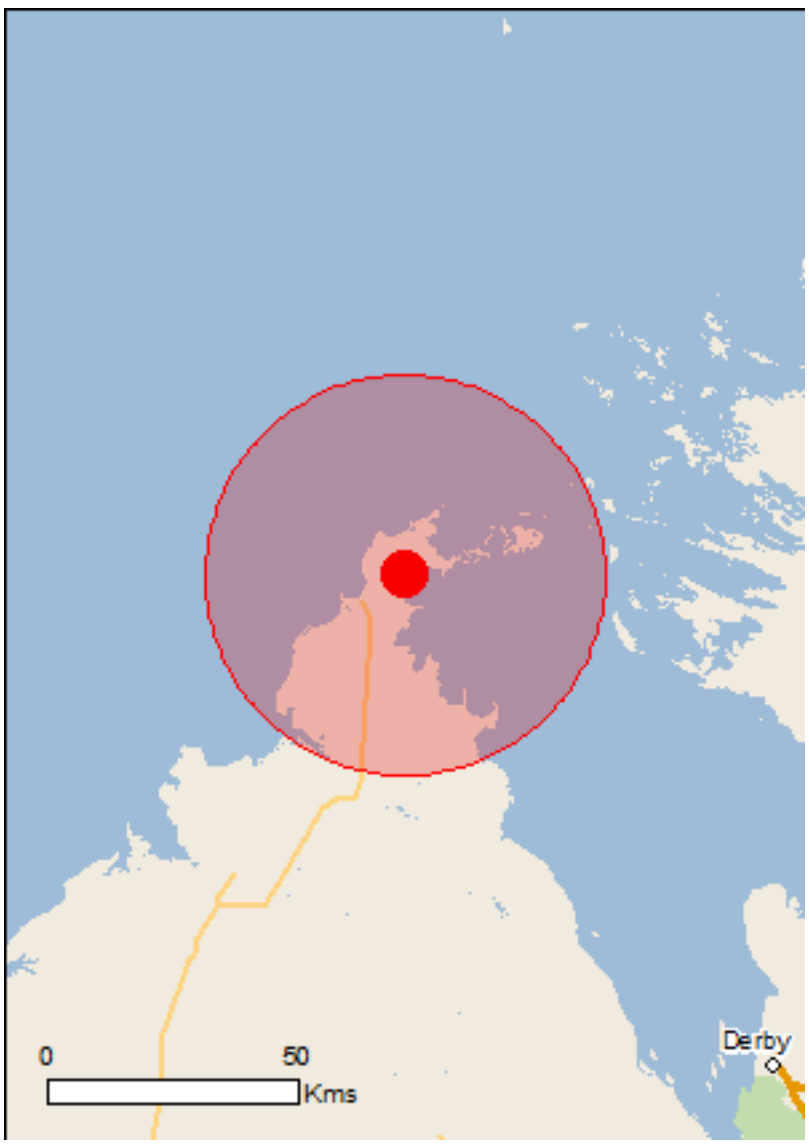

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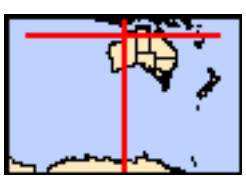


Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	1
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	1
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	31
Listed Migratory Species:	53

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	84
Whales and Other Cetaceans:	15
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	2

Extra Information

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

State and Territory Reserves:	2
Regional Forest Agreements:	None
Invasive Species:	9
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

National Heritage Properties [Resource Information]

Name	State	Status
Natural		
The West Kimberley	WA	Listed place

Commonwealth Marine Area [Resource Information]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside the Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area. Generally the Commonwealth Marine Area stretches from three nautical miles to two hundred nautical miles from the coast.

Name
EEZ and Territorial Sea

Marine Regions [Resource Information]

If you are planning to undertake action in an area in or close to the Commonwealth Marine Area, and a marine bioregional plan has been prepared for the Commonwealth Marine Area in that area, the marine bioregional plan may inform your decision as to whether to refer your proposed action under the EPBC Act.

Name
North-west

Listed Threatened Ecological Communities [Resource Information]

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

Name	Status	Type of Presence
Monsoon vine thickets on the coastal sand dunes of Dampier Peninsula	Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat may occur within area
Erythrura gouldiae Gouldian Finch [413]	Endangered	Species or species habitat known to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat may occur within area

Name	Status	Type of Presence
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Papasula abbotti Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Tyto novaehollandiae kimberli Masked Owl (northern) [26048]	Vulnerable	Species or species habitat may occur within area
Mammals		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
Macrotis lagotis Greater Bilby [282]	Vulnerable	Species or species habitat known to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Breeding known to occur within area
Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat [66889]	Vulnerable	Species or species habitat may occur within area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat may occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area

Name	Status	Type of Presence
Sharks		
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Glyphis garricki Northern River Shark, New Guinea River Shark [82454]	Endangered	Breeding likely to occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Breeding known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Breeding known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area
Onychoprion anaethetus Bridled Tern [82845]		Breeding known to occur within area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons Little Tern [82849]		Breeding known to occur within area
Sula sula Red-footed Booby [1023]		Breeding known to occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Dugong dugon Dugong [28]		Foraging, feeding or related behaviour likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding likely to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area
Isurus paucus Longfin Mako [82947]		Species or species habitat likely to occur within area
Manta alfredi Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat known to occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Breeding known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Breeding known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish	Vulnerable	Species or species habitat known to occur

Name	Threatened	Type of Presence
[60756]		within area
Pristis zijsron		
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding known to occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sousa chinensis		
Indo-Pacific Humpback Dolphin [50]		Breeding known to occur within area
Tursiops aduncus (Arafura/Timor Sea populations)		
Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Migratory Terrestrial Species		
Cecropis daurica		
Red-rumped Swallow [80610]		Species or species habitat may occur within area
Cuculus optatus		
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundo rustica		
Barn Swallow [662]		Species or species habitat may occur within area
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat known to occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Charadrius veredus		
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Glareola maldivarum		
Oriental Pratincole [840]		Species or species habitat may occur within area
Limosa lapponica		
Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Pandion haliaetus		
Osprey [952]		Breeding known to occur within area
Thalasseus bergii		
Crested Tern [83000]		Breeding known to occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus		
Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Calonectris leucomelas		
Streaked Shearwater [1077]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Breeding known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundo daurica Red-rumped Swallow [59480]		Species or species habitat may occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Larus novaehollandiae Silver Gull [810]		Breeding known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Papasula abbotti Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Sterna albifrons Little Tern [813]		Breeding known to occur within area
Sterna anaethetus Bridled Tern [814]		Breeding known to occur within area
Sterna bergii Crested Tern [816]		Breeding known to occur

Name	Threatened	Type of Presence
		within area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sula sula Red-footed Booby [1023]		Breeding known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area
Fish		
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammals		
Dugong dugon Dugong [28]		Foraging, feeding or related behaviour likely to occur within area
Reptiles		
Acalyptophis peronii Horned Seasnake [1114]		Species or species habitat may occur within area
Aipysurus duboisii Dubois' Seasnake [1116]		Species or species habitat may occur within area
Aipysurus eydouxii Spine-tailed Seasnake [1117]		Species or species habitat may occur within area
Aipysurus laevis Olive Seasnake [1120]		Species or species habitat may occur within area
Aipysurus tenuis Brown-lined Seasnake [1121]		Species or species habitat may occur within

Name	Threatened	Type of Presence
		area
Astrotia stokesii Stokes' Seasnake [1122]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus johnstoni Freshwater Crocodile, Johnston's Crocodile, Johnston's River Crocodile [1773]		Species or species habitat may occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area
Disteira major Olive-headed Seasnake [1124]		Species or species habitat may occur within area
Emydocephalus annulatus Turtle-headed Seasnake [1125]		Species or species habitat may occur within area
Ephalophis greyi North-western Mangrove Seasnake [1127]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding likely to occur within area
Hydrelaps darwiniensis Black-ringed Seasnake [1100]		Species or species habitat may occur within area
Hydrophis elegans Elegant Seasnake [1104]		Species or species habitat may occur within area
Hydrophis mcdowelli null [25926]		Species or species habitat may occur within area
Hydrophis ornatus Spotted Seasnake, Ornate Reef Seasnake [1111]		Species or species habitat may occur within area
Lapemis hardwickii Spine-bellied Seasnake [1113]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area

Whales and other Cetaceans [Resource Information]

Name	Status	Type of Presence
Mammals		

Name	Status	Type of Presence
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Delphinus delphis Common Dophin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Breeding known to occur within area
Orcaella brevirostris Irrawaddy Dolphin [45]		Species or species habitat likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Breeding known to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Australian Marine Parks	[Resource Information]
Name	Label
Kimberley	Habitat Protection Zone (IUCN IV)
Kimberley	Multiple Use Zone (IUCN VI)

Extra Information

State and Territory Reserves [Resource Information]

Name	State
Bardi Jawi	WA
Swan Island	WA

Invasive Species [Resource Information]

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

Name	Status	Type of Presence
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat may occur within area
Mammals		
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Plants		
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat likely to occur within area
Jatropha gossypifolia Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507]		Species or species habitat likely to occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat may occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Reptiles		
Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat may occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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

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

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

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

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

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

Coordinates

-16.468 122.9755

Acknowledgements

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

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

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

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

Department of Agriculture Water and the Environment
GPO Box 858
Canberra City ACT 2601 Australia
+61 2 6274 1111

Appendix 5

Significant Flora Species Recorded within 40 km and their Likelihood of Occurrence

Taxon	Habit and Habitat (WA Herbarium 2020)	Source			Likelihood of Occurrence in Study Area (NR = nearest record)	
		Nature Map	DBCA TPFL	WA Herbarium	Initial Ranking Based on Desktop Study	Final Ranking Including Results of the Field Survey
Priority 1						
Cullen candidum	Erect spindly shrub to 3 m. Grows in woodland; sometimes common in disturbed areas, along roadsides.	✓	✓	✓	May occur; single record from "One Arm Point" in 1987 (apparently in close proximity, but location coordinates imprecise); not recorded by any other surveys on Dampier Peninsula. (NR=100-900 m NE, as mapped).	Unlikely to occur.
Haemodorum capitatum	Bulbous perennial herb, to 50 cm tall, growing in Melaleuca woodland.	✓		✓	Unlikely to occur; no suitable habitat and only 1 record from locality (NR 15.5 km WNW.)	Unlikely to occur.
Parsonsia kimberleyensis	Climber growing in vine thickets.	✓		✓	May occur; small areas of potential vine thicket present (NR 11.5 km WNW.)	Would not occur; would have been recorded if present.
Tribulopis sp. Koolan Island (K.F. Kenneally 8278)	Prostrate annual herb growing in rocky sandstone areas.	✓		✓	Would not occur; no suitable habitat (NR 11.7 km ENE).	Would not occur.
Priority 2						
Alysicarpus suffruticosus	Low shrub to 40 cm tall, growing in open woodland in valley floors and creeks over sandstone.	✓	✓	✓	Unlikely to occur; no suitable habitat (NR=11.6 km NE).	Unlikely to occur.
Priority 3						
Lophostemon grandiflorus subsp. *grandiflorus*	Low tree associated with creeklines and low-lying areas behind dunes.	✓		✓	Would not occur; no suitable habitat (NR 15.6 km SW).	Would not occur.
Stylidium pindanicum	Herb to 35 cm tall, growing in seepage areas, dry creeks through pindan and other low-lying habitats.	✓		✓	Unlikely to occur; does not appear to be any suitable habitat (NR 6.5 km NW).	Unlikely to occur.
Tephrosia valleculata	Shrub to 1.6 m tall, growing on rugged rocky areas.	✓		✓	Would not occur; no suitable habitat (NR 2.6 km ENE).	Would not occur.
Triodia acutispicula	Hummock grass, growing in sand and rocky areas.	✓		✓	May occur; suitable habitat and several records in locality (NR 980 m SW.)	Unlikely to occur.
Utricularia bidentata	Small delicate herb to 15 cm tall, growing in moist areas along creeklines.	✓		✓	Unlikely to occur; does not appear to be any suitable habitat (NR 15.0 km WNW.)	Unlikely to occur.

Appendix 6

Significant Vertebrate Fauna Species Recorded within 40 km and their Likelihood of Occurrence

FAUNA GROUP	Conservation Status		Record Source			Habitat Preference	Habitat Potentially Available in Study Area?	Nearest Record	Record Details (if available)	Likelihood of Occurrence in Study Area	
Scientific Name **Common Name**	State	Commonwealth	Nature Map	ALA	EPBC					Initial Ranking Based on the Desktop Study	Final Ranking Including Results of the Field Survey
REPTILES											
Lerista separanda Dampierland Plain Slider	Priority 2	-	✓	✓	–	Sandy areas of the SW Kimberley coast.	Yes	34 km SW of Ardyaloon.	Three records from 2008.	Likely to occur.	Likely to occur.
Simoselaps minimus Dampierland Burrowing Snake	Priority 2	-	✓	✓	–	Dampier Peninsula endemic. Coastal dunes and adjacent *Acacia* shrubland on SW Kimberley coast.	Yes	23 km SW of Ardyaloon.	Six records spanning 1989, 1992, 2008.	Likely to occur.	Likely to occur.
MAMMALS											
Ozimops cobourgianus Northern Coastal Free-tailed Bat	Priority 1	-	✓	✓	-	Mangroves and adjacent coastal habitat. Roosts in tree hollows	Yes	21 km SW of Ardyaloon.	11 records from 1981 and 2008.	Likely to occur.	Likely to occur
Macrotis lagotis Bilby	Vulnerable	Vulnerable	✓	–	✓	*Triodia* hummock grassland and Acacia scrub across northern Australia.	Yes	13 km W of Ardyaloon.	Single record from 1975.	May occur.	May occur
Macroderma gigas Ghost Bat	Vulnerable	Vulnerable	–	–	✓	Patchy distribution, requires undisturbed roost caves or mineshafts.	No	No records on Dampier Peninsula.	Nearest record 85 km north-east on Bathurst Island.	Unlikely to occur.	Unlikely to occur
Dasyurus hallucatus Northern Quoll	Endangered	Endangered	–	✓	–	Range of vegetation types, mostly within 200 km of coast.	No	8 km NW of Ardyaloon.	Single record from 2017, low accuracy co-ordinates associated with record. Nearest NatureMap record is from Broome in 2015.	Unlikely to occur.	Unlikely to occur
BIRDS											
Erythrura gouldiae Gouldian Finch	Priority 4	Endangered	✓	✓	✓	Open grassy eucalypt woodlands and grasslands. Forages on native grass especially sorghum.	Yes	Recorded at Ardyaloon	Two birds observed at Bardi Jawi Ranger Station in 2019.	Likely to occur.	Likely to occur
Apus pacificus Pacific Swift	Migratory	Migratory/Marine	✓	✓	–	Almost exclusively aerial.	Yes	4 km NW of Ardyaloon.	Single record of two birds from 2018.	Likely to occur.	Likely to occur
Cuculus optatus Oriental Cuckoo	Migratory	Migratory/Marine	–	✓	–	Dense open woodlands and forests, riparian forests, vine thickets, sometimes gardens.	Yes	10 km SW of Ardyaloon.	Records on 5 and 6 Feb 2021	May potentially occur.	Likely to occur
Hirundo rustica Barn Swallow	Migratory	Migratory	–	–	✓	Wide variety of habitats, but generally preferring open country, often near water.	Yes	110 km SW offshore of Ardyaloon	Many records in Broome.	Unlikely to occur.	Likely to occur
Falco peregrinus Peregrine Falcon	Other Specially Protected Species	-	✓	✓	–	Variety of terrestrial habitats.	Yes	15 km NW of Ardyaloon.	Single record from 2014.	Likely to occur.	Likely to occur
Charadrius veredus Oriental Plover	Migratory	Migratory/Marine	–	–	✓	Short grasslands (natural and man-made) and sparsely vegetated plains, margins of wetlands. Less commonly tidal mudflats.	No	65 km SW of Ardyaloon	One record in 2002	May occur.	May occur
Numenius minutus Little Curlew	Migratory	Migratory/Marine	✓	✓	–	Coastal and inland grasslands and black soil plains in northern Australia, near swamps and flooded areas. Also feed on playing fields, paddocks and urban lawns.	Yes	8 km NW of Ardyaloon.	Low accuracy co-ordinates, no date associated with record.	Likely to occur.	May occur
Glareola maldivarum Oriental Pratincole	Migratory	Migratory	–	–	✓	Mostly aerial, above open country.	Yes	80 km SW of Ardyaloon.	–	Unlikely to occur.	May occur
Gelochelidon macrotarsa Australian [Gull-billed] Tern *Gelochelidon nilotica* [Common] Gull-billed Tern[1]	Migratory	Migratory/Marine	✓	✓	–	Estuaries and coasts (both species), inland wetlands and grasslands (primarily Australian).	Marginal	3.5 km NW of Ardyaloon	Single bird reported 2018, Australian	May occur.	May occur (likely to overly).
Chlidonias leucopterus White-winged Tern	Migratory	Migratory/Marine	–	✓	–	Freshwater wetlands, grasslands (esp. if flooded), estuaries, and coastal seas	Marginal	2 km NW of Ardyaloon	Single bird sighted at wastewater treatment ponds in 2016.	May occur.	May occur.

FAUNA GROUP	Conservation Status		Record Source			Habitat Preference	Habitat Potentially Available in Study Area?	Nearest Record	Record Details (if available)	Likelihood of Occurrence in Study Area	
Scientific Name **Common Name**	State	Commonwealth	Nature Map	ALA	EPBC					Initial Ranking Based on the Desktop Study	Final Ranking Including Results of the Field Survey
Pandion cristatus Eastern Osprey	Migratory	Migratory/Marine	✓	✓	–	Estuaries, coasts and offshore islands, occasionally freshwater wetlands or inland along major rivers.	Marginal	2 km NW and E of Ardyaloon	Records from 2007, 2014 and 2016	May occur	May occur
Motacilla tschutschensis Eastern Yellow Wagtail	Migratory	Migratory/Marine	–	–	✓	Open country, particularly well-watered grasslands or wetlands margins.	Marginal	No records within 40 km of Ardyaloon	-	May occur	May occur
Erythrotriorchis radiatus Red Goshawk	-	Vulnerable	–	–	✓	Mosaic of vegetation types, often near wetlands. They often occur at the boundary between two vegetation types, and often favour forests or woodlands dominated by eucalypts or paperbarks. They avoid very dense or very open habitats.	No	No records within 40 km of Ardyaloon.	Single record from 1976, 30 km north of Broome.	Unlikely to occur.	Unlikely to occur.
Falco hypoleucos Grey Falcon	-	Vulnerable	–	–	✓	Open plains and treed watercourses.	No	No records on Dampier Peninsula.	Nearest record on Koolan Island, 80 km NE of Dampier Peninsula.	Unlikely to occur.	Unlikely to occur.
Tyto novaehollandiae kimberli Masked Owl (northern)	-	Vulnerable	–	–	✓	Forests, woodlands, timbered waterways and open country on the fringe of these areas. Requires tall trees with suitable hollows for nesting and roosting and adjacent areas for foraging.	No	No records on Dampier Peninsula.	Nearest record over 200 km NE.	Unlikely to occur.	Unlikely to occur.
Plegadis falcinellus Glossy Ibis	Migratory	Migratory/Marine	–	✓	–	Freshwater wetlands and floodplains	No	2 km NW of Ardyaloon	Up to five individuals sighted at wastewater treatment ponds in 2018.	Unlikely to occur.	Unlikely to occur.
Cecropis daurica Red-rumped Swallow	Migratory	Migratory/Marine	–	–	✓	Rare migrant to Western Australia. Wide variety of habitats, but generally preferring open country, often near water.	Yes	Nearest records from Broome.	–	Unlikely to occur.	Unlikely to occur.
Motacilla cinerea Grey Wagtail	Migratory	Migratory/Marine	–	–	✓	Rare migrant to Western Australia. Close to water, particularly fast flowing waterways. Beaches and rockpools often used on migration.	Marginal	No records within 40 km of Lombadina	-	Unlikely to occur.	Unlikely to occur.
Pezoporus occidentalis Night Parrot	Critically Endangered	Endangered	–	–	✓	Old growth spinifex, esp. ring-forming spinifex for roosting and nesting, samphire or higher productivity grasslands for foraging.	No	No records on Dampier Peninsula.	-	Unlikely to occur.	Would not occur.

Appendix 7

Vegetation Structural Classes and Condition Scale

Vegetation Structural Classes*

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

* Based on Muir (1977) , and Aplin's (1979) modification of the vegetation classification system of Specht (1970): Aplin T.E.H. (1979). The Flora. Chapter 3 In O'Brien, B.J. (ed.) (1979). *Environment and Science*. University of Western Australia Press; Muir B.G. (1977). Biological Survey of the Western Australian Wheatbelt. Part II: Vegetation and habitat of Bendering Reserve. *Records of the Western Australian Museum*, Suppl. No. 3; Specht R.L. (1970). Vegetation. In: *The Australian Environment*. 4th edn (Ed. G.W. Leeper). Melbourne.

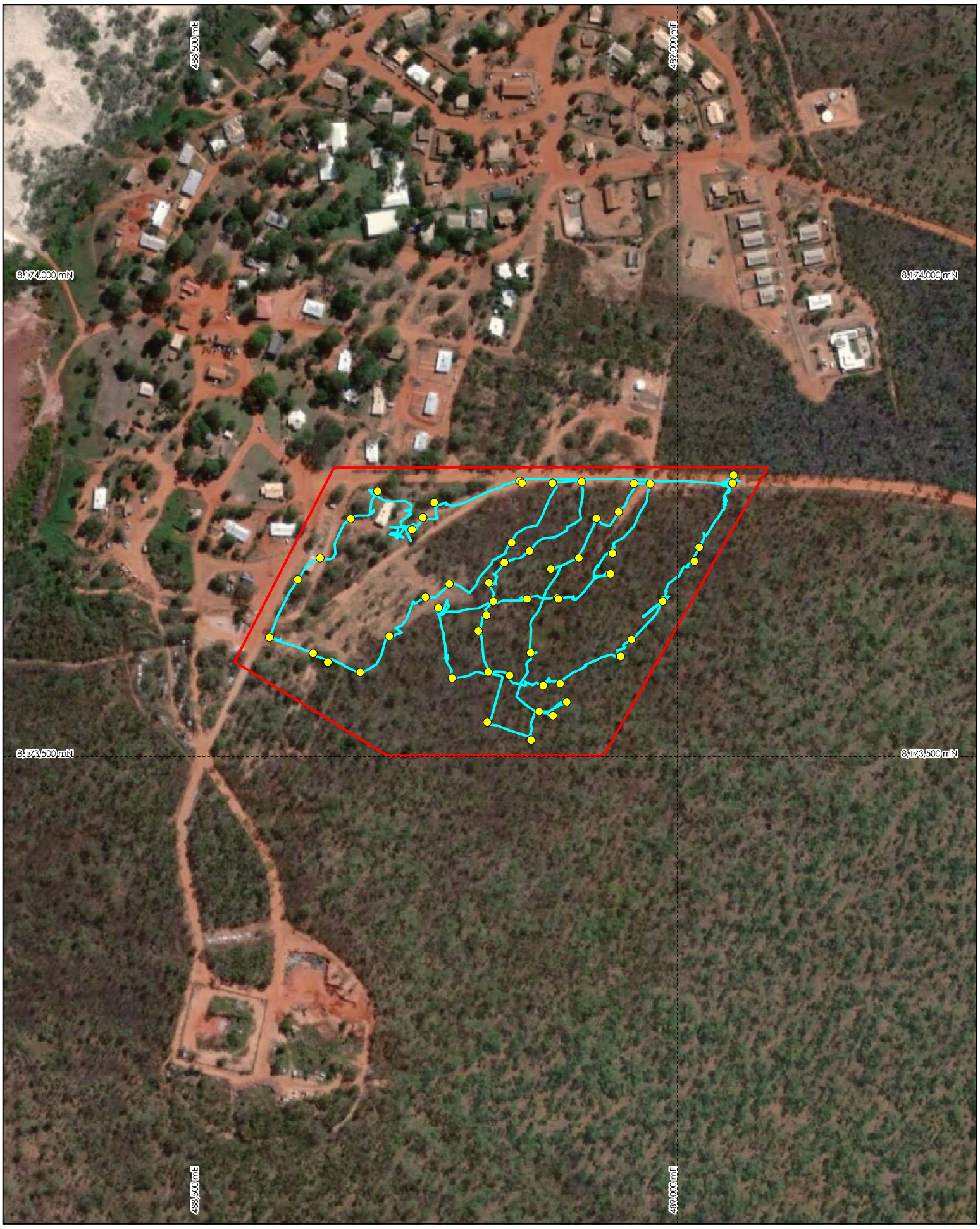
Vegetation Condition Scale for use on flora surveys*

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.

*Taken from EPA (2016c). Adapted from:
-Keighery, B.J. (1994). Bushland Plant Survey: a Guide to Plant Community Survey for the Community Wildflower Society of WA (Inc.), Nedlands, Western Australia; and
-Trudgen M.E. (1988). A Report on the Flora and Vegetation of the Port Kennedy Area. Unpublished report prepared for Bowman Bishaw and Associates, West Perth.

Appendix 8

Survey Effort Map



Location Map

Study area

Foot traverse

Mapping note

N

0 125 250

metres

Lombadina Campground
Survey Effort

Biota Environmental Sciences

Job No.: 1565 | Date: 03 Mar 2021 | Revised: | Projection: MGA Z51 (GDA94) | Scale: 1:5,000

Appendix 9

Vascular Flora Species List

Family	Species	Local Aboriginal (Bardi) Name	Location Recorded		Comments
			'Guided' Trail	'Self-guided' Trail	
Aizoaceae	*Trianthema pilosum*		✓	✓	
Amaranthaceae	**Aerva javanica*		✓	✓	Weed
	Gomphrena brachystylis subsp. *pindanensis*		✓	✓	
	Gomphrena flaccida		✓		
	Ptilotus lanatus			✓	
Boraginaceae	*Ehretia saligna* var. *saligna*	Jiimany	✓		
	Heliotropium glabellum		✓	✓	
Cannabaceae	*Celtis strychnoides*	Goolnji	✓		
Capparaceae	*Capparis sepiaria*		✓		
Cleomaceae	*Arivela cleomoides*	Booloorrbooloorr	✓	✓	
	Arivela viscosa	Booloorrbooloorr		✓	
Combretaceae	*Terminalia ferdinandiana*	Madoor	✓	✓	
	Terminalia petiolaris	Marool	✓		
Commelinaceae	*Commelina ensifolia*		✓	✓	
Convolvulaceae	*Evolvulus alsinoides*			✓	
Cyperaceae	*Bulbostylis barbata*		✓	✓	
Ebenaceae	*Diospyros humilis*	Birimbiri	✓		
	Diospyros rugosula	Goolarl	✓		
Fabaceae	*Abrus precatorius* subsp. *precatorius*	Ngaming-ngaming	✓		
	Acacia translucens	Balalagoord	✓	✓	
	Acacia tumida	Wanggay	✓		
	Crotalaria brevis			✓	
	Crotalaria medicaginea var. *neglecta*			✓	
	Indigofera hirsuta		✓		
	Senna goniodes		✓		
	**Stylosanthes hamata*		✓	✓	Weed
	Tephrosia rosea var. *clementii*	Biding	✓	✓	
	Tephrosia simplicifolia			✓	
	Zornia prostrata var. *prostrata*			✓	
Flagellariaceae	*Flagellaria indica* var. *indica*	Balbal	✓	✓	

Family	Species	Local Aboriginal (Bardi) Name	Location Recorded		Comments
			'Guided' Trail	'Self-guided' Trail	
Goodeniaceae	*Scaevola macrostachya*			✓	
Lecythidaceae	*Planchonia careya*	Goolay		✓	
Loranthaceae	*Amyema benthamii*	Nyilnyil	✓		
	Dendrophthoe acacioides subsp. *acacioides*	Nyilinyil	✓		
Lythraceae	*Ammannia baccifera*		✓		
Malvaceae	*Abutilon andrewsianum*		✓		
	Corchorus pumilio			✓	
	Grewia breviflora	Goolmi	✓		
	Hibiscus leptocladus			✓	
	Thespesia populneoides	Loorrood	✓		
	Triumfetta carteri			✓	Local endemic species named after Ardyaloon retiree Brian Carter.
	Waltheria indica		✓	✓	
Menispermaceae	*Tinospora smilacina*	Oondal		✓	
Moraceae	*Ficus aculeata*	Ranyji		✓	
	Ficus opposita		✓		
Nyctaginaceae	*Boerhavia gardneri*			✓	
Passifloraceae	*Adenia heterophylla* subsp. *australis*	Garrgarr	✓		
	**Passiflora foetida* var. *hispida*		✓	✓	Weed
Phyllanthaceae	*Breynia cernua*		✓		
	Flueggea virosa subsp. *melanthesoides*	Goorralgar	✓	✓	
Poaceae	*Chrysopogon pallidus*	lrrooloo	✓	✓	
	Dactyloctenium radulans			✓	
	Eragrostis eriopoda		✓	✓	
	Panicum decompositum		✓	✓	
	Sorghum ecarinatum	Oonbi	✓	✓	
	Triodia bitextura			✓	
	Triodia stenostachya		✓	✓	
Portulacaceae	*Calandrinia strophiolata*	Gumbin	✓	✓	
	Portulaca napiformis	Ngoorrarr	✓	✓	
Proteaceae	*Persoonia falcata*	Gamooloon		✓	

Family	Species	Local Aboriginal (Bardi) Name	Location Recorded		Comments
			'Guided' Trail	'Self-guided' Trail	
Rubiaceae	*Spermacoce occidentalis*			✓	
Santalaceae	*Santalum lanceolatum*	Bilooloorr	✓	✓	
Sapotaceae	*Mimusops elengi*	Joongoon	✓		
Violaceae	*Afrohybanthus aurantiacus*			✓	

Appendix 10

Potential Fauna Species List

Notes on Potential Fauna Species List

EPBC Act Marine Listed Birds

The EPBC Act maintains a list of fauna species recognised as Matters of National Environmental Significance that are protected under the Act. Marine species are included under the Act, including bird species that rely upon the marine environment for survival.

However, the Act also erroneously lists some species that do not actually rely upon the marine environment for survival, but instead rely upon land environments and in some cases, are often widespread and common (Garnett 2013). Eighty-eight Marine listed bird species were returned from the desktop review, of which 39 are listed solely as Marine. Many of these fall into the category of erroneous listings; that is, species that do not rely upon marine environments for survival, and all are relatively common and widespread. Given this, and that the survey area does not encompass marine environs or seabird breeding colonies, marine listed species have not been considered further in this assessment.

EPCA Act Migratory Listed Birds

Migratory species are also protected under the EPBC Act as Matters of National Environmental Significance. Fifty-two species listed as Migratory were returned from the desktop study. For clarity and conciseness, species that have a strong preference for coastal habitats or freshwater wetlands, which are available in close proximity to the study area, but are not available in the study area have not been included in the likelihood of occurrence assessment. These species may utilise adjacent habitats, and potentially may overfly or occur in proximity to the study area on occasion, but are considered very unlikely to utilise habitats within the study area and are not considered further here for the purpose of this assessment.

Reptiles

			Conservation Status				
Family	**Species Name**	**Common Name**	**State**	**Federal**	**NatureMap**	**ALA**	**EPBC**
Diplodactylidae	*Amalosia rhombifer*		-	-	Y	Y	
	Oedura gracilis		-	-	Y	Y	
	Strophurus ciliaris aberrans		-	-	Y	Y	
Gekkonidae	*Gehyra gemina*[1]		-	-	Y	Y	
	Gehyra kimberleyi[2]		-	-	Y	Y	
	Gehyra nana		-	-	Y	Y	
	Gehyra occidentalis		-	-	Y	Y	
	Gehyra pilbara		-	-	Y	Y	
	Heteronotia binoei	Bynoe's Gecko	-	-	Y	Y	
Pygopodidae	*Delma borea*		-	-	Y	Y	
	Delma tincta		-	-	Y	Y	
	Lialis burtonis		-	-	Y	Y	
Agamidae	*Chelosania brunnea*	Chameleon Dragon	-	-	Y	Y	
	Chlamydosaurus kingii	Frill-necked Lizard	-	-	Y	Y	
	Diporiphora pindan	Pindan Dragon	-	-	Y	Y	
	Lophognathus horneri[3]		-	-	Y	Y	
	Pogona minor mitchelli		-	-	Y	Y	
Scincidae	*Carlia amax*		-	-		Y	
	Carlia munda		-	-	Y	Y	
	Carlia triacantha		-	-	Y	Y	
	Cryptoblepharus tytthos		-	-	Y	Y	
	Ctenotus colletti		-	-	Y	Y	
	Ctenotus helenae		-	-		Y	
	Ctenotus inornatus[4]		-	-	Y	Y	
	Eremiascincus isolepis		-	-	Y	Y	
	Lerista apoda		-	-	Y	Y	
	Lerista bipes		-	-	Y	Y	
	Lerista griffini		-	-	Y	Y	
	Lerista separanda		P2	-	Y	Y	
	Menetia maini		-	-	Y	Y	
	Morethia storri		-	-	Y	Y	
	Notoscincus ornatus wotjulum		-	-	Y	Y	
	Tiliqua multifasciata	Central Blue-tongue	-	-	Y	Y	
	Tiliqua scincoides intermedia		-	-		Y	
Varanidae	*Varanus glauerti*	Kimberley Rock Goanna	-	-	Y	Y	
	Varanus glebopalma	Black-palmed Rock Goanna	-	-	Y	Y	
	Varanus gouldii	Bungarra or Sand Goanna	-	-	Y	Y	
	Varanus scalaris	Spotted Tree Goanna	-	-	Y	Y	
	Varanus tristis	Racehorse Goanna	-	-	Y	Y	
Typhlopidae	*Anilios diversus*		-	-		Y	
	Indotyphlops braminus	Flowerpot Blind Snake	-	-			Y
Pythonidae	*Antaresia childreni*	Children's Python	-	-	Y	Y	
	Antaresia stimsoni stimsoni		-	-	Y	Y	
	Liasis olivaceus olivaceus		-	-	Y	Y	

			Conservation Status				
Family	**Species Name**	**Common Name**	**State**	**Federal**	**NatureMap**	**ALA**	**EPBC**
Colubridae	*Dendrelaphis punctulatus*	Green Tree Snake	-	-	Y	Y	
Homalopsidae	*Fordonia leucobalia*	White-bellied Mangrove Snake	-	-	Y	Y	
Elapidae	*Demansia angusticeps*		-	-	Y	Y	
	Demansia papuensis	Great Black Whipsnake	-	-	Y	Y	
	Furina ornata	Moon Snake	-	-	Y	Y	
	Pseudechis australis	Mulga Snake	-	-	Y	Y	
	Pseudonaja mengdeni	Western Brown Snake	-	-	Y	Y	
	Simoselaps minimus		P2	-	Y	Y	

P2 = Priority 2
[1] Formerly included within *G. australis*, previous records listed as such
[2] Previous records of *G. punctata* and *G. variegata*, and possibly some records of *G. pilbara*, likely referrable to this recently-described species
[3] Formerly included within *L. gilberti* or *Amphibolurus gilberti*, previous records may be listed as such
[4] previous records of *C. helenae* likely referrable to this species, though taxonomy is not settled

Amphibians

			Conservation Status				
Family	**Species**	**Common**	**State**	**Federal**	**NatureMap**	**ALA**	**EPBC**
Pelodryadidae	*Cyclorana australis*	Giant Frog	-	-	Y	Y	
	Litoria caerulea	Green Tree Frog	-	-	Y	Y	
	Litoria rothii	Northern Laughing Tree Frog	-	-	Y	Y	
Limnodynastidae	*Platyplectrum ornatum*	Ornate Burrowing Frog	-	-	Y	Y	
Bufonidae	*Rhinella marina*	Cane Toad	-	-			Y

Mammals

			Conservation Status				
Family	**Species**	**Common**	**State**	**Federal**	**NatureMap**	**ALA**	**EPBC**
Dasyuridae	*Dasyurus hallucatus*	Northern Quoll	EN	Endangered		Y	
	Planigale maculata	Common Planigale	-	-	Y	Y	
	Pseudantechinus ningbing	Ningbing Pseudantechinus	-	-	Y	Y	
	Sminthopsis macroura frogattii	Froggatt's Stripe-faced Dunnart	-	-		Y	
Thylacomyidae	*Macrotis lagotis*	Bilby, Dalgyte	VU	Vulnerable	Y		Y
Macropodidae	*Onychogalea unguifera*	Northern Nailtail Wallaby, Karrabul	-	-		Y	
Muridae	*Melomys burtoni*	Grassland Melomys	-	-	Y	Y	
	Pseudomys delicatulus	Delicate Mouse	-	-	Y	Y	
	Rattus exulans	Pacific Rat	-	-		Y	
	Rattus rattus	Black Rat	-	-	Y	Y	
Pteropodidae	*Macroglossus minimus*	Northern Blossom-bat	-	-	Y	Y	
	Pteropus alecto	Black Flying-fox	-	-	Y	Y	
	Pteropus scapulatus	Little Red Flying-fox	-	-	Y	Y	
Macrodermatidae	*Macroderma gigas*	Ghost Bat	VU	Vulnerable			Y
Emballonuridae	*Saccolaimus flaviventris*	Yellow-bellied Sheath-tailed Bat	-	-	Y	Y	
	Taphozous georgianus	Common Sheath-tailed Bat	-	-	Y	Y	
Molossidae	*Ozimops cobourgianus*[1]	Northern Coastal Free-tailed Bat	P1		Y	Y	

			Conservation Status				
Family	**Species**	**Common**	**State**	**Federal**	**NatureMap**	**ALA**	**EPBC**
Miniopteridae	*Miniopterus orianae orianae*	Large Bent-winged Bat	-	-	Y		
Vespertilionidae	*Chalinolobus gouldii*	Gould's Wattled Bat	-	-	Y	Y	
	Chalinolobus nigrogriseus	Hoary Wattled Bat	-	-	Y	Y	
	Nyctophilus arnhemensis	Arnhem Long-eared Bat	-	-	Y	Y	
	Nyctophilus daedalus	Pallid Long-eared Bat	-	-	Y	Y	
	Pipistrellus westralis	Northern Pipistrelle	-	-	Y	Y	
	Scotorepens greyii	Little Broad-nosed Bat	-	-	Y	Y	
	Scotorepens sanborni	Northern Broad-nosed Bat	-	-	Y	Y	
	Vespadelus caurinus	Northern Cave-bat	-	-	Y	Y	
Suidae	*Sus scrofa*	Pig	-	-	Y	Y	
Bovidae	*Bos taurus*	European Cattle	-	-	Y		
	Capra hircus	Goat	-	-	Y		

EN = Endangered, VU = Vulnerable, P1 = Priority 1

[1] Formerly included within *Mormopterus loriae* as *Mormopterus loriae cobourgianus*

Avifauna

			Conservation Status								
Family	**Species**	**Common**	**State**	**Federal**	**Nature-Map**	**ALA**	**EPBC**	**Habitat Preference of Conservation Significant Species**	**Habitat Available in Study Area?**	**Habitat Available Adjacent to Study Area?**	**Included in Likelihood Assessment?**
Phasianidae	*Coturnix ypsilophora*	Brown Quail			Y	Y					
Anatidae	*Dendrocygna arcuata*	Wandering Whistling Duck		MA		Y					Not marine
	Nettapus pulchellus	Green Pygmy Goose		MA		Y					Not marine
	Anas superciliosa	Pacific Black Duck			Y	Y					
	Anas gracilis	Grey Teal				Y					
	Aythya australis	Hardhead			Y	Y					
Podargidae	*Podargus strigoides*	Tawny Frogmouth			Y	Y					
Caprimulgidae	*Eurostopodus argus*	Spotted Nightjar		MA	Y	Y					Not marine
Aegothelidae	*Aegotheles cristatus*	Australian Owlet-nightjar			Y	Y					
Apodidae	*Apus pacificus*	Pacific Swift	MI	MI; MA	Y	Y		Almost exclusively aerial	✓		
Otididae	*Ardeotis australis*	Australian Bustard			Y	Y					
Cuculidae	*Centropus phasianinus*	Pheasant Coucal			Y	Y					
Cuculidae	*Scythrops novaehollandiae*	Channel-billed Cuckoo		MA	Y	Y					Not marine
Cuculidae	*Chrysococcyx basalis*	Horsfield's Bronze Cuckoo				Y					
Cuculidae	*Chrysococcyx osculans*	Black-eared Cuckoo		MA		Y					Not marine
Cuculidae	*Chrysococcyx minutillus*	Little Bronze Cuckoo			Y	Y					
Cuculidae	*Cacomantis pallidus*	Pallid Cuckoo		MA	Y	Y					Not marine
Cuculidae	*Cacomantis variolosus*	Brush Cuckoo			Y	Y					
Cuculidae	*Cuculus optatus*	Oriental Cuckoo	MI	MI; MA		Y		Dense open woodlands and forests, riparian forests, sometimes gardens	✓		
Columbidae	*Chalcophaps longirostris*	Pacific Emerald Dove			Y	Y					

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Columbidae	*Phaps chalcoptera*	Common Bronzewing			Y						
Columbidae	*Ocyphaps lophotes*	Crested Pigeon				Y					
Columbidae	*Petrophassa albipennis*	White-quilled Rock Pigeon				Y					
Columbidae	*Geopelia cuneata*	Diamond Dove			Y	Y					
Columbidae	*Geopelia placida*	Peaceful Dove			Y	Y					
Columbidae	*Geopelia humeralis*	Bar-shouldered Dove			Y	Y					
Columbidae	*Ptilinopus regina*	Rose-crowned Fruit Dove			Y	Y					
Rallidae	*Gallirallus philippensis*	Buff-banded Rail			Y	Y					
Rallidae	*Porzana tabuensis*	Spotless Crake		MA	Y	Y					Not marine
Rallidae	*Eulabeornis castaneoventris*	Chestnut Rail			Y	Y					
Rallidae	*Porphyrio melanotus*	Australasian Swamphen		MA		Y					Not marine
Rallidae	*Fulica atra*	Eurasian Coot				Y					
Gruidae	*Antigone rubicunda*	Brolga			Y	Y					
Podicipedidae	*Tachybaptus novaehollandiae*	Australasian Grebe			Y	Y					
Podicipedidae	*Poliocephalus poliocephalus*	Hoary-headed Grebe				Y					
Turnicidae	*Turnix maculosus*	Red-backed Buttonquail				Y					
Turnicidae	*Turnix castanotus*	Chestnut-backed Buttonquail				Y					
Turnicidae	*Turnix velox*	Little Buttonquail			Y	Y					
Burhinidae	*Burhinus grallarius*	Bush Stone-curlew			Y	Y					
Burhinidae	*Esacus magnirostris*	Beach Stone-curlew			Y	Y					
Haematopodidae	*Haematopus longirostris*	Pied Oystercatcher			Y	Y					
Haematopodidae	*Haematopus fuliginosus*	Sooty Oystercatcher			Y	Y					
Recurvirostridae	*Himantopus leucocephalus*	Pied Stilt		MA		Y					Not marine
Charadriidae	*Vanellus miles*	Masked Lapwing				Y					
Charadriidae	*Erythrogonys cinctus*	Red-kneed Dotterel				Y					
Charadriidae	*Pluvialis fulva*	Pacific Golden Plover	MI	MI; MA	Y	Y		Muddy, rocky and sandy wetlands, shores, paddocks, saltmarsh, coastal golf courses, estuaries and lagoons	✗	✓	
Charadriidae	*Pluvialis squatarola*	Grey Plover	MI	MI; MA	Y	Y		Almost entirely coastal, being found mainly on marine shores, inlets, estuaries and lagoons with large tidal mudflats or sandflats for feeding, sandy beaches for roosting, and also on rocky coasts	✗	✓	
Charadriidae	*Charadrius ruficapillus*	Red-capped Plover		MA	Y	Y					Not marine
Charadriidae	*Charadrius mongolus*	Lesser Sand Plover	EN; MI	EN; MI; MA	Y	Y		Tidal mud flats	✗	✓	

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Charadriidae	*Charadrius leschenaultii*	Greater Sand Plover	VU; MI	VU; MI; MA	Y	Y		Tidal sandy flats, roosts on beaches at high tide	✗	✓	
Charadriidae	*Charadrius veredus*	Oriental Plover	MI	MI; MA			Y	Generally inland; in open grasslands in arid and semi-arid zones; and less often in estuarine or littoral environments	✗	✗	
Charadriidae	*Elseyornis melanops*	Black-fronted Dotterel			Y	Y					
Rostratulidae	*Rostratula australis*	Australian Painted Snipe		EN			Y	Shallow, brackish or freshwater terrestrial wetlands	✗	✗	
Scolopacidae	*Numenius phaeopus*	Eurasian Whimbrel	MI	MI; MA	Y	Y		Coast, on tidal and estaurine mudflats, especially near mangroves, beaches and rocky shores.	✗	✓	
Scolopacidae	*Numenius minutus*	Little Curlew	MI	MI; MA	Y	Y		Coastal and inland grasslands and black soil plains in northern Australia, near swamps and flooded areas. They also feed on playing fields, paddocks and urban lawns	✓		
Scolopacidae	*Numenius madagascariensis*	Far Eastern Curlew	CR; MI	CR; MI; MA	Y	Y	Y	Intertidal mudflats and sandflats, often with beds of seagrass, on sheltered coasts, especially estuaries, mangrove swamps, bays, harbours and lagoons	✗	✓	
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	CR (ssp. menzbieri)/VU (ssp. baueri); MI	EN (ssp. menzbieri) /VU (ssp. baueri); MI; MA	Y	Y	Y	Estuarine mudflats, beaches and mangroves	✗	✓	
Scolopacidae	*Limosa limosa*	Black-tailed Godwit	MI	MI; MA	Y	Y		Shallow inland wetlands	✗	✗	
Scolopacidae	*Arenaria interpres*	Ruddy Turnstone	MI	MI; MA	Y	Y		Exposed rocks or reefs, often with shallow pools, and on beaches, mudflats	✗	✓	
Scolopacidae	*Calidris tenuirostris*	Great Knot	CR; MI	CR; MI; MA	Y	Y		Intertidal mudflats and sandflats in sheltered coasts, including bays harbours and estuaries. They forage on the moist mud, and they often roost on beaches or in nearby low vegetation, such as mangroves or dune vegetation	✗	✓	
Scolopacidae	*Calidris canutus*	Red Knot	EN; MI	EN; MI; MA	Y	Y	Y	Coast in sandy estuaries with tidal mudflats	✗	✓	
Scolopacidae	*Calidris acuminata*	Sharp-tailed Sandpiper	MI	Migratory/ Marine	Y	Y		Grassy edges of shallow inland freshwater wetlands. It is also found around sewage farms, flooded fields, mudflats, mangroves, rocky shores and beaches.	✗	✓	
Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper	CR; MI	CR; MI; MA	Y	Y	Y	Intertidal mudflats of estuaries, lagoons, mangroves, as well as beaches, rocky shores and around lakes, dams and floodwaters			
Scolopacidae	*Calidris subminuta*	Long-toed Stint	MI	MI; MA		Y		Muddy fringes of fresh wetlands	✗	✗	
Scolopacidae	*Calidris ruficollis*	Red-necked Stint	MI	MI; MA	Y	Y		Coastal, in sheltered inlets, bays, lagoons, estuaries, intertidal mudflats and protected sandy or coralline shores. They may also be seen in saltworks, sewage farms, saltmarsh, shallow wetlands including lakes, swamps, riverbanks, waterholes, bore drains, dams, soaks and pools in saltflats, flooded paddocks or damp grasslands	✗	✓	

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Scolopacidae	*Calidris alba*	Sanderling	MI	MI; MA	Y	Y		Open sandy beaches at the edge of the waves, on sandbars and spits. They roost on bare sand in the dunes or behind piles of kelp	✗	✓	
Scolopacidae	*Calidris melanotos*	Pectoral Sandpiper	MI	MI; MA			Y	Shallow, grassy edges of of freshwater wetlands	✗	✗	
Scolopacidae	*Xenus cinereus*	Terek Sandpiper	MI	MI; MA	Y	Y		Coast in mangrove swamps, tidal mudflats and the seashore	✗	✓	
Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	MI	MI; MA	Y	Y		Coastal or inland wetlands with muddy edges or rocky shores	✗	✗	
Scolopacidae	*Tringa brevipes*	Grey-tailed Tattler	MI; P4	MI	Y	Y		Sheltered coasts with reefs and rock platforms or with intertidal mudflats, intertidal rocky, coral or stony reefs, platforms and islets that are exposed at high tide, also shores of rock, shingle, gravel and shells and on intertidal mudflats in embayments, estuaries and coastal lagoons, especially those fringed with mangroves	✗	✓	
Scolopacidae	*Tringa totanus*	Common Redshank	MI	MI; MA	Y	Y		Coastal, sheltered tidal flats	✗	✓	
Scolopacidae	*Tringa stagnatilis*	Marsh Sandpiper	MI	MI; MA		Y		Fresh or brackish (slightly salty) wetlands such as rivers, water meadows, sewage farms, drains, lagoons and swamps	✗	✗	
Scolopacidae	*Tringa glareola*	Wood Sandpiper	MI	MI; MA	Y	Y		Inland shallow freshwater wetlands, often with other waders. They prefer ponds and pools with emergent reeds and grass, surrounded by tall plants or dead trees and fallen timber	✗	✗	
Scolopacidae	*Tringa nebularia*	Common Greenshank	MI	MI; MA	Y	Y		Coast and inland, in estuaries and mudflats, mangrove swamps and lagoons, and in billabongs, swamps, sewage farms and flooded crops	✗	✓	
Glareolidae	*Stiltia isabella*	Australian Pratincole		MA		Y					Not marine
Glareolidae	*Glareola maldivarum*	Oriental Pratincole	MI	MI			Y	Mostly aerial, above open country	✓		
Laridae	*Anous stolidus*	Brown Noddy	MI	MI; MA	Y	Y		Off-shore tropical islands	✗	✗	
Laridae	*Chroicocephalus novaehollandiae*	Silver Gull		MA	Y	Y	Y				Not marine
Laridae	*Gelochelidon nilotica*	[Common] Gull-billed Tern[1]	MI	MI; MA	Y	Y		Primarily beaches and estuarine mudflats, much less common inland or on freshwater than Australian Tern	✗	✓	
Laridae	*Gelochelidon macrotarsa*	Australian [Gull-billed] Tern[1]	MI	MI; MA	Y	Y		Freshwater swamps, brackish and salt lakes, beaches and estuarine mudflats, floodwaters, sewage farms, irrigated croplands and grasslands			
Laridae	*Hydroprogne caspia*	Caspian Tern	MI	MI	Y	Y		Sheltered coastal waters, inland water bodies including large rivers, fresh to saline lakes, wetlands	✗	✓	
Laridae	*Thalasseus bergii*	Greater Crested Tern	MI	MI; MA	Y	Y		Forages over coastal seas, roosts on sandy beaches, rocks and man-made structures	✗	✓	

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Laridae	*Thalasseus bengalensis*	Lesser Crested Tern		MA	Y	Y		Breeds in colonies on small offshore islands. Usually a strictly coastal species, there are occasional records in the arid interior of Australia, where birds were possibly blown by passing tropical cyclones	✗	✓	
Laridae	*Sternula albifrons*	Little Tern	MI	MI; MA	Y	Y		Mainly coastal, being found on beaches, sheltered inlets, estuaries, lakes, sewage farms, lagoons, river mouths and deltas	✗	✓	
Laridae	*Onychoprion anaethetus*	Bridled Tern	MI	MI	Y	Y		Forages at sea, breeds on offshore islands	✗	✗	
Laridae	*Onychoprion fuscatus*	Sooty Tern		MA	Y	Y		Pelagic, nests on sandy or rocky offshore islands	✗	✗	Marine
Laridae	*Sterna dougallii*	Roseate Tern	MI	MI; MA	Y	Y		Restricted to tropical and subtrpical seas and coastlines, coral reefs and vegetated islands	✗	✗	
Laridae	*Sterna hirundo*	Common Tern	MI	MI; MA	Y	Y		Coastal when not breeding and found in offshore waters, ocean beaches, estuaries and large lakes. Common Terns are occasionally seen in freshwater swamps, floodwaters, sewage farms and brackish and saline lakes	✗	✓	
Laridae	*Chlidonias hybrida*	Whiskered Tern		MA		Y					
Laridae	*Chlidonias leucopterus*	White-winged Tern	MI	MI; MA		Y		Coastal or sub-coastal wetlands including tidal estuaries, lagoons, grassy swamps, and sewage ponds	✗	✗	
Phaethontidae	*Phaethon rubricauda*	Red-tailed Tropicbird	MI; P4	MI; MA	Y	Y		Pelagic waters, rarely seen in sight of land	✗	✗	
Oceanitidae	*Oceanites oceanicus*	Wilson's Storm Petrel	MI	MI; MA		Y		Seabird, usually far offshore	✗	✗	
Procellariidae	*Calonectris leucomelas*	Streaked Shearwater	MI	MI; MA			Y	Mostly offshore waters	✗	✓	
Procellariidae	*Puffinus assimilis*	Little Shearwater		MA		Y		Offshore islands mainly in the south of WA	✗	✗	Marine
Ciconiidae	*Ephippiorhynchus asiaticus*	Black-necked Stork			Y	Y					
Fregatidae	*Fregata minor*	Great Frigatebird	MI	MI; MA		Y		Seabird. occasional visitor to mainland coast, but more so during tropical storms/cyclones	✗	✓	
Fregatidae	*Fregata ariel*	Lesser Frigatebird	MI	MI; MA	Y	Y		Seabird. forages at sea and along coastlines, breeds on remote tropical islands	✗	✓	
Sulidae	*Papasula abbotti*	Abbott's Booby		EN			Y	Tropical seas, Christmas Island	✗	✗	
Sulidae	*Sula sula*	Red-footed Booby	MI	MI; MA			Y	Pelagic, often found far from land	✗	✗	
Sulidae	*Sula leucogaster*	Brown Booby	MI	MI; MA	Y	Y		Rarely occurs on shoreline, sometimes seen on pylons/piers. Breeds on offshore islands	✗	✗	
Phalacrocoracidae	*Microcarbo melanoleucos*	Little Pied Cormorant			Y	Y					
Phalacrocoracidae	*Phalacrocorax sulcirostris*	Little Black Cormorant				Y					
Phalacrocoracidae	*Phalacrocorax varius*	Australian Pied Cormorant			Y	Y					
Anhingidae	*Anhinga novaehollandiae*	Australasian Darter			Y	Y					

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Threskiornithidae	*Threskiornis molucca*	Australian White Ibis		MA		Y					Not marine
Threskiornithidae	*Threskiornis spinicollis*	Straw-necked Ibis		MA	Y	Y					Not marine
Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis	MI	MI; MA		Y		Well-vegetated wetlands, floodplains, mangroves and ricefields	✗	✗	
Threskiornithidae	*Platalea regia*	Royal Spoonbill			Y	Y					
Ardeidae	*Nycticorax caledonicus*	Nankeen Night Heron		MA	Y	Y					Not marine
Ardeidae	*Butorides striata*	Striated Heron			Y	Y					
Ardeidae	*Bubulcus coromandus*	Eastern Cattle Egret		MA			Y	Grasslands and shallow open freshwater wetlands with low emergent vegetation	✗	✗	
Ardeidae	*Ardea pacifica*	White-necked Heron				Y					
Ardeidae	*Ardea sumatrana*	Great-billed Heron			Y	Y					
Ardeidae	*Ardea alba*	Great Egret		MA	Y	Y					Not marine
Ardeidae	*Ardea intermedia*	Intermediate Egret		MA	Y	Y					Not marine
Ardeidae	*Egretta novaehollandiae*	White-faced Heron			Y	Y					
Ardeidae	*Egretta garzetta*	Little Egret		MA	Y	Y					Not marine
Ardeidae	*Egretta sacra*	Pacific Reef Heron		MA	Y	Y					Not marine
Pelecanidae	*Pelecanus conspicillatus*	Australian Pelican		MA	Y	Y					Not marine
Pandionidae	*Pandion cristatus*	Eastern Osprey	MI	MI; MA	Y	Y		Coast and in terrestrial wetlands of tropical and temperate Australia and off-shore islands, occasionally ranging inland along rivers	✗	✓	
Accipitridae	*Elanus axillaris*	Black-shouldered Kite			Y	Y					
Accipitridae	*Lophoictinia isura*	Square-tailed Kite				Y					
Accipitridae	*Hieraaetus morphnoides*	Little Eagle				Y					
Accipitridae	*Aquila audax*	Wedge-tailed Eagle			Y	Y					
Accipitridae	*Erythrotriorchis radiatus*	Red Goshawk		VU			Y	Mosaic of vegetation types, often near wetlands. They often occur at the boundary between two vegetation types, and often favour forests or woodlands dominated by eucalypts or paperbarks. They avoid very dense or very open habitats	✓		
Accipitridae	*Accipiter fasciatus*	Brown Goshawk		MA	Y	Y					Not marine
Accipitridae	*Accipiter cirrocephalus*	Collared Sparrowhawk			Y	Y					
Accipitridae	*Circus approximans*	Swamp Harrier		MA		Y					Not marine
Accipitridae	*Circus assimilis*	Spotted Harrier			Y	Y					
Accipitridae	*Milvus migrans*	Black Kite			Y	Y					
Accipitridae	*Haliastur sphenurus*	Whistling Kite		MA	Y	Y					Not marine
Accipitridae	*Haliastur indus*	Brahminy Kite		MA	Y	Y					Not marine
Accipitridae	*Haliaeetus leucogaster*	White-bellied Sea Eagle		MA	Y	Y	Y	Marine, but also utilises inland wetlands			

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Tytonidae	*Tyto novaehollandiae kimberli*	Masked Owl (northern)		VU			Y	Forests, woodlands, timbered waterways and open country on the fringe of these areas. The main requirements are tall trees with suitable hollows for nesting and roosting and adjacent areas for foraging	✓		
Tytonidae	*Tyto javanica*	Eastern Barn Owl				Y					
Strigidae	*Ninox connivens*	Barking Owl			Y	Y					
Strigidae	*Ninox boobook*	Australian Boobook				Y					
Coraciidae	*Eurystomus orientalis*	Oriental Dollarbird		MA	Y	Y					Not marine
Alcedinidae	*Dacelo leachii*	Blue-winged Kookaburra			Y	Y					
Alcedinidae	*Todiramphus sordidus*	Torresian Kingfisher			Y	Y					
Alcedinidae	*Todiramphus sanctus*	Sacred Kingfisher		MA	Y	Y					Not marine
Alcedinidae	*Todiramphus pyrrhopygius*	Red-backed Kingfisher			Y	Y					
Alcedinidae	*Ceyx azureus*	Azure Kingfisher			Y	Y					
Meropidae	*Merops ornatus*	Rainbow Bee-eater		MA	Y	Y					Not marine
Falconidae	*Falco cenchroides*	Nankeen Kestrel		MA	Y	Y					Not marine
Falconidae	*Falco longipennis*	Australian Hobby			Y	Y					
Falconidae	*Falco berigora*	Brown Falcon			Y	Y					
Falconidae	*Falco hypoleucos*	Grey Falcon	VU	VU			Y	Open plains and treed watercourses	✓		
Falconidae	*Falco peregrinus*	Peregrine Falcon	OS		Y	Y		Variety of habitats	✓		
Cacatuidae	*Nymphicus hollandicus*	Cockatiel				Y					
Cacatuidae	*Calyptorhynchus banksii*	Red-tailed Black Cockatoo			Y	Y					
Cacatuidae	*Eolophus roseicapilla*	Galah			Y	Y					
Cacatuidae	*Cacatua sanguinea*	Little Corella			Y	Y					
Psittaculidae	*Aprosmictus erythropterus*	Red-winged Parrot			Y	Y					
Psittaculidae	*Pezoporus occidentalis*	Night Parrot	CR	EN			Y	Grasslands that are dominated by old-growth spinifex, though they have also been recorded in shrublands dominated by samphire, bluebush and saltbush	✗	✗	
Psittaculidae	*Psitteuteles versicolor*	Varied Lorikeet				Y					
Psittaculidae	*Trichoglossus moluccanus*	Rainbow Lorikeet			Y	Y					
Psittaculidae	*Melopsittacus undulatus*	Budgerigar			Y	Y					
Ptilonorhynchidae	*Chlamydera nuchalis*	Great Bowerbird			Y	Y					
Climacteridae	*Climacteris melanurus*	Black-tailed Treecreeper				Y					
Maluridae	*Malurus assimilis*	Purple-backed Fairywren				Y					
Maluridae	*Malurus elegans*	Red-winged Fairywren				Y					
Maluridae	*Malurus melanocephalus*	Red-backed Fairywren			Y	Y					

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Meliphagidae	*Epthianura crocea*	Yellow Chat			Y	Y					
Meliphagidae	*Conopophila rufogularis*	Rufous-throated Honeyeater			Y	Y					
Meliphagidae	*Ramsayornis fasciatus*	Bar-breasted Honeyeater			Y	Y					
Meliphagidae	*Certhionyx variegatus*	Pied Honeyeater				Y					
Meliphagidae	*Myzomela erythrocephala*	Red-headed Myzomela			Y	Y					
Meliphagidae	*Philemon citreogularis*	Little Friarbird			Y	Y					
Meliphagidae	*Philemon argenticeps*	Silver-crowned Friarbird			Y	Y					
Meliphagidae	*Lichmera indistincta*	Brown Honeyeater			Y	Y					
Meliphagidae	*Cissomela pectoralis*	Banded Honeyeater			Y	Y					
Meliphagidae	*Melithreptus gularis*	Black-chinned Honeyeater			Y	Y					
Meliphagidae	*Melithreptus albogularis*	White-throated Honeyeater			Y	Y					
Meliphagidae	*Stomiopera unicolor*	White-gaped Honeyeater			Y	Y					
Meliphagidae	*Gavicalis virescens*	Singing Honeyeater			Y	Y					
Meliphagidae	*Ptilotula flavescens*	Yellow-tinted Honeyeater			Y	Y					
Meliphagidae	*Ptilotula keartlandi*	Grey-headed Honeyeater				Y					
Meliphagidae	*Ptilotula plumula*	Grey-fronted Honeyeater				Y					
Pardalotidae	*Pardalotus rubricatus*	Red-browed Pardalote			Y	Y					
Pardalotidae	*Pardalotus striatus*	Striated Pardalote			Y	Y					
Acanthizidae	*Smicrornis brevirostris*	Weebill			Y	Y					
Acanthizidae	*Gerygone levigaster*	Mangrove Gerygone			Y	Y					
Acanthizidae	*Gerygone fusca*	Western Gerygone				Y					
Acanthizidae	*Gerygone tenebrosa*	Dusky Gerygone			Y	Y					
Acanthizidae	*Gerygone magnirostris*	Large-billed Gerygone			Y						
Acanthizidae	*Gerygone chloronota*	Green-backed Gerygone				Y					
Acanthizidae	*Gerygone olivacea*	White-throated Gerygone				Y					
Pomatostomidae	*Pomatostomus temporalis*	Grey-crowned Babbler			Y	Y					
Artamidae	*Artamus leucorynchus*	White-breasted Woodswallow			Y	Y					
Artamidae	*Artamus personatus*	Masked Woodswallow			Y	Y					
Artamidae	*Artamus cinereus*	Black-faced Woodswallow			Y	Y					
Artamidae	*Artamus minor*	Little Woodswallow			Y	Y					
Artamidae	*Gymnorhina tibicen*	Australian Magpie				Y					
Artamidae	*Cracticus nigrogularis*	Pied Butcherbird			Y	Y					

			Conservation Status								
Family	**Species**	**Common**	**State**	**Federal**	**Nature-Map**	**ALA**	**EPBC**	**Habitat Preference of Conservation Significant Species**	**Habitat Available in Study Area?**	**Habitat Available Adjacent to Study Area?**	**Included in Likelihood Assessment?**
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckooshrike		MA	Y	Y					Not marine
Campephagidae	*Coracina papuensis*	White-bellied Cuckooshrike		MA		Y					Not marine
Campephagidae	*Lalage tricolor*	White-winged Triller				Y					
Campephagidae	*Lalage leucomela*	Varied Triller			Y	Y					
Neosittidae	*Daphoenositta chrysoptera*	Varied Sittella			Y	Y					
Pachycephalidae	*Pachycephala occidentalis*	Golden Whistler				Y					
Pachycephalidae	*Pachycephala melanura*	Mangrove Golden Whistler			Y	Y					
Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler			Y	Y					
Pachycephalidae	*Pachycephala lanioides*	White-breasted Whistler			Y	Y					
Pachycephalidae	*Colluricincla harmonica*	Grey Shrikethrush			Y	Y					
Oriolidae	*Sphecotheres vieilloti*	Australasian Figbird			Y	Y					
Oriolidae	*Oriolus sagittatus*	Olive-backed Oriole			Y	Y					
Oriolidae	*Oriolus flavocinctus*	Green Oriole			Y	Y					
Dicruridae	*Dicrurus bracteatus*	Spangled Drongo		MA	Y	Y					Not marine
Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail			Y	Y					
Rhipiduridae	*Rhipidura rufiventris*	Northern Fantail			Y	Y					
Rhipiduridae	*Rhipidura albiscapa*	Grey Fantail			Y	Y					
Rhipiduridae	*Rhipidura phasiana*	Mangrove Fantail			Y	Y					
Monarchidae	*Grallina cyanoleuca*	Magpie-lark		MA	Y	Y					Not marine
Monarchidae	*Myiagra rubecula*	Leaden Flycatcher			Y	Y					
Monarchidae	*Myiagra ruficollis*	Broad-billed Flycatcher			Y	Y					
Monarchidae	*Myiagra alecto*	Shining Flycatcher			Y	Y					
Monarchidae	*Myiagra inquieta*	Restless Flycatcher			Y	Y					
Corvidae	*Corvus orru*	Torresian Crow			Y	Y					
Petroicidae	*Melanodryas cucullata*	Hooded Robin			Y	Y					
Petroicidae	*Peneothello pulverulenta*	Mangrove Robin			Y						
Petroicidae	*Microeca flavigaster*	Lemon-bellied Flyrobin			Y	Y					
Petroicidae	*Microeca fascinans*	Jacky Winter			Y	Y					
Hirundinidae	*Hirundo rustica*	Barn Swallow	MI	MI			Y	Wide variety of habitats	✓		
Hirundinidae	*Cecropis daurica*	Red-rumped Swallow	MI	MI; MA			Y	Very occasionally seen in WA overflying most habitats	✓		
Hirundinidae	*Petrochelidon ariel*	Fairy Martin			Y	Y					
Hirundinidae	*Petrochelidon nigricans*	Tree Martin		MA	Y	Y					Not marine
Locustellidae	*Cincloramphus cruralis*	Brown Songlark				Y					
Locustellidae	*Cincloramphus mathewsi*	Rufous Songlark				Y					

			Conservation Status								
Family	**Species**	**Common**	**State**	**Federal**	**Nature-Map**	**ALA**	**EPBC**	**Habitat Preference of Conservation Significant Species**	**Habitat Available in Study Area?**	**Habitat Available Adjacent to Study Area?**	**Included in Likelihood Assessment?**
Cisticolidae	*Cisticola exilis*	Golden-headed Cisticola				Y					
Zosteropidae	*Zosterops luteus*	Canary White-eye			Y	Y					
Zosteropidae	*Zosterops lateralis*	Silvereye		MA		Y					Not marine
Dicaeidae	*Dicaeum hirundinaceum*	Mistletoebird			Y	Y					
Estrildidae	*Emblema pictum*	Painted Finch				Y					
Estrildidae	*Poephila acuticauda*	Long-tailed Finch			Y	Y					
Estrildidae	*Taeniopygia guttata*	Zebra Finch			Y	Y					
Estrildidae	*Taeniopygia bichenovii*	Double-barred Finch			Y	Y					
Estrildidae	*Erythrura gouldiae*	Gouldian Finch	P4	EN	Y	Y	Y	Open grassy eucalypt woodlands and grasslands. Forages on native grass especially sorhum	✓		
Estrildidae	*Lonchura castaneothorax*	Chestnut-breasted Mannikin			Y	Y					
Estrildidae	*Heteromunia pectoralis*	Pictorella Mannikin				Y					
Motacillidae	*Motacilla tschutschensis*	Eastern Yellow Wagtail	MI	MI; MA			Y	Open, moist, grassy or muddy areas, sewage treatment plants, sportsfields, sometimes beaches	✗	✓	
Motacillidae	*Motacilla cinerea*	Grey Wagtail	MI	MI; MA			Y	Offshore islands, usually close to water including beaches and rock pools	✗	✓	
Motacillidae	*Anthus australis*	Australasian Pipit		MA		Y					Not marine

CR = Critically Endangered, EN = Endangered, VU = Vulnerable, OS = Other Specially Protected, MI = Migratory, MA = Marine, P4 = Priority 4
[1] Formerly considered part of one species, Gull-billed Tern *G. nilotica*, and listed as such, but now generally considered to involve two species

Invertebrates

Group	**Family**	**Species**	**ALA**	**SRE ?**
Land Snails	Camaenidae	*Quistrachia leptogramma*	Y	No
		Rhagada bulgana/Rhagada cygna	Y	Uncertain
		Rhagada reinga	Y	Potential
Scorpions	Buthidae	*Lychas* sp.	Y	N/A
	Urodacidae	*Urodacus hoplurus*	Y	No
Mygalomorph Spider	Nemesiidae	*Aname* sp.	Y	N/A
	Ctenizidae	*Conothele* sp.	Y	N/A

Appendix 11

Weed Locations

Species	Waypoint No.	Trail	Easting	Northing	Abundance
**Aerva javanica*	549	Guided	507984	8182652	Dense
**Aerva javanica*	555	Guided	507954	8182638	Not recorded
**Aerva javanica*	546	Self-guided	508152	8182640	Not recorded
**Passiflora foetida* var. *hispida*	555	Guided	507954	8182638	Not recorded
**Passiflora foetida* var. *hispida*	567	Guided	507902	8182547	Not recorded
**Passiflora foetida* var. *hispida*	516	Self-guided	508102	8182388	Not recorded
**Passiflora foetida* var. *hispida*	518	Self-guided	508106	8182410	Not recorded
**Passiflora foetida* var. *hispida*	538	Self-guided	508133	8182549	Not recorded
**Passiflora foetida* var. *hispida*	543	Self-guided	508151	8182594	Not recorded
**Stylosanthes hamata*	548	Guided	507988	8182653	Not recorded
**Stylosanthes hamata*	568	Guided	507866	8182507	Not recorded
**Stylosanthes hamata*	546	Self-guided	508152	8182640	Not recorded