RECONNAISSANCE FLORA, VEGETATION AND BASIC FAUNA SURVEY REPORT

Line 51, Esperance Branch Line – North of Gibson

Stafford Road (348.724 to 350.164KM, Site 8)

Gibson, WA 6448

03/08/2022

BUSHFIRE | ENVIRONMENTAL | WATER | GIS

DOCUMENT CONTROL

Title: Reconnaissance flora and vegetation and basic fauna survey Report – Line 51 Esperance Branch Line, Stafford Road, 348.724 to 350.164KM, Site 8.
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Reviewer (s): M. Holt, Dr K. Bain and K. Kinnear
Job No.: AI005-008
Client: Arc Infrastructure

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Table of Contents

LIST OF TABLES

LIST OF FIGURES

APPENDICES

Executive Summary

Arc Infrastructure ("the client") commissioned Bio Diverse Solutions as Environmental Consultants to undertake a spring reconnaissance flora and vegetation survey and a basic (previously reconnaissance) fauna assessment of a total of 2.704ha along Railway Line 51 from Meat Works to Paterson Road, in the Shire of Esperance. Specifically, this was located along Railway Kilometre (KM) marking 371.87 – 372.95. This corresponded with Site 13 of the 2022 scope of works programme, as instructed by Arc Infrastructure. The reconnaissance survey was required to assess the impact on areas of native vegetation proposed to be cleared for a construction and maintenance project along the railway line. An environmental risk assessment was completed following the commission of the biological survey, to identify where clearing permits or further environmental approvals were required. Some areas within the survey area were assessed as not being exempt, and requires a clearing permit. A finalised report was submitted to Arc Infrastructure for review prior to approval for submission to DWER, as supporting information for a clearing permit application.

Two native vegetation units were recorded during the survey, namely Vegetation Unit 1: Proteaceae Shrubland and 2: Invasive Grassland. A portion of the survey area had also been historically cleared, with a total of 0.369 ha of bare ground present. The condition of native vegetation ranged from Very Good to Completely Degraded, with degradation occurring primarily from historical clearing and presence of invasive species. Floristic diversity was relatively high, with 150 flora species recorded, consisting of 129 native species and 21 introduced species. All weeds present were listed as 'Permitted – s11' under the *BAM Act 2007* and no Weeds of National Significance (IPAC, 2017) were present. No Priority or Threatened flora were detected within the survey area. The Threatened (TEC; EPBC Act 1999) / Priority (PEC; BC Act 2016) ecological community 'Proteaceae Dominated Kwongkan Shrublands of the South-east Coastal Floristic Region (Kwongkan)' was detected within Vegetation Unit 1: Proteaceae Shrubland. A total of 0.86 ha of Kwongkan TEC / PEC was present, ranging from Very Good to Degraded condition.

During the survey, a relatively low level of fauna diversity was detected with a total of 28 taxa recorded; including 14 birds, six invertebrates, five mammals, two reptiles and one amphibian. Two Threatened and Priority listed species were observed, being Carnaby's Cockatoo (*Calyptorhynchus latirostris*, EN) and quenda (*Isoodon fusciventer*, P4). Carnaby's Cockatoo were detected through foraging signs (chewed pine cones), whilst isolated diggings and suitably sized runnels indicated quenda presence.

In addition, marginally suitable habitat was identified for four species; fork-tailed swift (*Apus pacificus*, MI), letter winged kite (*Elanus scriptus*, P4), western mouse (*Pseudomys occidentalis*, P4) and heath mouse (*Pseudomys shortridgei*, VU) were assessed in the post field likelihood of occurrence (LOO) as 'Possible' to occur.

Quenda were observed within vegetation unit 1: Proteaceae Shrubland [Pro SL]. Vegetation unit 2: Invasive Grassland [Invasive GL] provides very little fauna habitat value, but does provide a vegetated link connecting the suitable habitat areas within the survey and the immediate adjacent landscape. There wasn't a high incidence of diggings, with the isolated diggings observed in the very southern portion of the survey area, given the overall lack of signs of presence and the presence of high quantity rabbit activity suggests that the several isolated runnels / runnel network is primarily being utilised by rabbits and that, quenda are likely to be transient, or inhabiting areas outside of the survey area. The removal of the vegetation within the survey area is therefore unlikely to significantly impact the ability of the species to move throughout the landscape given there is available habitat outside the survey area.

Carnaby's Cockatoo was identified as being present due to the presence of chewed pines cones. The feeding events were not considered significant and are localised to the strip of pine trees present in the south of the survey area. No evidence of foraging within vegetation unit 1: Proteaceae Shrubland [Pro SL] was observed, indicating that although there is low quality foraging habitat present it is not being utilised. No signs of roosting were observed, and the survey area does not contain suitable roosting habitat. Overall, the available foraging habitat within the survey area is approximately 0.86 ha, which is 64% of mapped vegetation identified within the survey area. The *EPBC Act 1999* referral guidelines for the three threatened black cockatoo species stipulates that a proposal should be referred for assessment if more than 1ha of high-quality habitat is to be removed. Given the habitat present is less than 1 ha and is not of high-quality it is unlikely that works at this location alone would need to be referred for assessment under the EPBC Act 1999. However, the cumulative total and potential impact across the entire Esperance Branch Line project should be taken into consideration.

There is marginally suitable habitat present for the western mouse and heath mouse within vegetation unit 1: Proteaceae Shrubland [Pro SL]. In addition, marginally suitable habitat was also detected for the fork-tailed swift (MI) and letter-winged kite (P4). Habitat for these species occurs throughout the entire survey area, with areas of native vegetation providing daytime refuge and hunting habitat. Proposed clearing is unlikely to detrimentally affect these species.

1. Introduction, Scope and Background Information

Arc Infrastructure ("the client") commissioned Bio Diverse Solutions as Environmental Consultants to conduct a spring reconnaissance flora and vegetation survey and a basic (previously reconnaissance) fauna assessment of a total of 1.342 ha along Railway Line 51, in the vicinity of Stafford Road, in the Shire of Esperance. This specifically occurred long Railway Kilometre (KM) marking 348.724 to 350.164. The total 1.342 ha consists of five separate 'areas' or zones (laydown areas) and stretches a total distance of 1.45 km along an existing service road for the railway line. Laydown areas range from 0.085 to 0.18 ha. The scope of works included:

- Desktop assessment of the survey area, including all publicly available and Department of Biodiversity, Conservation and Attractions (DBCA) database searches for Threatened flora, vegetation communities and Threatened fauna data;
- A spring reconnaissance flora and vegetation survey across survey area to identify vegetation units, condition, possible ecological communities and conservation significant flora habitat;
- Identification of flora species, including herbarium identification if required;
- Basic fauna survey to map fauna habitat in the area, identify areas likely to provide habitat for conservation significant species and opportunistic sampling of fauna species (including conservation significant);
- GPS and map any populations of Threatened species (if applicable);
- GIS mapping of vegetation units present and their condition;
- GIS mapping of fauna habitat;
- Prepare a report on survey outcomes; and
- Provide the client with the IBSA Data package (as required to be submitted by the client).

1.1. Location and Development Proposal

The 'survey area' is defined as the total area being surveyed, consisting of five areas located along Line 51 (348.724 to 350.164KM) in the vicinity of Stafford Road, in the Shire of Esperance. The five areas ranged from 0.085 to 0.18 ha in size, and the total length of the survey area is approximately 1.45 km (Figure 1). These areas have been earmarked by Arc Infrastructure for clearing as part of the required upgrades and ongoing maintenance of the railway track. Specifically, the survey area correlates with a portion of Site 18 of the 2022 Scope of Works for Arc Infrastructure (Tanna, 2021).

The 'study area' consists of the 30 km radius around the survey area, used for indications of likelihood of occurrence (LOO) for Threatened or Priority flora, fauna and ecological communities. It provides a broader context for assessment of the survey area.

The survey area consists mostly of remnant vegetation, located within the cadastral boundary of the Arc Infrastructure managed railway line. Some areas within the survey area are already cleared for the purpose of a maintenance access track. The surrounding area is dominated by agricultural private properties. A patch of remnant native vegetation is located to the east of the survey area.

Following the commission of a biological survey, an environmental risk assessment was completed in tandem with Arc Infrastructure Project Team and Kathryn Kinnear (Principle Environmental Consultant) of Bio Diverse Solutions. This identified within Arc Infrastructure's Site 8 (2022 Scope of Works) the operational footprint of construction works required a clearing permit or further environmental approvals. The risk assessment categorised operational space into a 'traffic light' system, as outlined below:

a) Red – further biological surveys or other surveys required;
b) Yellow – clearing permit to be applied for in 2022 (pending application submission to DWER, no CPS number currently assigned); and
c) Green – valid exemptions apply or 'Cleared' areas with no native vegetation remaining.

The environmental risk assessment that corresponds with the survey area is outlined in Figure 14 (Appendix A), illustrating how large areas within the survey area were considered previously cleared or exempt from a clearing permit. A linear corridor on the eastern side of the railway and one laydown area for storage of machinery and construction materials were identified as 'yellow' and a clearing permit will be applied for specifically these areas. This reconnaissance flora and vegetation and

basic fauna survey provides base-line data for the approval of this clearing permit and generalised environmental data for Arc Infrastructure.

1.2. Alignment to Legislation, Guidelines and Policies

This survey and subsequent report are aligned to the following legislation, guidelines and policies:

- *Environmental Protection and Biodiversity Conservation Act 1999* (EP Act). Administered by the Australian Government of Department of Agriculture, Water and Environment (DAWE);
- *Biodiversity Conservation Act 2016* (BC Act). Administered by the Western Australian Department of Biodiversity, Conservation and Attractions (DBCA);
- *Environmental Protection Act 1986* (EP Act). Administered by the Western Australian Department of Water and Environmental Regulations;
- *Biosecurity and Agriculture Management Act 2007* (BAM Act);
- EPA (2016) Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment;
- EPA (2020) Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact;
- CoA (2013) Draft Survey guidelines for Australia's Threatened Orchids*;*
- DEWHA (2010) Survey Guidelines for Australia's Threatened Birds;
- DSEWPaC (2011) Survey Guidelines for Australia's Threatened Mammals; and
- DSEWPaC (2012) Referral Guidelines for Three Threatened Black Cockatoo Species.

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Scale
1:225,000@ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- 30km Study Area Buffer
- Rail Kilometer Points

Overview Map Scale 1:1,250,000

CLIENT: Arc Infrastructure Line 51 (348.724 to 350.164 KM), North of Gibson Site 8 - Stafford Road Gibson, WA 6448		
Figure1: Survey Area Locality.		
	QA Check: **MLH**	Drawn by: **BMT**
STATUS: **FINAL**	FILE: **AI005-008**	DATE: **3/06/2022**

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2021
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI

1.3. Geology and soils

Database searches shows the survey area lies within the Esperance System (245Es). Esperance System is described as *"Level to gently undulating mid-level plain with poor external drainage. Incised by river valleys (mapped as Young System). The southern boundary is defined by a low escarpment which forms a boundary to the Gore System below."* (DPIRD, 2021).

The Esperance Sandplain Zone is described as "*Level to gently undulating plain dissected by a number of short rivers flowing south. Formed on Eocene marine sediments overlying Proterozoic granitic and metamorphic rocks. Soils are grey fine sandy duplex soils and fine sands."* (DPIRD, 2018a). The soil type within the application area is mapped as Esperance 1 a Phase (245Es_1E1a) described as "*Gravelly, yellow mottled duplex soil with < 30 cm of sand over gravel layer (Fleming (shallow)), Dy5.82, on level plain, <1% slope"* (DPIRD, 2019a).

1.4. Climate

The closest Bureau of Meteorology (BoM) site is Esperance Aero (009542). The average annual temperature ranges from 11.3 – 22.3°C. The average summer temperature ranges between 13.4-27.9°C, whilst average winter temperatures range between 7.6-17.4°C. The annual mean rainfall is 569 mm (BoM, 2022). On average the months of May – September are the months with the highest rainfall (Figure 2). There was higher than average rainfall recorded in the months of April, May, June and October 2021, and in November 2020 (Figure 2). The total rainfall in the year previous to the survey (November 2020 – October 2021) was 646.4mm which is 77.4 mm above average and equates to 13.60% increase in average rainfall.

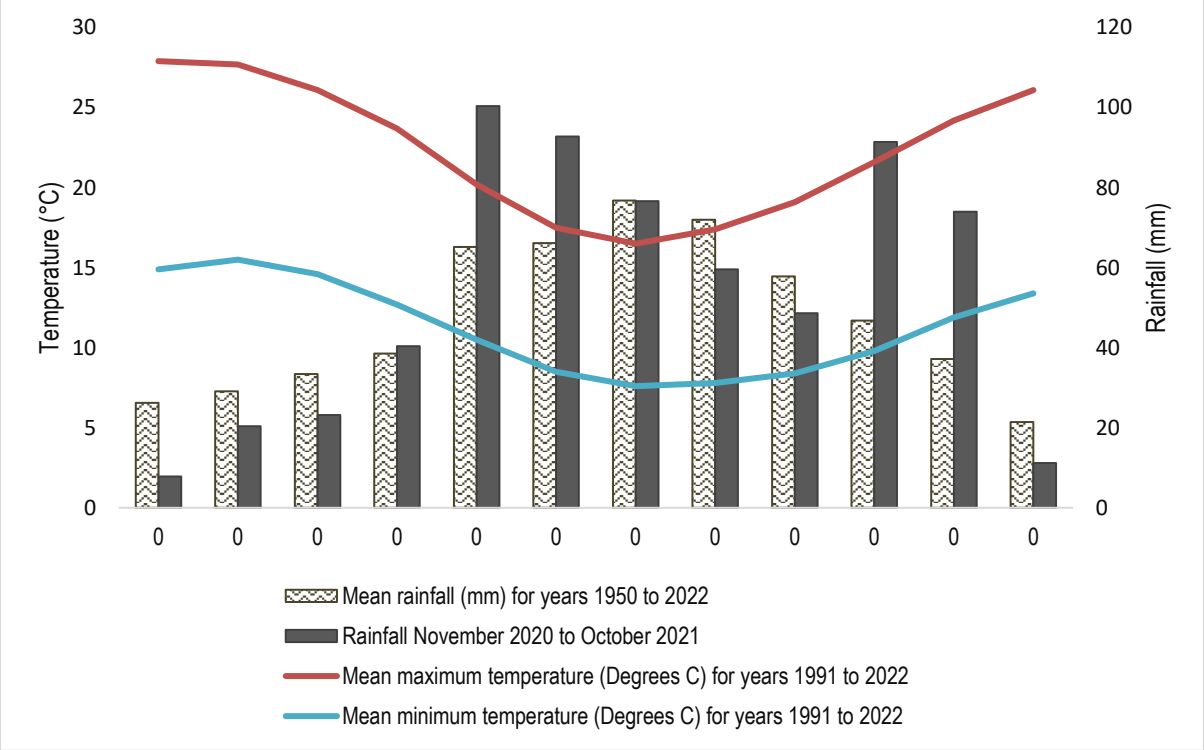

Figure 2: Temperature and Rainfall Data for Esperance BoM Weather Station No. 009542.

1.5. Habitat Connectivity

There are small areas of intact remnant vegetation located within private property and Reserve 22980 to the west of the survey area (Table 1). Unconstructed road reserves are also immediately adjacent to the survey area to the east and west. There is remnant vegetation located along the railway line itself which extends out into the broader Esperance area. In a regional context these larger areas of remnant vegetation are connected through smaller interconnecting patches within the surrounding agricultural landscape.

Table 1: Reserve Details (GoWA, 2022).

Reserve Number	Responsible Agency	Current Purpose
22980	Department of Primary Industries and Regional Development (SAGD)	Agricultural Research Station

1.6. Water and Wetlands

The survey area does not lie within any Public Drinking Water Source areas (DWER, 2020a). The survey area lies within the Esperance Sandplain (HZ25_ES) Hydrological Zone (DPIRD, 2018b). The Esperance Sandplain zone is described as "*Level to gently undulating plain dissected by a number of short rivers flowing south. Formed on Eocene marine sediments overlying Proterozoic granitic and metamorphic rocks. Soils are grey fine sandy duplex soils and fine sands*" (DPIRD, 2018b). The survey area lies within the Lake Gore Hydrographic Catchment (DWER, 2018a) and within the Dalyup River Hydrographic Subcatchment (DWER, 2018b).

No RAMSAR wetlands, or significant wetlands are located directly within the survey area. However, the desktop survey did identify that the Lake Gore RAMSAR wetland is ~30 km west and the Lake Warden RAMSAR system is ~26km to the south of the survey area (DAWE, 2021). The survey area is not present within the catchment of Lake Gore or Lake Warden RAMSAR systems and proposed works are unlikely to affect them.

No vegetation units present had a significant relationship with a specific hydrological system or ecological indicators consisting of riparian vegetation.

1.7. Environmentally Sensitive Areas

The survey area does not contain any DWER listed Environmentally Sensitive Areas (ESA; DWER, 2020b), but is located within Arc Infrastructure's internal ESA system.

1.8. Remnant Vegetation

The survey area lies within the Esperance Plains (ESP) Bioregion and Recherche (ESP02) subregion. Comer et al (2001) describes the Esperance bioregion as "characterised by proteaceous scrub and mallee heaths on sandplain overlying Eocene sediments; rich in endemics. Herbfields and heaths (rich in endemics) on abrupt granite and quartzite ranges that rise from the plain. Eucalypt woodlands occur in gullies and alluvial foot-slopes. ESP2 Subregion has variable relief, comprising the Quaternary coastal sandplains and dunes overlying Proterozoic gneiss and granite as well as Eocene and more recent coastal limestones. Numerous granitic islands occur in the near shore area of this subregion. Vegetation comprises heath, coastal dune scrub, mallee, mallee-heath and granite heath."

The vegetation has been mapped on a broad scale by J.S. Beard (Shepherd *et al.* 2002) in the 1970's, where a system was devised for state-wide mapping and vegetation classification based on geographic, geological, soil, climate structure, life form and vegetation characteristics (Sandiford and Barrett, 2010). Vegetation units were regarded as associations and were grouped into Vegetation Systems representing a particular pattern of association distribution within a given area. A GIS search of J.S. Beards (Beard *et al.* 2013) vegetation classification places the survey area within one Vegetation Association (DPIRD, 2019b). Refer to Map 13 in Appendix A:

- **System Association Name**: Esperance.
- **Vegetation Association Number:** 47.
- **Structure Description:** Mallee-heath.
- **Floristic Description:** Mixed heath with scattered mallee e.g tallerack *Eucalyptus tetragona.*
- **Remnant Vegetation by Beard Association Rarity in LGA:** 13.43% remaining (GoWA, 2019).
- **Remnant Vegetation by Beard Association Rarity in IBRA Region:** 35.05% remaining (GoWA, 2019).

1.9. Heritage

The survey is located within the Wudjari Nyungar nation, and not located within a registered heritage site (DPLH, 2022). It is recognised that there has been a large scale of loss of cultural knowledge and information, and the survey area may contain additional heritage values that are not recognised through DPLH (2022).

2. Methodology – Desktop Assessment

2.1. Flora and Vegetation

Desktop inventory of potential conservation significant flora species likely to occur within 30 km of the survey area was undertaken using the following databases:

- Nature Map Database Search (combined data from DBCA, WA Museum and WA Herbarium; DBCA, 2007 -; WAH 1998 -);
- Protected matters search tool (DAWE 2021);
- 30 km Flora DBCA database records (DBCA, 2021a); and
- 30 km TEC / PEC DBCA database records (DBCA, 2021b).

The conservation significance of flora species has been assessed using data from the following sources:

- *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act*). Administered by the Australian Government Department of Agriculture, Water and the Environment (DAWE);
- *Biodiversity Conservation Act 2016* (*BC Act*). Administered by the Western Australian Department of Biodiversity Conservation and Attractions (DBCA);
- DBCA priority and threatened ecological community list (DBCA, 2021). A non-legislative list maintained by DBCA for management purposes; and
- DBCA Priority Flora list. A non-legislative list maintained by DBCA for management purposes.

2.2. Fauna

A desktop inventory of conservation significant fauna species known to occur within 30 km of the survey area was undertaken using the following databases:

- Nature Map Database Search (combined data from DBCA, WA Museum and WA Herbarium); and
- Protected matters search tool (DAWE, 2020); and
- 30 km Fauna DBCA database records (DBCA, 2021c).

The conservation significance of fauna species has been assessed using data from the following sources:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Administered by the Australian Government Department of Agriculture, Water and the Environment (DAWE);
- *Biodiversity Conservation Act 2016* (BC Act). Administered by the Western Australian Department of Biodiversity Conservation and Attractions (DBCA).

Desktop assessment for the Black Cockatoo habitat consisted of reviewing DBCA locational records and a range of publicly available datasets relevant to Black Cockatoo breeding, roosting and foraging areas. These included:

- Carnaby's Cockatoo Confirmed (DBCA_050; DBCA, 2018b) and Unconfirmed Roost Sites (DBCA_051; DBCA, 2018c).
- Carnaby's Cockatoo Confirmed (DBCA_52; DBCA, 2018d) and Unconfirmed Roost Sites Buffered 6km (DBCA-053; DBCA, 2018e).
- Carnaby's Cockatoo Confirmed Breeding Areas within the Swan Coastal Plain and Jarrah Forest IBRA Regions (DBCA_054; DBCA, 2018f).
- Carnaby's Cockatoo Unconfirmed Breeding Areas within the Swan Coastal Plain and Jarrah Forest IBRA Regions (DBCA-055; DBCA, 2018g).
- Black Cockatoo Breeding Sites - Buffered DBCA_063 (DBCA, 2019a).
- Black Cockatoo Roosting Sites – Buffered DBCA_064 (DBCA, 2019b).

3. Methodology – Field Survey

3.1. Flora and Vegetation

The aim of this survey was to provide context and gather knowledge of the survey area. This type of survey aims to verify the desktop information obtained, and to characterise the flora and vegetation units present within the survey area.

A spring reconnaissance level flora and vegetation survey was undertaken by Katie White (Botanist) of Bio Diverse Solutions on the 4th and 5th of November 2021, supported by Kimberly Jenkins (Technical Assistant) of Bio Diverse Solutions. The survey area was surveyed on foot using traverses and relevés. The intent of the traverses was to identify and map the different vegetation units, their condition category and to undertake more intensive targeted surveys within suitable habitat for conservation significant species.

Two relevés (Appendix D) were systematically surveyed within representative vegetation units to enable thorough recording of species occurrence and representative vegetation descriptions used to describe the composition and structure of vegetation units present. A risk assessment was completed during the field survey on vegetation units likely to meet Kwongkan TEC / PEC criteria (Section 4.2; DoE, 2015), namely Vegetation Unit 1: Proteaceae Shrubland (Section 5.6). Two quadrats were systematically sampled within "laydown" area, with photos and GPS coordinates recorded on the south-western corners.

The flora was systematically recorded within the relevés and quadrats, with collections of plant specimens made where further identification was required, using Katie White's Regulation 60 Flora Taking Licence FTB62000237. For species that were not flowering and where foliage or nuts / fruit couldn't be used for identification, potential habitat was used as an indication of the likelihood of species occurrence. The vegetation units occurring within the survey area were mapped and described using opportunistic mapping, relevés and quadrats. Vegetation units were described based on structure, dominant taxa and cover characteristics as defined by relevé data and field observations, in accordance with Muir (1977) and NVIS Level 5 (sub-association; DoEE, 2017) description methods.

Information collected within each relevé and quadrat included:

- Location: coordinates of the relevé using a handheld GPS unit.
- Date and site code.
- Site description: landform, slope, soil colour and type and hydrology.
- Vegetation description: dominant and non-dominant species present within the different growth forms and percentage cover.
- Vegetation condition.

3.2. Flora and Vegetation Survey Limitations and Constraints

An assessment of potential survey limitations was undertaken as per the EPA (2016) document *Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment* refer to Table 2 below. Limitations were present, with the most significant limitation relating to the annual, herbaceous Orchid species, P3 *Pterostylis faceta,* that was determined as 'Possible' to occur in the LOO but was not flowering at the time of the survey. Numerous other minor limitations were present, including indistinct shrubs not flowering at the time of the survey, challenge of fire ephemeral species in long unburnt bushland and lack of information on undescribed species. Cautionary principles were applied to specimens bearing similarities to these species.

Table 2: Flora and Vegetation Survey Limitations and Constraints.

Limitation	Significance of limitation	Comment
Experience of personnel	Nil	Katie White has over 5 years' experience at conducting targeted, reconnaissance and detailed flora surveys within the Esperance sandplains bioregion and is competent in taxonomic identification and assessment of vegetation in the area. Additionally, she has conducted targeted flora surveys and worked alongside the DBCA Flora Conservation Officer for a large number of flora species listed on the 30 km desktop analysis. Kimberly Jenkins has 10 years' experience of working various technical assistant, field survey, education and other scientific roles. A single species of bryoflora was identified within the desktop assessment (Table 11, Appendix B), namely P2 *Fabronia hampeana.* This is outside the expertise of surveyors. However, a risk assessment was completed on suitable habitat present and was determined to be 'Unlikely' to occur.
Survey timing	Minor Major – *Pterostylis faceta*	The client requested a spring flora and vegetation survey, consistent with peak flowering times for the majority of species in the area. Timing of survey occurred towards the end of the peak flowering period in this locale, and was undertaken on the 4th and 5th of November 2021. It was noted that many annual and herbaceous species, such as Orchid species were not present and are under-represented within the diversity of this report. A significant limitation was present for one species identified as 'Possible' to occur in the LOO due to being an herbaceous annual species flowering and present outside the survey period. This applied to P3 *Pterostylis faceta.* If present within the survey area, this species would not have been detectable. One species identified as 'Likely' (P3 *Brachyloma mogin)* and five species as 'Possible' (P1 *Leucopogon remotus, Darwinia* sp. Gibson [R.D. Royce 3569], P2 *Hibbertia turleyana,* P3 *Styphelia rotundifolia* and *Pityrodia chrysocalyx*) in the LOO are recorded as flowering outside of the survey season. These plants are all smaller, obscure shrubs. Whilst detectable, there is a minor limitation and visibility and ease of detection. Additionally, a minor limitation was present for species identified in the LOO as flowering on the periphery of the survey time. This specifically occurred for one species identified as 'Likely' to occur, namely P2 *Leucopogon corymbiformis,* and two species as 'Possible' to occur, namely P2 *Comesperma griffinii* and P3 *Kunzea salina*. It is possible that early or late blooms were present. Due to being a minor limitation, cautionary principles were applied when identifying specimens within this genera, and multiple specimens submitted to the WA Herbarium for species identification. Five species were recorded as flowering outside the survey period but had nil limitation due to being large, distinctive shrubs that did not require flowering to be recognisable.
Access restrictions	Nil	No access restrictions were encountered during the survey.

Table 2 continued.

Limitation	Significance of limitation	Comment
Availability of contextual information	Minor	Publicly available desktop and background information was readily available to give a broad contextual understanding of the site. Database searches were conducted through DBCA (DBCA, 2021a; DBCA, 2021b) providing a more comprehensive context. However, it must be noted that the Esperance area is highly understudied. Three species were identified in the desktop assessment (Table 11, Appendix B) as 'Possible' to occur with very limited information present taxonomically. This primarily related to undescribed, informal phrase names, such as P1 *Baeckea* sp. Gibson (K.R. Newbey 11084), *Leucopogon* sp. Lake Magenta (K.R. Newbey 3387), and *Schoenus* sp. Grey Rhizome (K.L. Wilson 2922). Cautionary principles were applied for any species within these genera during identification.
Survey effort and extent	Nil – Minor – Orchid species	150 species were identified during the survey, and two relevé and two quadrat data sets collected to gain as complete a picture as possible of flora species present at the site. Following the CoA (2013) *Draft Survey guidelines for Australia's Threatened Orchids,* it is recognised that due to the complex nature of Orchid phenology and physiology, more intensive survey transects and surveys over multiple time periods may be required. Two Orchid species were identified within the desktop assessment as 'Possible' to occur, namely P2 *Paracaleana parvula* and P3 *Pterostylis faceta*. Whilst the survey intensity was appropriate at a reconnaissance level (EPA, 2016), it was recognised that it likely did not meet requirements for sampling Orchids (CoA, 2013), which may represent a minor limitation.
Disturbances that may affect results	Nil Major – fire ephemeral species	The primary form of disturbance was the presence of access tracks adjacent to the railway line that were effectively cleared. No fires had previously occurred and the native vegetation showed indications of being long unburnt (density of leaf litter, age and height of obligate seeders, height of Mallee re-sprouters). This is a significant limitation for P3 *Adelphacme minima*, identified as 'Possible' in the LOO assessment. It is therefore possible to be present through viable soil seed bank, but would not have been captured through this survey.
Identification issues	Nil	The survey was undertaken on 4th and 5th of November, during the peak flowering period for many great southern flora species to maximise ease of identifying them. However, given that not all flora species flower during this time some species will be more difficult to observe in the field than others. Of the 150 species present within the survey area, the vast majority contained sufficient taxonomic information for identification (such as nuts, fruit, leaf structure or flowers). It is estimated that 70-75% of species present were flowering. Six species could not be identified, primarily relating to being sterile at the time of the survey. These bore no similarities to species identified as 'Likely' or 'Possible' to occur in the LOO assessment.

3.3. Basic Fauna Survey Methodology

Field survey work was carried out by Dr. Karlene Bain (Wildlife Ecologist / Zoologist) and Bianca Theyer (Conservation and Wildlife Biologist / Ecologist) on the 23rd November 2021, in accordance with Guidance Statement 56: *Terrestrial Fauna Surveys* (EPA 2020).

Fauna surveys were was carried on foot using traverses and targeted survey techniques consistent with the following documents developed by the EPA and Department of Agriculture, Water and the Environment (DAWE) formerly the Department of Sustainability, Water, Population, and Communities (DSEWPaC) and Department of the Environment, Water, Heritage and the Arts (DEWHA):

- EPA (2020) Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment;
- DEWHA (2010) Survey guidelines for Australia's threatened birds;
- DSEWPaC (2011) Survey guidelines for Australia's threatened mammals; and
- DSEWPaC (2012) Referral Guidelines for Three Threatened Black Cockatoo Species.

The vegetation units described in Section 5.2 broadly define habitat types across the survey area. The aim of the basic fauna survey was to assess and map the fauna habitat within the survey area, assess the likelihood of conservation significant fauna species utilising the general area and / or particular vegetation units, record the actual presence of conservation significant fauna, and undertake an opportunistic inventory of fauna encountered whilst traversing the survey area on foot.

3.4. Targeted Black Cockatoo Habitat Assessment

Carnaby's Cockatoo have a wide-spread distribution across Western Australia extending from Kalbarri and Geraldton in the northwest of the state, inland to Morawa, Dowerin and Merredin and to the east of Esperance (DSEWPaC, 2012). The survey area lies within the known foraging range of the Carnaby's Cockatoo, but is outside of the modelled predicted breeding area (DSEWPaC, 2012).

Baudin's Cockatoo is most commonly found in forested areas, but is also found in the open agricultural areas within the southwest (DEC, 2008). The survey area falls outside the known distribution area for Baudin's Cockatoo, which extends from Mundaring south to Kojonup and Albany, and inland to the Stirling Ranges (DEC, 2008; DSEWPaC, 2012). Based on modelled predicted breeding areas contained within the guidelines (DSEWPaC, 2012), the survey area does not lie within the breeding distribution for this species.

Forest Red-tailed Black Cockatoo occur within the south-west humid and sub-humid zones of Western Australia, in the dense Jarrah, Karri and Marri forests that receive more than an average of 600mm annual rainfall (DEC, 2008). Their distribution extends from Perth, east to Wundowie and south through to Narrogin, Kojonup, Cranbrook and Albany (DSEWPaC, 2012). The survey area is not located within the known distribution for this species (DSEWPaC, 2012).

Cockatoo surveys targeted Carnaby's Cockatoo and potential habitat for this species, and consisted of a systematic traverse-based assessment of hollow-bearing trees, foraging habitat, feeding activity and roosting sites, as described in sections 3.4.1-3.4.3.

3.4.1 Surveys for Breeding Hollows

Carnaby's Cockatoo breed within the inland parts of its distribution, in areas with 300-750 mm annual average rainfall (DPaW, 2013). This breeding range has expanded further south in recent years into Jarrah-Marri forests and the coastal Tuart forests south of Perth (Johnstone and Storr 1998; Johnstone *et al.* 2011). Although the survey area does not fall within the modelled predicted breeding area, there is potential for suitable breeding habitat to be present, and as such an assessment of all trees onsite was undertaken.

The aim of the black cockatoo habitat assessment was to identify all potential breeding trees (refer to Table 3) with a diameter, measured at 1.5 m from the base of the tree, of 500 millimetres or greater and that contained one or more hollows of potential suitability for breeding by Carnaby's Cockatoo. These trees are referred to hereafter as significant trees.

If present, significant trees were GPS located, the diameter of the tree measured at breast height (1.5 m above the ground; DBH) using a diameter tape, photographed, and the presence or absence of potential breeding hollows determined. Where present, hollows were photographed, the entrance type (chimney, side or elbow) and dimensions of the hollow were recorded

and hollows were assessed for signs of use by cockatoos, based on evidence such as chewing around the hollow entrance, and activity at the base of the tree, e.g., feathers, faecal material, feeding debris.

Long term studies on Carnaby's Cockatoos have shown that they utilise tree hollows ranging from 100 mm – 650 mm (average 260 mm) in diameter and a hollow with a depth more than 300 mm (Saunders *et al.* 2014a, 2014b). Based on this information, hollows with an entrance diameter larger than 100 mm x 100 mm that occurred in branches or trunks with the capacity for deep hollows were recorded as potential cockatoo breeding hollows. Smaller hollows with the potential to develop into suitable nesting hollows were also recorded.

3.4.2 Surveys for Foraging Habitat and Feeding Activity

The *EPBC Guidelines for Black Cockatoos* (DSEWPaC, 2012) outline general criteria for identifying foraging habitat for black cockatoos (Table 3) but do not provide detailed criteria for assessing quality. In this instance, the quantity of feeding evidence, overall health of trees (dead, presence of disease), presence of fruiting material, and diversity of known foraging species was taken into account when assessing the quality of foraging habitat. Vegetation units that do not contain known foraging species were not considered to contain foraging habitat.

Assessment of foraging habitat was based on published ecological information for Carnaby's Cockatoo, which documents that this species prefers Kwongkan heathland, shrublands and woodlands dominated by Proteaceous species as foraging habitat but will feed on individual Eucalypts and small stands of Eucalypt woodland or forest (Table 3). The presence of foraging habitat was mapped in the field, and individual locations where feeding activity was encountered were GPS'd

3.4.3 Targeted Black Cockatoo Habitat Assessment

There is currently an absence of criteria within the EPBC Guidelines (DSEWPaC, 2012) for assessing roosting habitat. In this survey, the presence of cockatoo feathers and faecal material were used as indicators of roosting activity. The presence of roosting habitat if present was mapped in the field, and individual locations where roosting activity was encountered were GPS'd.

Table 3 Habitats used by Carnaby's Cockatoo (DSEWPaC, 2012).

Habitat	Carnaby's Cockatoo
Breeding	Generally, in woodland or forest, but also breeds in former woodland or forest now present as isolated trees. Nest in hollows in live or dead trees of salmon gum (*E. salmonophloia*), wandoo, tuart, jarrah (*E. marginata*), flooded gum (*E. rudis*), york gum (*E. loxophleba* subsp. *loxophleba*), powder bark (*E. accedens*), karri and marri.
Roosting	Generally, in or near riparian environments or natural and artificial permanent water sources. Flat-topped yate (*E. occidentalis*), salmon gum, wandoo, marri, karri, blackbutt, tuart, introduced eucalypts (for example blue gum) and introduced Pines.
Foraging	Native shrubland, Kwongkan heathland and woodland dominated by Proteaceous plant species such as *Banksia* spp. (including *Dryandra* spp.), *Hakea* spp. and *Grevillea* spp. Forages in Pine plantations (*Pinus* spp.), eucalypt woodland and forest that contains foraging species. Also, individual trees and small stands of these species.
Foraging: common food items	Seeds, flowers and nectar of native Proteaceous plant species (for example, *Banksia* spp., *Hakea* spp., *Dryandra* spp., and *Grevillea* spp.), eucalypts and Callistemon. Also seeds of introduced species including *Pinus* spp., *Erodium* spp., wild radish, canola, almonds and pecan nuts; insects and insect larvae; occasionally flesh and juice of apples and persimmons.

3.5. Fauna Survey Limitations and Constraints

An assessment of potential survey limitations was undertaken as per the EPA (2020) document *Technical Guidance Fauna Surveys for Environmental Impact Assessment* refer to Table 4 below.

Table 4: Fauna survey limitations and constraints.

Limitation	Constraint	Comment
Scope	Nil	The scope was a basic fauna survey to generally assess the presence / evidence of fauna species within the survey area, map the fauna habitat, undertake opportunistic inventory of species including Threatened and Priority listed and other conservation-significant species.
Disturbances that may affect results	Nil	No recent disturbances which may affect results of the survey were identified, e.g., recent fire or grazing. Historical and ongoing disturbances from the existing operational activities along the railway line may impact the presence of fauna within the survey area. However, given these disturbances are long-term and continuous, they are unlikely to have resulted in a significant limitation on detection probability or species occurrence during the survey period (i.e., activities would result in some fauna moving away / not utilising the survey area at all times).
Intensity of survey	Nil	The intensity of the basic fauna survey and targeted components of the survey were deemed appropriate given the scope.
Sources of information (recent or historic) and availability of contextual information	Minor	Publicly available desktop, background and ecological data were readily available to provide a contextual understanding for the site and the survey. DBCA data were also acquired (not publicly available) to provide a more detailed understanding of potential conservation significant fauna in the survey area.
Remoteness or access issues	Nil	No access restrictions were encountered.
Species detection probability (e.g., as a result of seasonal activity, fauna movement patterns and cryptic behaviours)		Cockatoo breeding periods affect the ability of surveys to detect breeding individuals, however assessment of the suitability of breeding habitat based on the presence of potentially suitable hollows negates this limitation. Spatiotemporal patterns of foraging and roosting by Carnaby's Cockatoo result in varied and sometimes sporadic use of some areas, which affects direct detection. The use of activity indicators such as feeding debris (nuts) and faecal material that persist onsite negate this limitation and enable determination of the regularity with which an area is visited. Cryptic species such as the western mouse (*Pseudomys occidentalis*, EN), and heath mouse (*Pseudomys shortridgei*, VU) and are unlikely to have been detected within the parameters of this survey. The presence of potential habitat was used as an indication of their likelihood of occurrence, and the possible need for follow up targeted surveys.

Table 4 continued.

Limitation	Constraint	Comment
Species detection probability (e.g., as a result of seasonal activity, fauna movement patterns and cryptic behaviours) Cont.	Minor Cont.	The conclusions presented in this report are based upon field data collected over a limited period of time. The results are therefore indicative of the environmental condition of the site at the time and the survey timing. E.g., some species are more likely to use seasonally inundated areas when they are dry, transient wide-ranging species may not have been present during the survey period, some cryptic species are less detectable particularly when they are inactive. Species-level detection probabilities are dealt with in the Threatened fauna LOO in Table 13, Appendix B. Species-level detection probabilities are dealt with in the Threatened fauna LOO in Table 13, Appendix B.
Survey techniques	Minor	Identifying hollows from the ground has limitations, as the full characteristics of a hollow are not evident (e.g., internal dimensions such as depth). The entrance dimensions and size of the branch / trunk into which the hollow was forming were used as indicators of the potential internal dimensions. The relative visibility of the canopy can also be limiting in identifying potential hollows, particularly where hollows are upward facing or obscured by foliage.
Experience of personnel	Nil	Bianca Theyer has 6 years of fauna survey experience through her role at Bio Diverse Solutions and has been mentored by Dr Karlene Bain (Wildlife Ecologist) during this time. She has experience assisting other Zoologists (Bush Heritage, Australian Wildlife Conservancy and DBCA) in a voluntary capacity with fauna monitoring surveys. Dr Karlene Bain has 26 years of fauna survey experience through roles in biodiversity survey, research and management working with State Government, State Natural Resource Management groups, Regional NRM groups, Research Institutions, and Private Industry.

4. Results – Desktop Assessment

4.1. Threatened and Priority Flora

The full species list compiled from all available data (Table 19 in Appendix D) is based on observations from a broader area than the survey area and is likely to include species that would not occur in the actual survey area due to a lack of suitable habitat. The data also includes very old records and in some cases the species in question may have become locally or regionally extinct. Conservation categories for Threatened and Priority flora are presented in Tables 14 and 15, in Appendix C. NatureMap and Protected matters search tool database searches are provided in Appendix E.

As a result of the above-mentioned database searches 7 Threatened and 67 Priority species were identified within the study area (30 km buffer). Of these, 8 were assessed to be Likely" to occur and 28 "Possible" to occur. Refer to Table 11 in Appendix B for LOO analysis. No records of Threatened or Priority flora were identified in the desktop assessment as being directly present within the survey area.

4.2 Threatened and Priority Ecological Communities

Desktop Assessment of Threatened (TEC) or Priority (PEC) ecological communities identified one TEC, namely '*Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia* (Kwongkan)*'*, which are outlined in further detail below. Kwongkan was assessed as 'Likely' to occur (Table 12, Appendix B).

Conservation categories for Threatened and Priority ecological communities are presented in Tables 16 and 17 in Appendix C. NatureMap and Protected matters search tool database searches are provided in Appendix E.

Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongkan)

Kwongkan is listed as Priority 3 (P3) PEC within WA under the *BC Act 2016* and as an Endangered Threatened Ecological Community (TEC) under the *EPBC Act 1999.* The survey area lies within the southeast botanical province of Western Australia (Hopper and Gioia, 2004), which is the geographical location of Kwongkan. It is defined and assessed in the conservation advice as generally Kwongkan shrubland, ranging from sparse to dense, thicket-forming, where Proteaceous species form a significant component (DoE, 2015). It is confined to the southeast botanical province of Western Australia (Hopper and Gioia, 2004) and primarily occurs on sandplains and marine plains and lower to upper slopes and ridges, as well as uplands across this region. Multiple other ecological communities are listed under the *BC Act 2016* also meet criteria of Kwongkan TEC and should be considered when assessing whether Kwongkan is present.

Kwongkan is recognised by the below key diagnostic features and minimum condition thresholds outlined in the Approved Conservation Advice Guidelines (DoE, 2015):

1) Occurs within the South Coastal Floristic Province (Hopper and Gioia, 2004); relating to south west phytogeographic boundaries. Includes Island of the Recherche Archipelago.
2) a) Characterised by Proteaceae species having 30% or greater cover of Proteaceae species across all layers of where shrubs occur (crowns measured as if opaque). OR;
   b) Two or more diagnostic Proteaceae species are present that are likely to form a significant vegetative component when regenerated. The use of diagnostic species is for situations in which the cover or Proteaceae species is reduced due to recent disturbance (e.g., fire).

Condition thresholds for the ecological community are described in Table 6.

Table 5: Condition thresholds and minimum patch size analysis for Kwongkan PEC / TEC diagnostic criteria.

Condition category	Minimum patch size	Weeds	Dieback
High	1 ha	<30% perennial weed cover	No known Dieback infestation
Moderate	0.5 ha	<70% perennial weed cover	May be present or unknown

The approved conservation advice, available spatial mapping for the ecological community, and description above indicates that this TEC / PEC is likely to occur within the survey area.

Subtropical and Temperate Coastal Saltmarsh (CSM)

CSM is listed as a P3 PEC within WA under the *BC Act 2016* and as a Vulnerable TEC under the *EPBC Act 1999.* The community "consists of the assemblage of plants, animals and micro-organisms associated with saltmarsh in coastal regions of sub-tropical and temperate Australia (south of 23 Degrees S latitude). CSM is recognised by the below key diagnostic features and minimum condition thresholds outlined in Approved Conservation Advice Guidelines (DoE, 2015a), which are outlined further below. Refer to Table A3 in Appendix B for further information.

1) Occurs south of 23°37'S latitude, from the central Mackay coast on the east coast of Australia, southerly around to Shark Bay on the west coast of Australia (26° latitude), including the Tasmanian coast and islands within the above range;
2) Occurs on the coastal margin, along estuaries and coastal embayment's and on low wave energy coasts
3) Occurs in places with at least some tidal connection, including rarely-inundated supratidal areas, intermittently opened or closed lagoons, and groundwater tidal influences, but not areas receiving only aerosol spray;
4) Occurs on sandy or muddy substrate and may include coastal clay pans (and the like);
5) Consists of dense to patchy areas of characteristic coastal saltmarsh species (i.e., salt-tolerant herbs, succulent shrubs or grasses, that may also include bare sediment as part of the mosaic); and
6) Proportional cover by tree canopy such as Mangroves, *Melaleucas* or *Casuarinas* is not greater than 50%, nor is proportional ground cover by seagrass greater than 50%.

Table 6: Minimum patch size analysis for CSM PEC/TEC diagnostic criteria.

Patch size	Condition category	Inclusion in community
<0.1ha and occur in isolation	Patches or areas >50% weeds	**Do not** form part of the CSM TEC/PEC
<0.1ha patches within 30m of each other collectively forming 0.1ha, considered as a mosaic	Patches or areas <50% weeds	**Do** form part of the CSM TEC/PEC

The approved conservation advice, available spatial mapping for the ecological community, and description above indicates that this PEC is unlikely to occur within the survey area, being 25 km away from the coastline or distinct hydrological features that would allow for tidal interaction.

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Scale
1:225,000@ A3
GDA MGA 94 Zone 51

CLIENT Arc Infrastructure
Line 51 (348.724 to 350.164 KM), North of Gibson
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Figure 3: Desktop Flora & TEC/PEC Data (DBCA, 2021a; 2021b).

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-008	3/06/2022

Legend

- Survey Area
- 30km Study Area Buffer

Ecological Communities

State, Commonwealth

- Priority 3, Endangered
- Priority 3, Vulnerable

59-0921FL_WAHerb

- T
- P1
- P2
- P3
- P4

59-0921FL_TPFL

- T, CR
- T, EN
- T, VU
- P1
- P2
- P3
- P4

Overview Map Scale 1:1,250,000

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2021
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI

4.3 Fauna

The desktop assessment identified 56 species of conservation significance within 30 km of the survey area. Of these, 27 were Threatened taxa under the BC Act 2016 and / or EPBC Act 1999 (critically endangered, endangered or vulnerable), nine were Priority listed or specially protected taxa and 20 were migratory species protected under international agreements. Of the 27 Threatened taxa and nine Priority taxa, eight are also migratory species protected under international agreements (Table 13, Appendix B). Of these 56 species, 11 species are assessed as 'Possible' to occur in the pre-field LOO analysis (Table 13, Appendix B). Conservation categories for Threatened and Priority fauna are presented in Tables 15 and 16 in Appendix C. NatureMap and Protected Matters Search Tool database searches are provided in Appendix E.

The list of species with the potential to occur within the survey area is compiled from all available data (Table 13, Appendix B) and is based on observations from a broader area than the survey area. As a result, this list is likely to include species that would not occur in the survey area due to a lack of suitable habitat. The data also includes very old records and in some cases the species in question may have become locally or regionally extinct.

4.3.1 Potential Breeding, Foraging and Roosting Habitat for Black Cockatoos

There are no known confirmed breeding sites within a 30 km range of the survey area, and the area is outside of the modelled breeding range for black cockatoos. DBCA data supplied by Arc Infrastructure indicates there are 10 black cockatoo roost sites that have been located within 30 km of the survey area, the closest being approximately 14.3 km to the south (DBCA, 2021c; Figure 4). Publicly available DBCA black cockatoo databases also indicate there are confirmed roosting sites within 30 km of the survey area (DBCA, 2018a; 2018c; 2019b).

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Scale
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Figure 4: Desktop Fauna Data (DBCA, 2022c).

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-008	3/06/2022

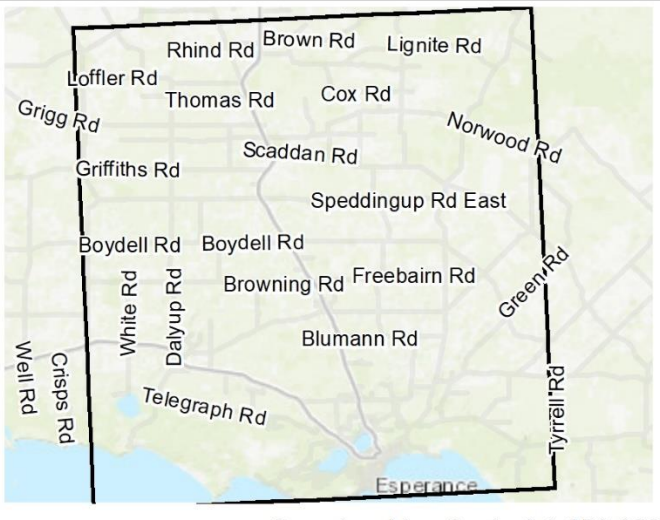
Legend

DBCA Fauna Data

WA Status, EPBC Status

- CR, CR
- EN, EN
- EN, MI
- EN,
- VU,
- VU, EN
- VU, VU
- VU, MI
- MI, MI
- OS,
- P1,
- P2,
- P3,
- P4,
- P4, MI

- Survey
- 30km Study Area
- DBCA Black Cockatoo Roosting Data
- Carnabys Cockatoo Confirmed Roost Sites (DBCA_050)
- Carnabys Cockatoo Confirmed Roost Sites Buffered 6km (DBCA_052)
- Black Cockatoo Roosting Sites Buffered (DBCA_064)



Overview Map Scale 1:1,250,000

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2021
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI

5. Results – Field Survey

5.1 Flora Diversity

During the survey 150 flora species, consisting of 39 families and 101 genera were found, indicating the high level diversity within the survey area. The most commonly occurring families were Myrtaceae and Proteaceae. The species list includes 129 native species (refer to Table A10 Appendix D), and 21 introduced / alien species. Refer to Table 19, Appendix D for full species list. Due to the survey being conducted at the end of the spring season, it was observed that a lower number of Orchids and annuals / herbs were present. The diversity is likely to be significantly higher for within these groups.

Plant identification was undertaken through the most relevant, current and available taxonomic literature, keys and herbarium reference specimens available (Archer, 2016; Barrett & Pin Tay, 2016; Bell, 2018; Blackall & Grieve, 1975; Blackall & Grieve 1980; Brittan, 1987; Brophy *et al.,* 2013; Brundrett; 2014; Euclid, n.d - ; George, 2002; Hollister *et al.,* n.d.- ; ICPS, 2021; JSTOR, 2000-; Marchant *et al.* 1987; Maslin, 2018 - ; Ng, 2022; Rye, 2021; WAH 1998 -; Weber, 2007; Williams, 2022). All resources used were the most current to knowledge. Nomenclature used through this report follows the most recent scientific names through the Western Australian Herbarium (WAH, 1998-).

5.2 Vegetation Units

Two vegetation units were identified during the survey period, with the description below and relevé and quadrat data presented in Appendix D. Refer to Figures 5 and 6 for photographs of vegetation units, and Figure 7 for extent and distribution of vegetation units.

A portion of the survey area (0.369 ha / 27%) was also historically cleared, consisting of bare ground or entirely non-native invasive species (mostly agricultural grasslands).

1. Vegetation Unit: Proteaceae Shrubland (Pro SL)

Vegetation unit 1: Pro SL has extremely high alpha and beta diversity, with the species change over between relevés and quadrats extremely high naturally. It is characterised by an open and scattered overstorey, consisting of *Eucalyptus pleurocarpa, Eucalyptus micranthera, Nuytsia floribunda* and *Lambertia inermis* var *inermis.* The shrubland mid-storey is almost entirely dominated by Proteaceae species.

Disturbance primarily has occurred on the periphery of the access tracks, and minor invasion of weeds is observed. Within these areas the vegetation unit's composition has been altered, with primarily disturbance opportunists dominating. This includes species such as *Hypolaena humilis, Verticordia minutifolia* and various other sedges.

Vegetation Description (NVIS, 2017): *U ^Lambertia inermis* var *inermis, Eucalyptus pleurocarpa, Nuytsia floribunda*\shrub, tree, mallee\5\r; M+ ^^*Isopogon polycephalus, Adenanthos cuneatus, Allocasuarina humilis*\shrub\c\3; G ^*Caustis dioica, +/-Desmocladus flexuosa, Trachymene pilosa*\sedge, herb\c\1.

Vegetation Description (Muir, 1977): *Nuytsia floribunda* Open Low Woodland B, over *Eucalyptus pleurocarpa* and *Eucalyptus micranthera* Very open Tree Mallee, over *Lambertia inermis var inermis* and *Acacia cyclops* Open Scrub, over *Adenanthos cuneatus*, *Allocasuarina humilis* and *Calothamnus gracilis* Heath A and B, over *Isopogon polycephalus* and *Taxandria spathulata* Dwarf Scrub C, over *Caustis dioica* Tall Sedge, over *Desmocladus flexuosus*, *Hypolaena humilis* and *Lepidobolus chaetocephalus* Low Sedge, over *Trachymene pilosa*, *Levenhookia pusilla* and *Microtis media* subsp *media* Very Open Herbs.

Area: 0.80 ha.

Site description: Flat sandplain, with light to dark grey sand. Good drainage.

Condition: Degraded, Good and Very Good.

Represented in R1, R2, Q1 and Q2 (refer to Appendix D).

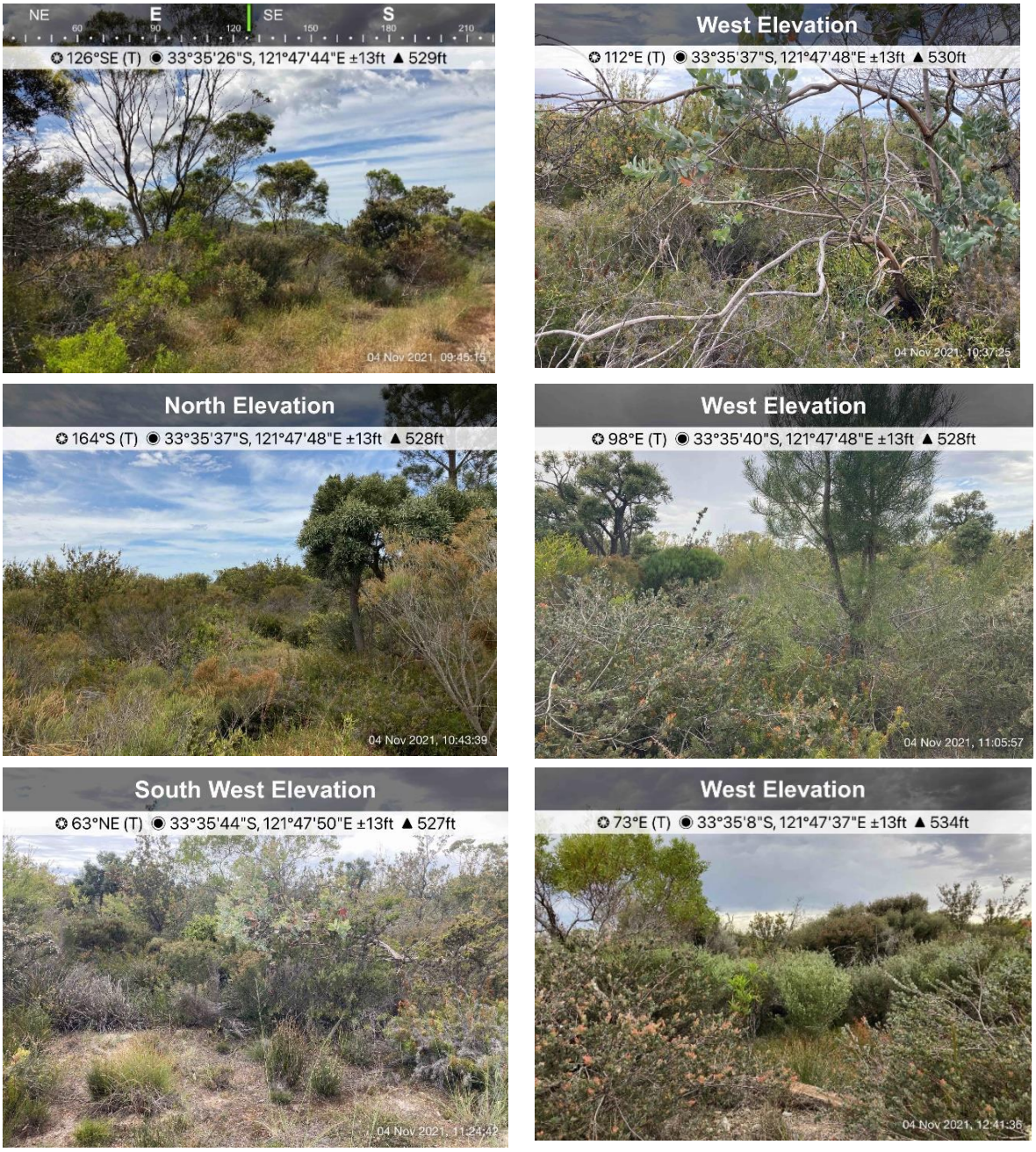


Figure 5: Vegetation Unit 1: Pro SL present within the survey area.

2. Vegetation Unit: Invasive Grassland [Invasive GL]

Vegetation Unit 2: Invasive GL consists of a novel ecosystem, dominated by invasive species within historically disturbed areas. Predominately this consists of a *Eragrostis curvula* (African Lovegrass) grassland, with disturbance opportunists or clonal native species scattered throughout. The native species present have likely regenerated following clearing. Within the survey area, this primarily occurs directly adjacent to access tracks or where slashing has occurred, for the purpose of sight-lines.

Area: 0.113 ha.

Site description: Mixed soil types. Vegetation Unit described on biotic relationships, which is driven across multiple abiotic conditions.

Condition: Completely Degraded.

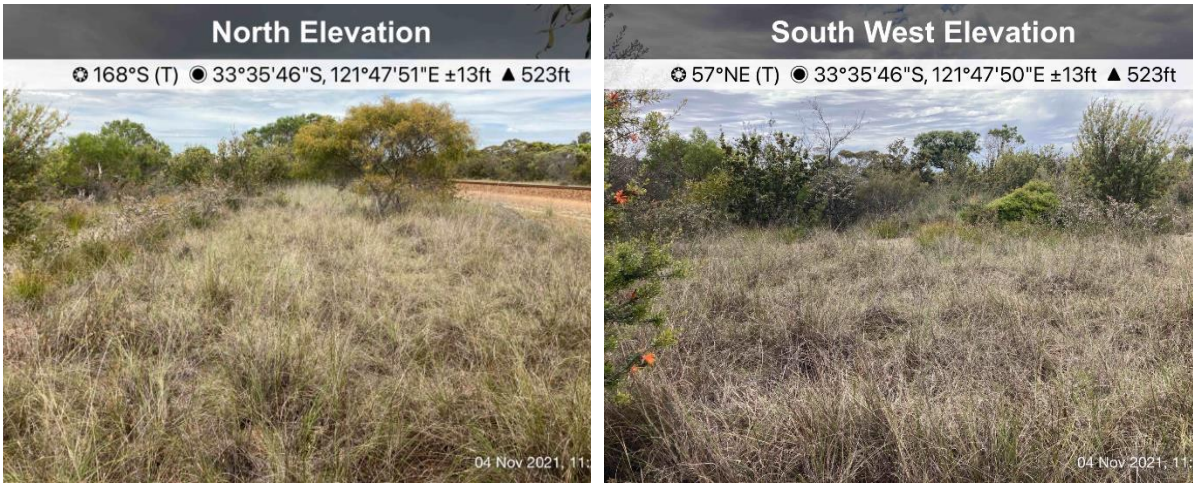


Figure 6: Vegetation Unit 2: Invasive Grassland present within the survey area.

5.3 Vegetation Condition

The vegetation condition for the survey area (Table 6) has been mapped using the condition rating scale (adapted from Keighery 1994) outlined in *EPA Flora and Vegetation Survey Technical Guidance* (2016).

The native vegetation present within the survey area ranged from Completely Degraded to Very Good condition. These classification levels are related to degradation of structure and vegetation integrity by processes such as clearing, fire, weeds, grazing, Phytophthora Dieback and vehicle tracks. Vegetation Unit 2: Invasive GL is classified as Completely Degraded, due to the impact of historical clearing and dominance of weeds. Vegetation Unit 1: Pro SL was classified as Degraded, Good and Very Good condition.

Disturbance primarily has occurred on the periphery of the access tracks, and minor invasion of weeds is observed. Within these areas the vegetation unit's composition has been altered, with primarily disturbance opportunists dominating. This includes species such as *Hypolaena humilis, Verticordia minutifolia* and various other sedges. It's likely these areas are actively maintained as 'line of sights'.

Table 7: Vegetation condition rating.

Vegetation Unit	Condition rating	Area (ha)
1: Proteaceae Shrubland	Very Good	0.436
	Good	0.222
	Degraded	0.138
2: Invasive Grassland	Completely Degraded	0.113
Cleared		0.369
	Total	**1.342**

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Scale
1:2,481 @ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- Cadastre
- 2m Contours

Sample Sites

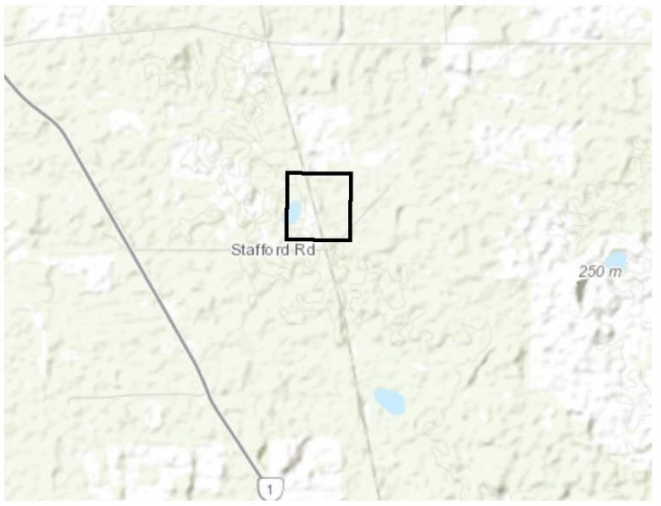
- Releve

Vegetation Units

- 1: Proteaceae Shrubland
- 2: Invasive Grassland
- Cleared

Vegetation Condition

- Very Good
- Good



Overview Map Scale 1:100,000

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2021
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI

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Figure 7A: Vegetation Units & Condition.

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-004**	**7/06/2022**

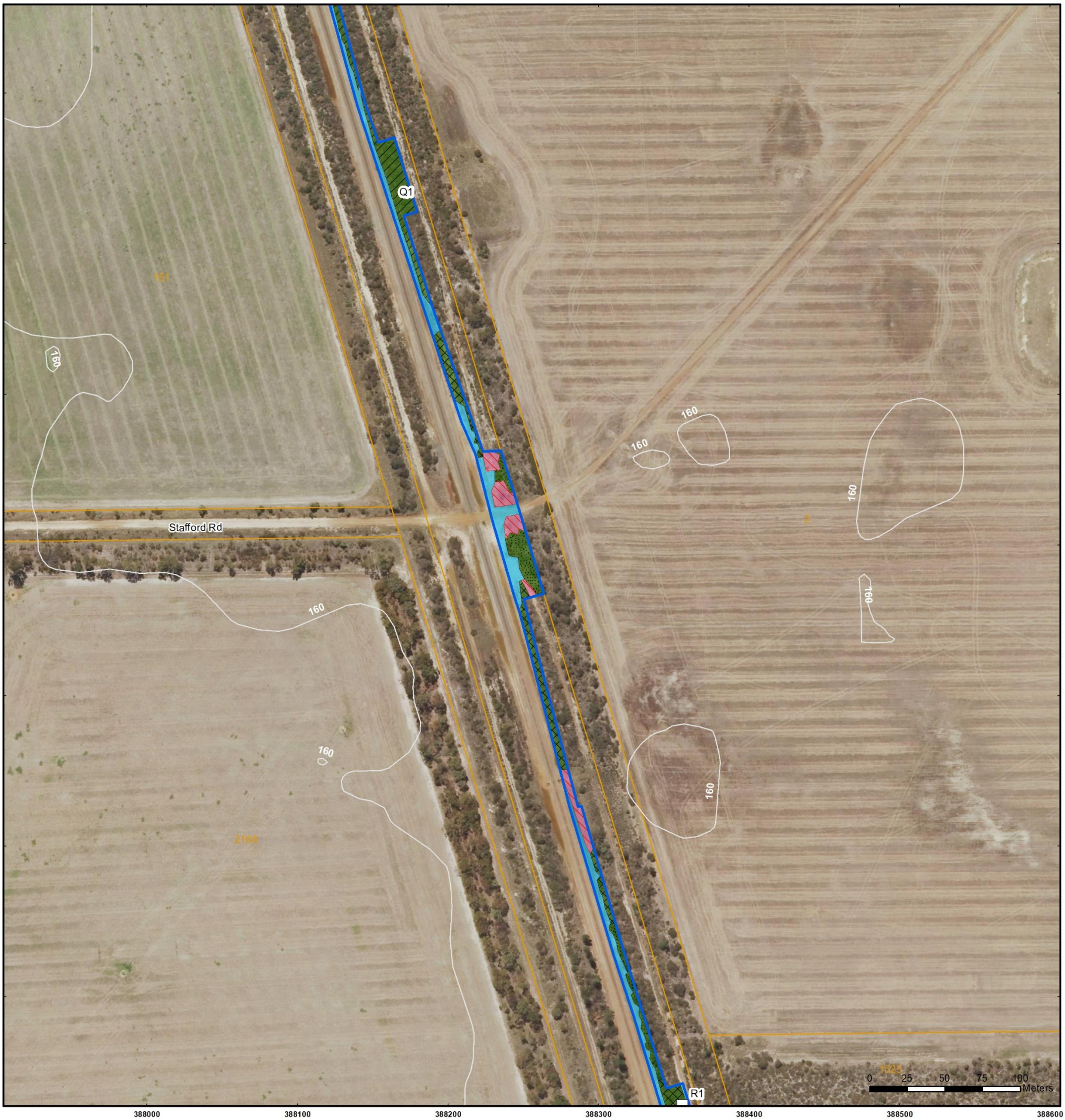

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Figure 7B: Vegetation Units & Condition.

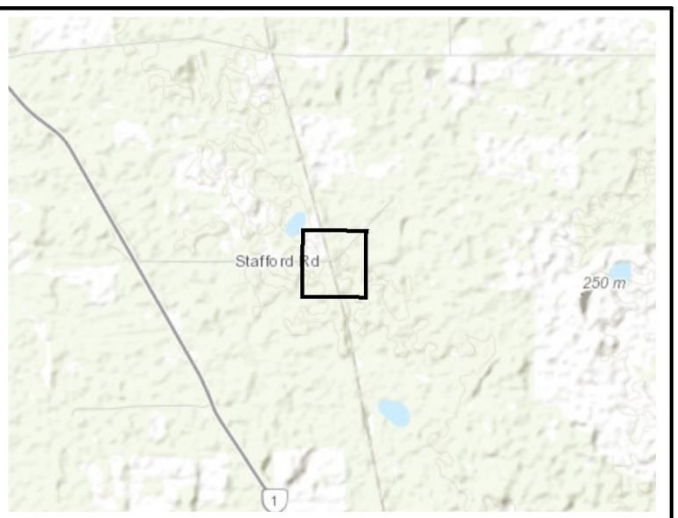
	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-004	7/06/2022

Legend
- Survey Area
- Cadastre
- 2m Contours

Sample Sites
- Releve

Vegetation Units
- 1: Proteaceae Shrubland
- 2: Invasive Grassland
- Cleared

Vegetation Condition
- Very Good
- Good
- Degraded
- Completely Degraded



Overview Map Scale 1:100,000

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2021
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI

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Figure 7C: Vegetation Units & Condition.

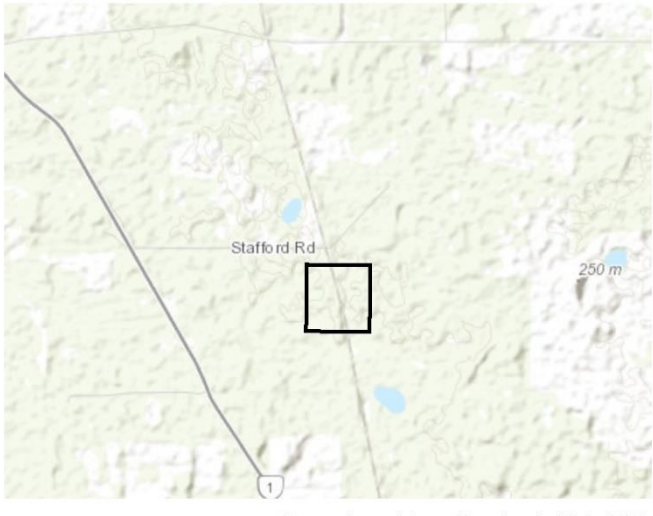
	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-004	7/06/2022

Legend
- Survey Area
- Cadastre
- 2m Contours

Sample Sites
- Releve

Vegetation Units
- 1: Proteaceae Shrubland
- 2: Invasive Grassland
- Cleared

Vegetation Condition
- Very Good
- Good
- Degraded
- Completely Degraded



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Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
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Overview Map: World Topographic map service, ESRI

5.4 Invasive Plants

Of the 150 flora species recorded within the survey area, 21species are introduced. The full suite of weed species recorded is listed below in Table 7, with their corresponding ratings under the WA Weed Strategy (CALM, 1999) and the *BAM Act* (2007). The ratings given under the WA Weed Strategy relate to determining the significance of a weed, based on the criteria of invasiveness, impacts, potential for spread and socioeconomic and environmental values, and can be either 'High', 'Moderate', 'Mild', or 'Low' (CALM, 1999).

All species are classed as 'Permitted – s11'under the *Biosecurity and Agriculture Management Act 2007*. Under the Environmental Weeds Strategy for Western Australia (CALM, 1999) Guildford Grass, Victorian Tea Tree and African Love Grass are listed as 'High', while Cape Weed, Silky Cat Ears, Jersey Cudweed, Ursinia, Tiny Flatsedge, Hop Clover, Toad Rush, Spiny Rush, Blowfly Grass, Shivery Grass and Annual Beardgrass are rated as 'Moderate'. The remaining species are either rated 'Low' or are not listed (Table 8). No Weeds of National Significance (WONS; IPAC, 2017) were identified within the survey area.

It is strongly recommended that all machinery entering the survey area (if clearing is approved in the future) has rigorous and thorough biosecurity hygiene applied to limit the introduction of invasive species infestation and the potential to significant degrade the surrounding reserve observed incidentally to be in excellent condition.

Table 8: Weed species recorded from the survey area.

Family	Species	Vernacular	WA Weed Strategy rating (CALM 1999)	BAM Act 2007	Australian Weed Strategy (IPAC, 2017)
Asteraceae	*Arctotheca calendula*	Cape Weed	Moderate	Permitted (s11)	
Asteraceae	*Cotula coronopifolia*	Waterbuttons		Permitted (s11)	
Asteraceae	*Hypochaeris glabra*	Silky Cat Ears	Moderate	Permitted (s11)	
Asteraceae	*Hypochaeris radicata*	Flat Weed		Permitted (s11)	
Asteraceae	*Pseudognaphalium luteoalbum*	Jersey Cudweed	Moderate	Permitted (s11)	
Asteraceae	*Ursinia anthemoides*	Ursinia	Moderate	Permitted (s11)	
Campanulaceae	*Monopsis debilis*		Low	Permitted (s11)	
Cyperaceae	*Cyperus tenellus*	Tiny Flat Sedge	Moderate	Permitted (s11)	
Fabaceae	*Trifolium campestre*	Hop Clover	Moderate	Permitted (s11)	
Iridaceae	*Romulea rosea*	Guildford Grass	High	Permitted (s11)	
Juncaceae	*Juncus bufonius*	Toad Rush	Moderate	Permitted (s11)	
Juncaceae	*Juncus acutus* subsp *acutus*	Spiny Rush	Moderate	Permitted (s11)	
Myrtaceae	*Leptospermum laevigatum*	Victorian Tea Tree	High	Permitted (s11)	
Orchidaceae	*Disa bracteata*	South African Orchid			
Poaceae	*Briza maxima*	Blowfly Grass	Moderate	Permitted (s11)	
Poaceae	*Briza minor*	Shivery Grass	Moderate	Permitted (s11)	

Table 7 continued.

Family	Species	Vernacular	WA Weed Strategy rating (CALM 1999)	BAM Act 2007	Australian Weed Strategy (IPAC, 2017)
Poaceae	*Eragrostis curvula*	African Lovegrass	High	Permitted (s11)	
Poaceae	*Lolium perenne*	Annual Ryegrass	Low	Permitted (s11)	
Poaceae	*Vulpia muralis*	Fox Grass	Low	Permitted (s11)	
Poaceae	*Polypogon monspeliensis*	Annual Beardgrass	Moderate	Permitted (s11)	
Primulaceae	*Lysimachia arvensis*	Pimpernel		Permitted (s11)	

5.5 Presence of Conservation Significant Flora

No species of Priority or Threatened conservation status were detected during the survey area. All species present were listed as common and non-threatened.

Additionally, numerous non-threatened species were identified with close similarities to conservation listed species that were identified in the 30 km radius survey. Key rationale behind identification as non-threatened are listed below, and are further expanded in Table 11 of Appendix B:

- *Styphelia breviflora* - bears similarities to numerous Ericaceae species identified in the LOO as 'Likely' or 'Possible' to occur. Due to numerous of these having minor limitations in detection due to unknown taxonomy or timing of flowering, specimen was submitted to the WA Herbarium and confirmed as non-threatened *S. breviflora* (KW177, Accession 9281, specimen retained).
- *Styphelia* sp. South Coast (J.M. Powell 3324) – bears similarities to numerous Ericaceae species identified in the LOO as 'Likely' or 'Possible' to occur. Determined due to shape, pungency and various other features as non-threatened *S.* sp. South Coast (J. M. Powell 3324).
- *Thysanotus sparteus* – bears similarity to P2 *Thysanotus brachiatus.* Submission to the WA Herbarium confirmed species as non-threatened *T. sparteus* (KW176, Accession 9281, specimen not retained).
- *Oxymyrrhine gracilis* – bears similarities to P2 *Baeckea* sp. Gibson (K.W. Newbey 11084), but was determined as non-threatened *O. gracilis* due to length and width of leaves and the lack of pustules / glands along leaves.
- *Micromyrtus elobata* subsp. *elobata* – bears similarities to P3 *Micromyrtus* subsp. *scopula*, but was determined as being the non-Threatened subspecies, as the leaves were too long at 4-5mm length, opposed to 1.2-1.5 mm of the P3 *M. elobata* subsp. *scopula.*
- *Conostylis seorsiflora* subsp. *seorsiflora* – bears similarities to P2 *Conostylis* subsp. *longissima*, but was determined as being the non-Threatened subspecies as the leaves are too short at 2-9mm, opposed to 8-16mm.
- *Lasiopetalum* sp. Mt Ragged (T.E.H. Aplin 4349) – bears similarities to P2 *Lasiopetalum maxwellii,* but was determined as non-threatened *L.* sp. Mt Ragged (T.E.H. Aplin 4349) due to the size and width of leaves.

5.6 Presence of Threatened and Priority Ecological Communities

One Threatened (TEC) and Priority (PEC) ecological communities was identified in the 30 km desktop analysis as Likely to occur, namely 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongkan)' (Section 4.2; Table 13, Appendix B). Analysis of vegetation units identified within the survey area and comparison to TEC / PEC Kwongkan criteria occurred, and is consistent with a Targeted Vegetation Assessment.

Kwongkan is listed as an Endangered TEC under the federal *EPBC Act 1999.* Within the definition of Kwongkan are numerous more specific and defined communities, that are distinguished under the state legislation *BC Act 2016,* but overall meet the key diagnostic characteristics of the federal TEC Kwongkan. Generally, Kwongkan is listed as a Priority 3 PEC under the *BC Act 2016*. Specific criteria of Kwongkan TEC / PEC are outlined in Section 4.2.

A risk assessment was completed whilst completing the field survey, evaluating there was a high likelihood that Vegetation Unit 1: Pro SL likely met criteria for Kwonkgan TEC / PEC. Therefore, more intensive and targeted sampling methodology using quadrat analysis was conducted. Two quadrats were systematically sampled within Vegetation Unit 1: Pro SL (Appendix D). Comparison of the ecological criteria outlined in Section 4.2 of Kwongkan TEC / PEC occurred, and are presented in Table 8. All floristic structure, composition and analysis indicated that vegetation unit 1: Nuyflo and Lamine SL met Kwongkan TEC / PEC criteria, as well as the patch size criteria being met. Therefore, 0.86 ha of Kwongkan was recorded within the survey area (Table 8).

Table 9: Vegetation units identified within the survey area that may meet the Threatened / Priority ecological community Kwongkan criteria.

Vegetation unit	Code	Condition	Area (ha)	Meet Patch Size Criteria?	Meet criteria for Kwongkan TEC / PEC
1: Proteaceae Shrubland	Pro SL	Very Good	0.436	Yes	Yes
		Good	0.222		
		Degraded	0.138		

Table 10: Quadrat analysis of Vegetation Unit 1: Proteaceae Shrubland to determine the presence of 'Proteaceae Dominated Kwongkan Shrubland of the South-east Coastal Floristic Province (Kwongkan)' Threatened and Priority Ecological Community.

Criteria	Description	Discussion	Meet Criteria
1)	Occurs within the South Coastal Floristic Province (Hopper and Gioia, 2004).	Survey area is located within province.	Yes
2a)	Characterised by Proteaceae species having 30% or greater cover of Proteaceae species across all layers of where shrubs occur (crowns measured as if opaque).	Both quadrat one and two had Proteaceous species present that exceed a 30% crown cover. Specifically, quadrat one consisted of *Isopogon polycephalus* 10-30% and *Banksia obtusa* at <10% cover. Quadrat two consisted of *Adenanthos cuneatus, I. polycephalus* and *Lambertia inermis* var *inermis* at <10% cover.	Yes
2b)	Two or more diagnostic Proteaceae species are present that are likely to form a significant vegetative component when regenerated. The use of diagnostic species is for situations in which the cover or Proteaceae species is reduced due to recent disturbance (e.g., fire).	Whilst the site had not been recently burnt, which is the basis for this criterion, it does provide an indication of keystone species present within the community. Proteaceous species make up the dominant feature of the vegetation unit present, as indicated by three species identified in the NVIS Level V (DoEE, 2017) and Muir (1977) description. These specifically include *L. inermis* var *inermis, A. cuneatus* and *I. polycephalus.* Overall, 17 Proteaceous species were recorded within Vegetation Unit 1: Pro SL. Therefore, two or more diagnostic Proteaceous species form a key ecological marker and are likely to be significant when the Ecological Community is regenerating.	Yes
Qualitative	Approved conservation Advice guidelines – form and structure of vegetation. Qualitative description of Kwongkan as below: • Structure of shrubland, ranging from high to low and varying density; • Mallee Eucalypt often scattered and present, forming independent stratum layer; and • High floristic richness and localised endemism.	Descriptions of the vegetation indicate that the vegetation is predominately a shrubland structure, as indicated in the NVIS Level V (DoEE, 2017) description. The quadrat analysis indicates that 58% and 34% of plant species present within quadrat one and two were shrubs, respectively. No Mallee species were identified within either quadrat. Quadrat one and two were both highly diverse, with 45 and 38 species respectively identified in the 10x10m (and 20x20m for over-story only) quadrat area. Across the entirety of Vegetation Unit 1: Pro SL, which included incidental collections, 150 species were recorded.	Yes

Table 9 continued.

Criteria	Description	Discussion	Meet Criteria
Qualitative	Approved Conservation Advice guidelines – key diagnostic species.	Of the Proteaceous species identified within Vegetation Unit 1: Pro SL, 23species were identified as key diagnostic species within the Approved Conservation Guidelines (DoE, 2015b) for the 'Esperance (east)' area.	Yes
Qualitative	Condition category for minimum patch size – refer to Table 1, Section 2.2 within this report.	Patch criteria refers to the size of a discrete and continuous area of the Ecological Community, opposed to the survey area specifically. The surrounding vegetation outside of the survey area was not surveyed and it is unknown how far the Ecological Community extends in the surrounding vegetation. The criteria for patch size was met, due to the adjacent area of remnant native vegetation immediately east of the survey area. The areas of Vegetation Unit 1: Pro SL to the north of the survey area, which is contained within the existing remnant railway corridor, still met criteria due to continuously occurring along this linear corridor for an area greater 1 ha.	Yes

6. Fauna Survey Results

6.1. Basic Fauna Survey

A description of the four vegetation units identified during the survey is given in Section 5.2, which correlate with fauna habitat types (refer to Figure 7 above).

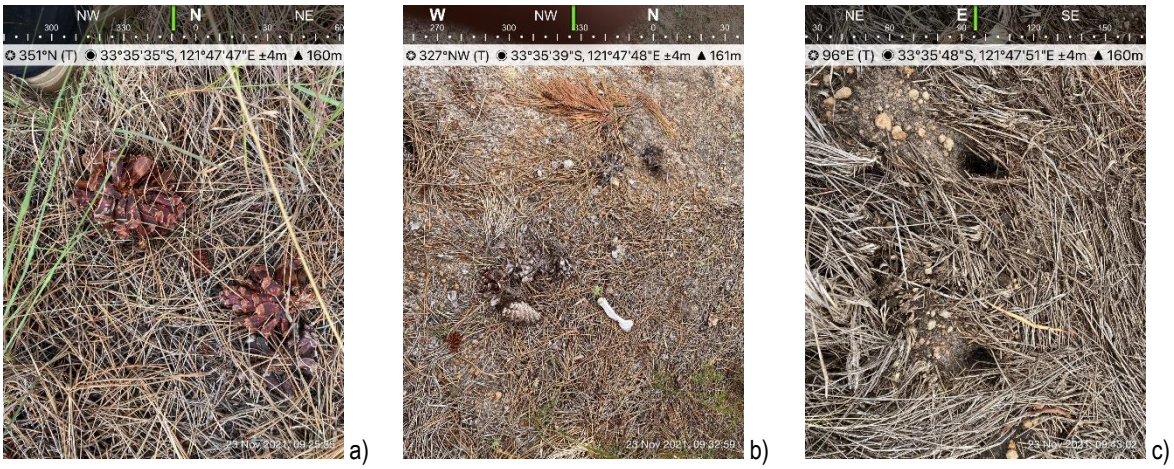
During the survey, fauna were observed either directly (sighted) or indirectly via calls, or signs of presence such as tracks, runnels, scats, diggings, bones, feeding remains or tree scratching. A total of 28 taxa were recorded; 14 birds, six invertebrates, five mammals, two reptiles and one amphibian. Refer to full fauna species list in Table 20 in Appendix D. Of these 28 species, Carnaby's Cockatoo (*Calyptorhynchus latirostris*, EN) and quenda (*Isoodon fusciventer*, P4) were observed within the survey area. No other Threatened or Priority listed species were observed, however potentially suitable habitat was identified for an additional four species. Of these four species, fork-tailed swift (*Apus pacificus*, MI), letter winged kite (*Elanus scriptus*, P4), western mouse (*Pseudomys occidentalis*, P4) and heath mouse (*Pseudomys shortridgei*, VU) are considered as 'Possible' to occur.

Vegetation unit 1: Proteaceae Shrubland [Pro SL] provides suitable habitat for quenda, and low-quality foraging habitat for Carnaby's Cockatoo. Quenda were identified within the survey area through the presence of isolated diggings and suitably sized runnels (Figure 8 and 10). The low level of quenda activity and the relatively high occurrence of rabbit (*Oryctolagus cuniculus*) activity suggests that the runnel network is primarily being utilised by rabbits and that, if present, quenda are likely to be transient. There is suitable habitat for quenda outside of the survey area, however this is mainly a linear corridor that runs parrel with the survey area. This linear corridor does connect to larger areas of remnant vegetation to the north and south.

The low-quality foraging habitat for Carnaby's Cockatoo (EN) within vegetation unit 1: Proteaceae Shrubland [Pro SL] consists of a range of proteaceous species and a strip of pine trees in the south of the survey area. Evidence of foraging was observed through the presence of chewed pine cones (Figure 8 and 10). Refer to section 6.2 for detailed foraging habitat assessment.

Vegetation unit 1: Proteaceae Shrubland [Pro SL] also provides marginal habitat for western mouse (P4) and heath mouse (VU). Refer to Figure 9 for images of suitable habitat for these species. Marginally suitable habitat was also detected for two conservation significant bird taxa including: the fork-tailed swift (MI) and letter-winged kite (P4). Habitat for these species occurs throughout the entire survey area, with areas of native vegetation providing daytime refuge and hunting habitat.

Activity from introduced species including the fox (*Vulpes vulpes*) and rabbit were observed through diggings / scrapes, scats and tracks throughout the survey area (Figures 8 and 10). The presence of these species is likely to be a limiting factor for the presence of native fauna, as a result of predation and competition.



a) b) c)

Figure 8: Photographs of evidence of the presence of conservation significant and common fauna within the survey area.
a) and b) chewed pine cones (Carnaby's Cockatoo); and c) quenda diggings.

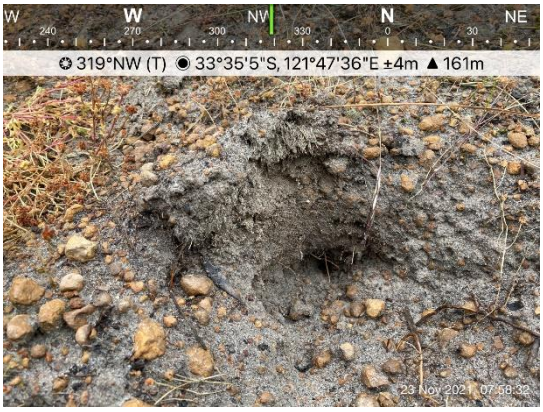
d)

e)

f)


g)

h)



i)

j)

Figure 8 continued.

d) and e) kangaroo scats and track e); f) fox scat; g) rabbit scrape / digging; h) quenda digging; i) echidna digging; j) dugite.

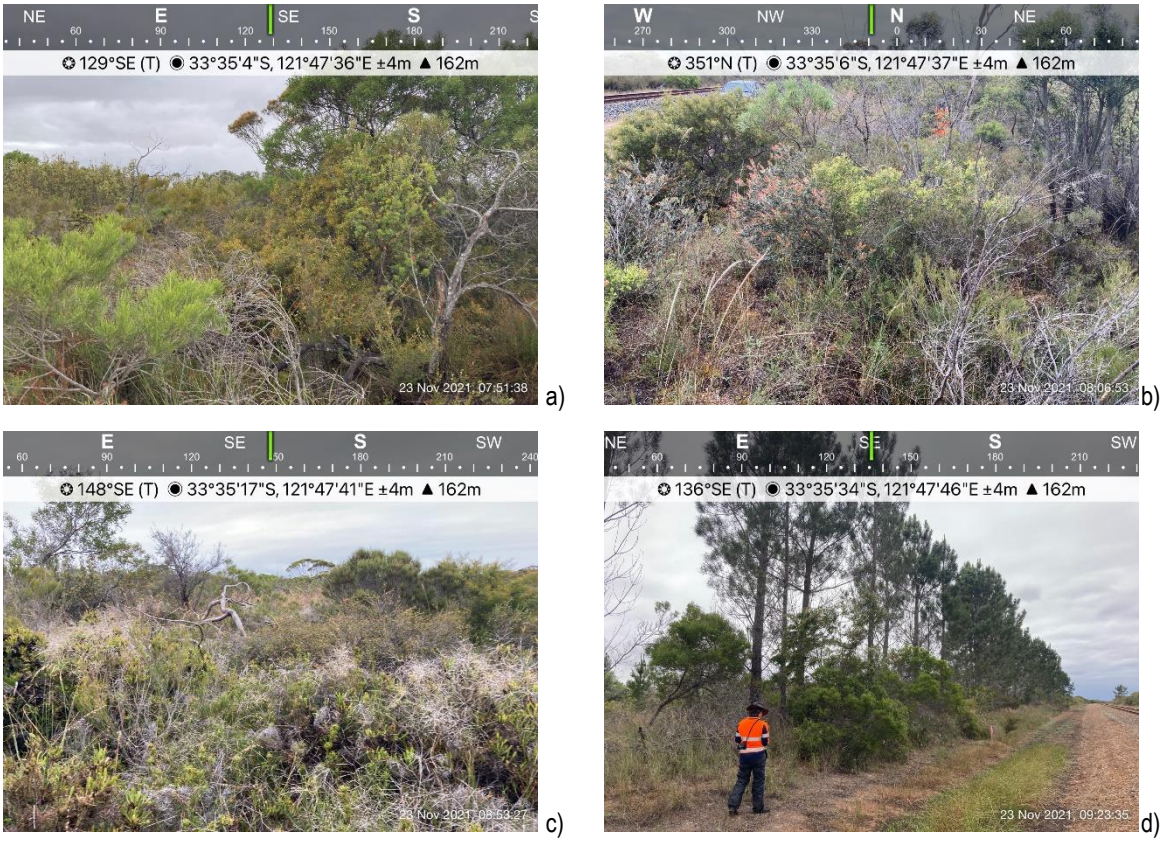


Figure 9: Photographs of suitable habitat for fauna within the survey area.
a) to c) vegetation present within vegetation unit 1: Proteaceae Shrubland [Pro SL] providing habitat for quenda and low quality foraging habitat for Carnaby's Cockatoo. Also, potential marginal habitat for western and heath mouse; d) foraging habitat in the form of pine trees for Carnaby's Cockatoo.

6.2. Targeted Black Cockatoo Assessment

6.2.1. Breeding habitat

No significant trees suitable for Carnaby Cockatoo breeding habitat were observed within the survey area.

6.2.2. Foraging and Roosting Habitat

Foraging evidence was observed within the strip of pine trees in the south of the survey area, which consisted of fresh and old chewed pine cones. Whilst foraging was detected, it was not assessed as being a 'significant' feed event, with chewed pines cones scattered, and not in high quantity.

Carnaby's Cockatoo feed predominately on native shrubland, Kwongkan heathland and woodland dominated by proteaceous plant species such as *Banksia*, *Hakea*, and *Grevillea*, as well as in eucalypt woodlands and forest that contain food plants (DSEWPaC, 2012). There is marginally suitable foraging habitat present within vegetation unit 1: Proteaceae Shrubland [Pro SL], and some additional scattered feed species throughout the remainder of the survey area. No signs of foraging were observed, excepting the chewed pine cones, which suggests the site is not a favoured feeding area, and that if foraging is likely to be opportunistic and undertaken by transient individuals.

Overall, the survey area contains low quality of foraging habitat due to the low diversity and overall low quantity of feed species available. The potential foraging habitat available for Carnaby's Cockatoos equates to approximately 0.86 ha which is 64% of mapped vegetation identified within the survey area.

No signs of roosting (accumulated scats or feathers) were observed within the survey area, and the strip of pine trees present is unlikely to be utilised as roosting habitat as Carnaby's Cockatoo prefer to roost within or on the edge of forest in large groups.

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Figure 11A: Fauna & Fauna Habitat Observed

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-008	3/06/2022

Legend

- Survey Area
- Cadastre
- 2m Contours

Vegetation Units

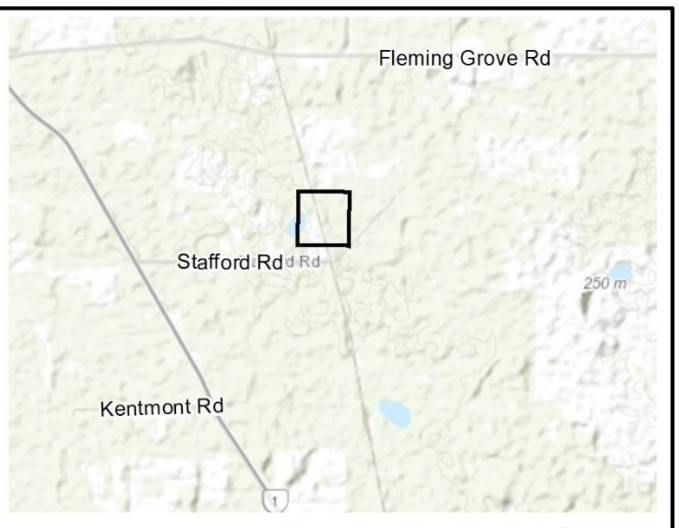
- 1: Proteaceae Shrubland
- 2: Invasive Grassland
- Cleared

Fauna Habitat

- Pine Tree
- Runnel
- Carnaby's Cockatoo Foraging Habitat - Marginal

Fauna Observed

- *Anas castanea*
- *Anas superciliosa*
- *Anthochaera lunulata*
- *Austracantha minax*
- *Corvus coronoides*
- *Coturnix pectoralis*
- *Cuckoo sp.*
- *Macropus fuliginosus*
- *Manorina flavigula*
- *Myiagra inquieta*
- *Oryctolagus cuniculus*
- *Phylidonyris novaehollandiae*
- *Sericornis frontalis*
- *Tachyglossus aculeatus*
- *Vulpes vulpes*



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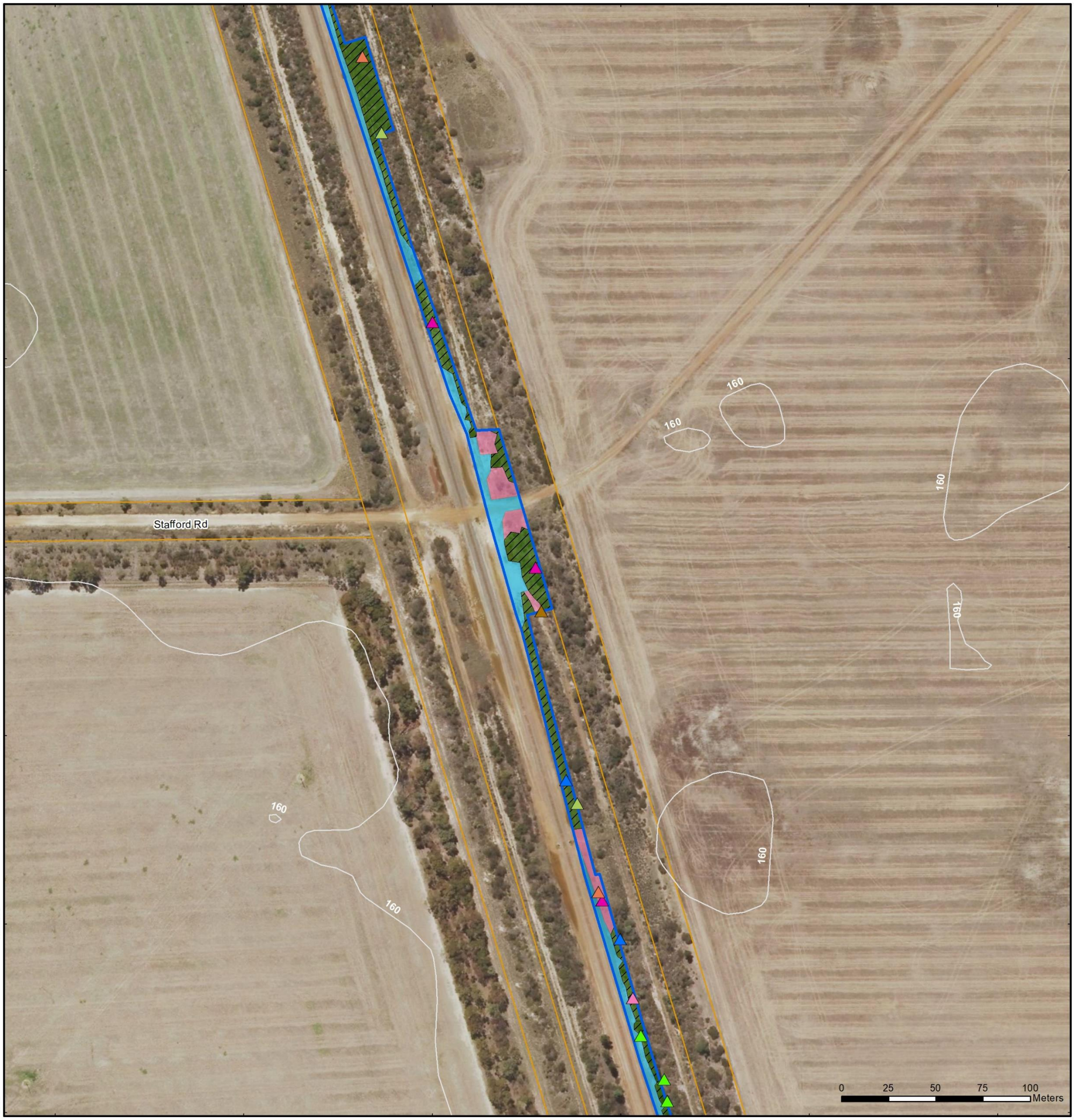

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Figure 11B: Fauna & Fauna Habitat Observed

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- 2m Contours

Vegetation Units

- 1: Proteaceae Shrubland
- 2: Invasive Grassland
- Cleared
- Carnaby's Cockatoo Foraging Habitat - Marginal

Fauna Observed

- *Calyptorhynchus latirostris*, EN
- *Crinia sp.*
- *Macropus fuliginosus*
- *Oryctolagus cuniculus*
- *Pseudonaja affinis affinis*
- *Tiliqua rugosa*
- *Vulpes vulpes*

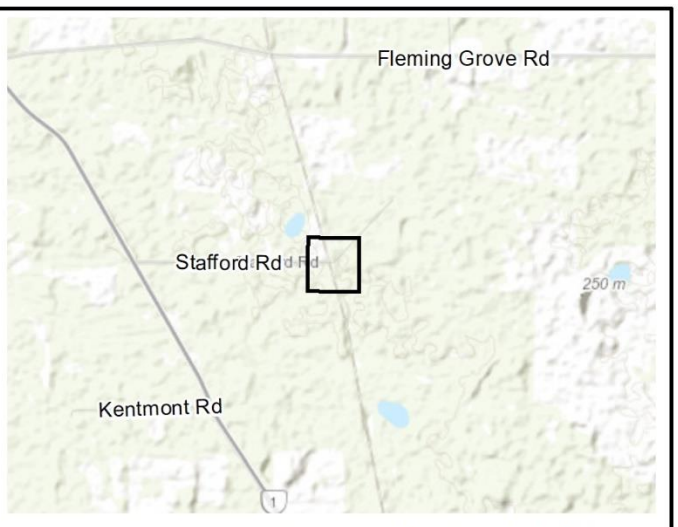

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Figure 11B: Fauna & Fauna Habitat Observed

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Legend

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Vegetation Units

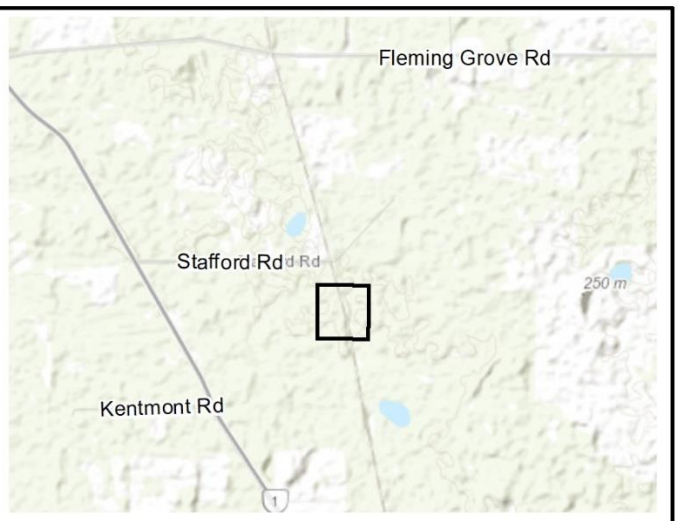
- 1: Proteaceae Shrubland
- 2: Invasive Grassland
- Cleared

Fauna Habitat

- Runnel
- Carnaby's Cockatoo Foraging Habitat - Marginal

Fauna Observed

- *Calyptorhynchus latirostris*, EN
- *Isoodon fusciventer*, P4
- *Oryctolagus cuniculus*
- *Phaps chalcoptera*
- *Tiliqua rugosa*



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7. Discussion

7.1. Vegetation, Threatened and Priority Flora and Ecological Communities

The scope for this survey was to provide the client with information on any Threatened or Priority flora species that are potentially present within the survey area, as well as Threatened / Priority ecological communities, and to provide an assessment on vegetation units and their general condition. Two vegetation units were recorded within the survey area, namely 1: Proteaceae Shrubland and 2: Invasive Grassland. 0.369 ha of the survey area was already cleared, consisting of bare ground with minor invasive herbs or grasses. These vegetation units broadly align with different habitat types, and at a local level are primarily driven by historical disturbance resulting in degradation and novel ecosystems (represented in vegetation unit 2: Invasive GL and SL). Condition of vegetation ranged from Completely Degraded to Very Good condition, primarily due to the impact of invasive species and historical clearing. It is recommended that biosecurity principles and strict clean down occurs to prevent the spread of invasive species and plant pathogens.

A total of 74 flora species were identified in the desktop assessment, consisting of 7 Threatened and 67 Priority species. Numerous minor limitations were present for a number of species identified as 'Likely' or 'Possible' to occur in the LOO assessment, mainly relating to species flowering outside of the survey period, the challenge of fire ephemeral species in long unburnt bushland and lack of information on undescribed species.

A total of 150 species of flora were recorded, consisting of 129 native species and 21 introduced / non-native species. This indicates the extremely high level of biodiversity recorded within the area, as is typical for the Esperance Sandplain bioregion. Of the 21 invasive species, all species were listed as 'Permitted – s11' under the *BAM Act 2007* and no Weeds of National Significance were identified. No threatened or priority flora were identified directly within the survey area. However, a significant limitation was present in the detection of one species identified as 'Possible' to occur in the Likelihood of Occurrence, namely P3 *Pterostylis faceta.* This is due to the species being annual / herbaceous in nature and flowering in August, well outside the timeframe of the survey.

One Threatened / Priority Ecological Communities were identified in the desktop assessment as likely ot occur, namely 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province (Kwongan)' TEC / PEC. Vegetation Unit 1: Proteaceae Shrubland met Kwongkan Criteria, following a detailed quadrat analysis consistent with a Targeted Vegetation Survey. In total 0.86 ha of Kwongkan was present, ranging in Degraded to Very Good condition. All criteria was met, including the floristic structure, composition and patch size.

7.2. Basic Fauna Survey and Significant Tree Survey

The aim of the basic fauna and targeted black cockatoo habitat survey was to assess and map the fauna habitat within the survey area, assess the likelihood of conservation significant fauna being present within the survey area and/or particular vegetation units, record actual presence of Threatened and Priority listed species, and undertake opportunistic inventory of vertebrate species encountered whilst traversing the survey area on foot.

During the survey, a relatively low level of fauna diversity was detected with a total of 28 taxa recorded; including 14 birds, six invertebrates, five mammals, two reptiles and one amphibian. Two Threatened and Priority listed species were observed, being Carnaby's Cockatoo (*Calyptorhynchus latirostris*, EN) and quenda (*Isoodon fusciventer*, P4). Carnaby's Cockatoo were detected through foraging signs (chewed pine cones), whilst isolated diggings and suitably sized runnels indicated quenda presence.

The quenda prefers areas of dense heath and coastal scrub vegetation that is often swampy, with suitable vegetation / habitat identified within vegetation unit 1: Proteaceae Shrubland [Pro SL]. Vegetation unit 2: Invasive Grassland [Invasive GL] holds little habitat value but does provide linking habitat connecting the smaller patches of suitable habitat both within and adjacent to the survey area. There wasn't a high incidence of diggings, with the isolated diggings observed in the very southern portion of the survey area. Given the relatively low level of quenda activity and the presence of a high quantity of rabbit activity, the several runnel networks are likely to be primarily used by rabbits and any quenda present are likely to be transient, or inhabiting areas outside of the survey area. Suitable habitat for this species also exists in the linear vegetation immediately adjacent to the survey area and provides a corridor connecting the area to larger remnant areas to the north and south. The removal of the vegetation within the survey area is unlikely to significantly impact the ability of the species to move throughout the landscape, given there is available habitat outside the survey area.

Carnaby's Cockatoo was identified as being present due to the presence of chewed pines cones. The feeding events were not considered significant and are localised to the strip of pine trees present in the south of the survey area. No evidence of foraging within vegetation unit 1: Proteaceae Shrubland [Pro SL] was observed, indicating that although there is low quality foraging habitat present it is not being utilised. Carnaby's Cockatoo feed predominately on native shrubland, Kwongkan heathland and woodland dominated by proteaceous plant species such as *Banksia*, *Hakea*, and *Grevillea*, as well as in eucalypt woodlands and forest that contain food plants (DSEWPaC, 2012). There is a low diversity and quantity of potential feed species within the survey area, and the lack of foraging evidence indicates that the survey area is not a favoured feeding area. The *EPBC Act 1999* referral guidelines for the three threatened black cockatoo species stipulates that a proposal should be referred for assessment if more than 1ha of high-quality habitat is to be removed. Given the habitat present is less than 1 ha and is not of high-quality it is unlikely that works at this location alone would need to be referred for assessment under the EPBC Act 1999. However, the cumulative total and potential impact across the entire Esperance Branch Line project should be taken into consideration.

Marginally suitable habitat was detected within the survey area for the western mouse (*Pseudomys occidentalis*, P4) and heath mouse (*Pseudomys shortridgei*, VU) within vegetation unit 1: Proteaceae Shrubland [Pro SL]. The western and heath mouse both prefer habitats that are long unburnt, are floristically rich, and dense in nature. The survey area appears to be long unburnt with no evidence of recent fire observed. No murid sized runnels or mounds (expressions of underground tunnels) were observed within the survey area. The habitat present is low-quality for these two species, however given these species are likely to be under surveyed within the Esperance region, and there is marginal habitat present, they have been assessed as "Possible" to occur in the post field LOO. Similarly to the quenda, the clearing of the suitable vegetation within the survey area is unlikely to significantly impact the ability for either species to move through the immediate landscape if present.

Marginally suitable habitat was detected for two conservation-significant bird taxa including: the fork-tailed swift (*Apus pacificus*, MI) and letter winged kite (*Elanus scriptus*, P4)). Habitat for these species occurs throughout the entire survey area, with areas of native vegetation providing daytime refuge and hunting habitat. Proposed clearing is unlikely to detrimentally affect these species.

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9. Appendices

Appendix A – Maps

Appendix B – Conservation Significant Values Likelihood of Occurrence Analysis

Appendix C – Conservation Status Definitions and Condition Scale

Appendix D – Species Lists and Relevé Data

Appendix E - NatureMap and EPBC Act PMST reports

Appendix A

Maps

Albany Office:
29 Hercules Crescent
Albany, WA 6330
(08) 9842 1575

Denmark Office:
7/40 South Coast Highway
Denmark, WA 6333
(08) 9848 1309

Esperance Office:
2A/113 Dempster Street
Esperance, WA 6450
(08) 9072 1382

BIO DIVERSE SOLUTIONS

Scale
1:5,000 @ A3
GDA MGA 94 Zone 51

CLIENT Arc Infrastructure
Line 51 (374.75 – 376KM), Esperance to Gibson
Section 7, Site 13 - Lake Warden Reserve
Monjingup, WA 6448

Figure 13: Desktop Historical Vegetation

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-008	3/06/2022

Legend

- Survey Area
- Rail Kilometer Points
- Native Vegetation Extent (DPIRD_005)

Pre European Vegetation (DPIRD_006)

- ESPERANCE_47

Overview Map Scale 1:100,000

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2021
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI

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BIO DIVERSE SOLUTIONS

Scale
1:2,000 @ A3
GDA MGA 94 Zone 51

CLIENT Arc Infrastructure
Line 51 (348.724 to 350.164 KM), North of Gibson
Site 8 - Stafford Road
Gibson, WA 6448

Figure 14A: Environmental Risk Assessment Maps

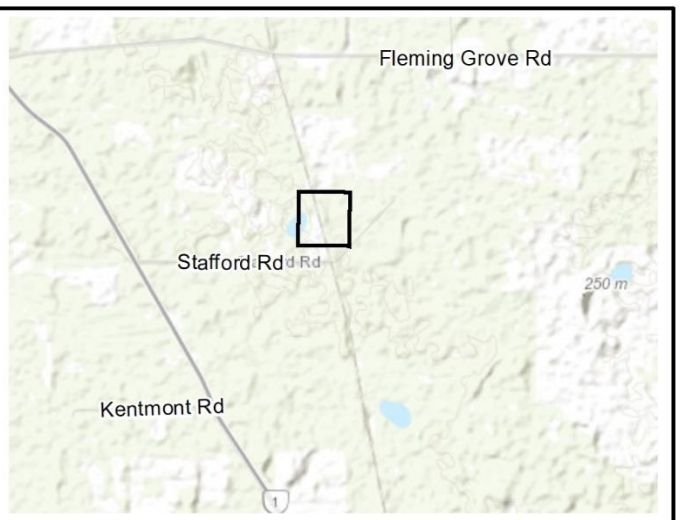
	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-008	3/06/2022

Legend

- Survey Area
- Cadastre
- Railway KM

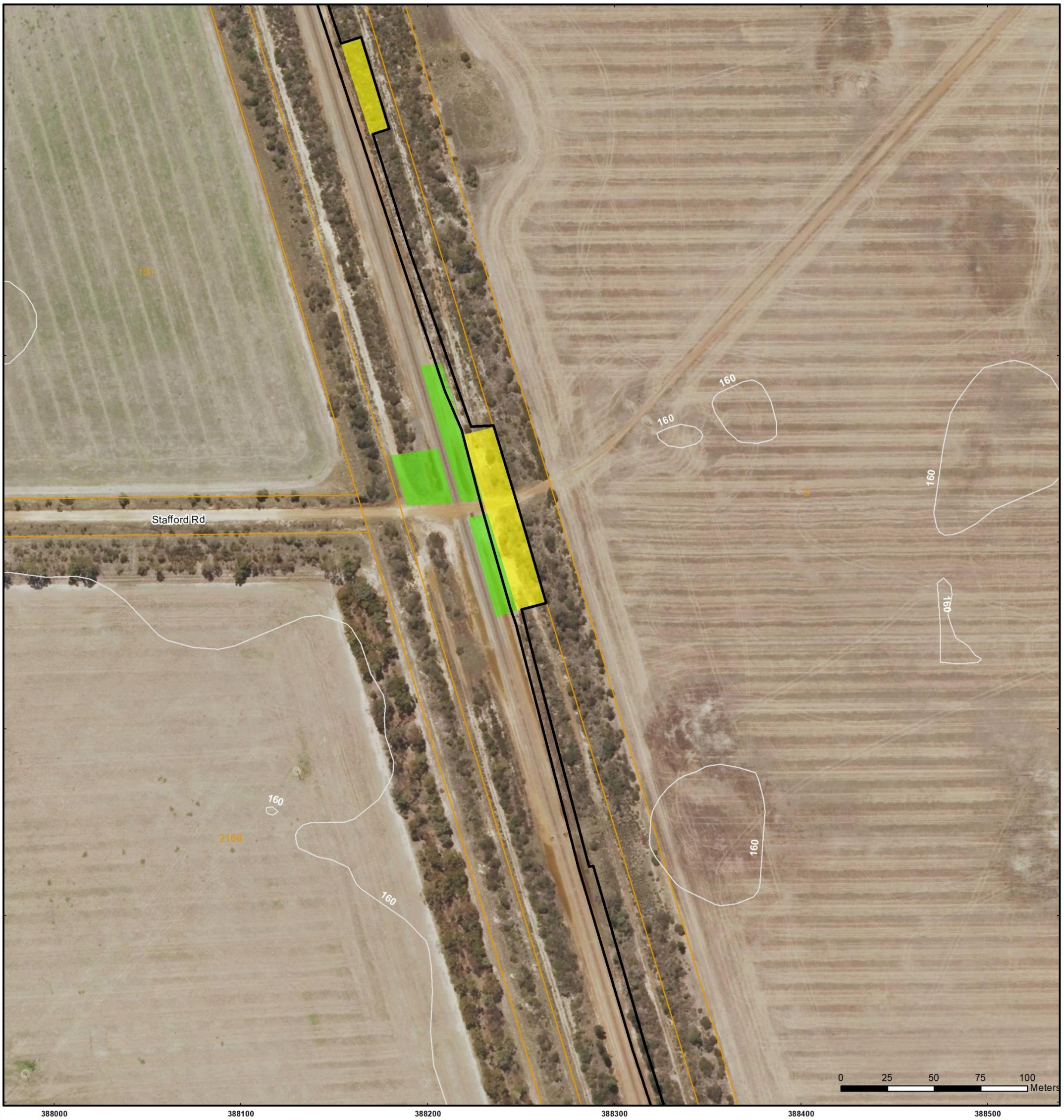
Environmental Risk Assessment

- Green
- Red
- Yellow



Overview Map Scale 1:100,000

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2021
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI



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BIO DIVERSE SOLUTIONS

Scale
1:2,000 @ A3
GDA MGA 94 Zone 51

CLIENT Arc Infrastructure
Line 51 (348.724 to 350.164 KM), North of Gibson
Site 8 - Stafford Road
Gibson, WA 6448

Figure 14B: Environmental Risk Assessment Maps

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-008	3/06/2022

Legend

- Survey Area
- Cadastre
- Railway KM

Environmental Risk Assessment

- Green
- Red
- Yellow

Overview Map Scale 1:100,000

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2021
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI

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BIO DIVERSE SOLUTIONS

Scale
1:2,000 @ A3
GDA MGA 94 Zone 51

CLIENT Arc Infrastructure
Line 51 (348.724 to 350.164 KM), North of Gibson
Site 8 - Stafford Road
Gibson, WA 6448

Figure 14C: Environmental Risk Assessment Maps

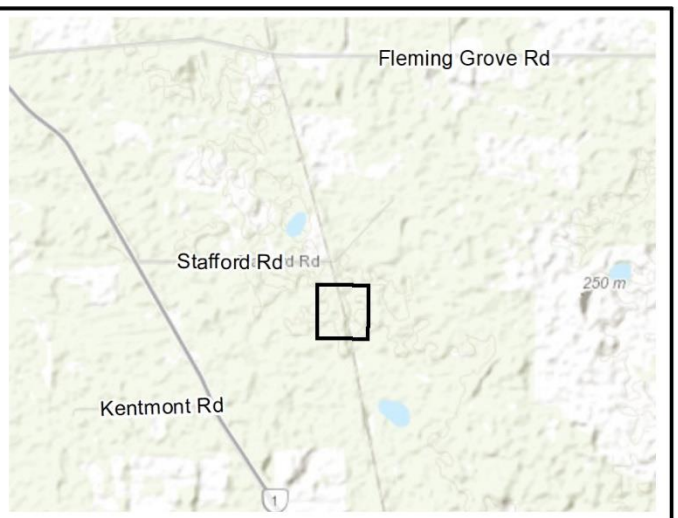
	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-008	3/06/2022

Legend

- Survey Area
- Cadastre
- Railway KM

Environmental Risk Assessment

- Green
- Red
- Yellow



Overview Map Scale 1:100,000

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2021
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI

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BIO DIVERSE SOLUTIONS

Scale
1:2,000 @ A3
GDA MGA 94 Zone 51

CLIENT Arc Infrastructure
Line 51 (348.724 to 350.164 KM), North of Gibson
Site 8 - Stafford Road
Gibson, WA 6448

Figure 15A: Survey Effort

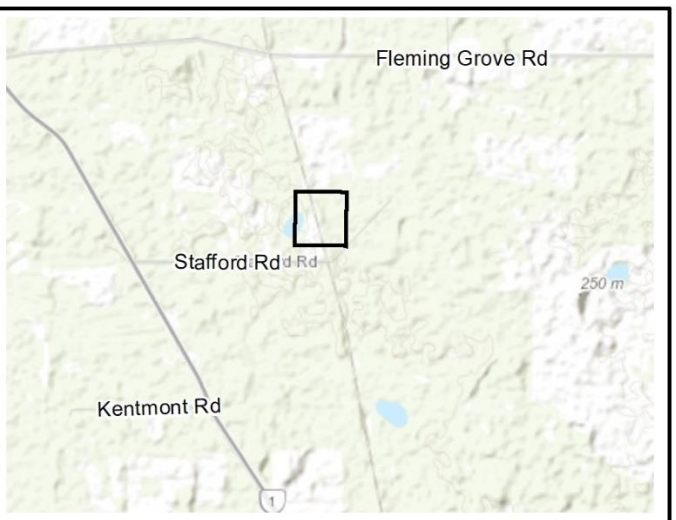
	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-008	3/06/2022

Legend

- Survey Area
- Rail Kilometer Points
- Cadastre

Survey Effort

- Terrestrial Flora and Vegetation
- Terrestrial Vertebrate Fauna



Overview Map Scale 1:100,000

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2021
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI

Albany Office:
29 Hercules Crescent
Albany, WA 6330
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Denmark Office:
7/40 South Coast Highway
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Esperance Office:
2A/113 Dempster Street
Esperance, WA 6450
(08) 9072 1382

BIO DIVERSE SOLUTIONS

Scale
1:2,000 @ A3
GDA MGA 94 Zone 51

CLIENT Arc Infrastructure
Line 51 (348.724 to 350.164 KM), North of Gibson
Site 8 - Stafford Road
Gibson, WA 6448

Figure 15B: Survey Effort

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-008	3/06/2022

Legend

- Survey Area
- Rail Kilometer Points
- Cadastre

Survey Effort

- Terrestrial Flora and Vegetation
- Terrestrial Vertebrate Fauna

Overview Map Scale 1:100,000

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2021
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI

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BIO DIVERSE SOLUTIONS

Scale
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GDA MGA 94 Zone 51

CLIENT Arc Infrastructure
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Site 8 - Stafford Road
Gibson, WA 6448

Figure 15C: Survey Effort

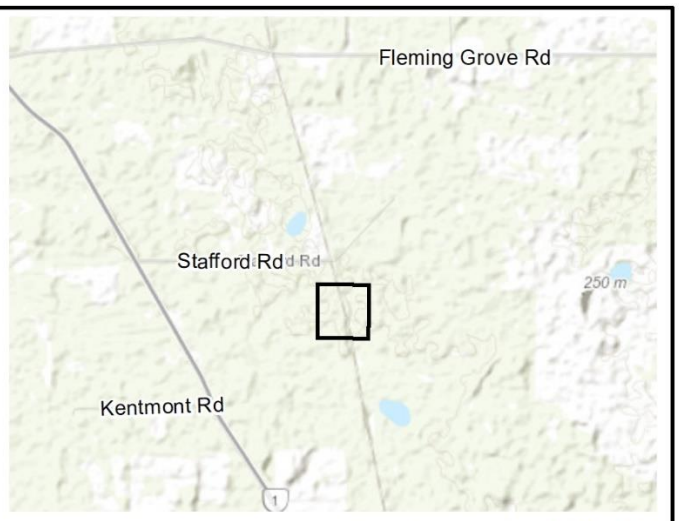
	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-008	3/06/2022

Legend

- Survey Area
- Rail Kilometer Points
- Cadastre

Survey Effort

- Terrestrial Flora and Vegetation
- Terrestrial Vertebrate Fauna



Overview Map Scale 1:100,000

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2021
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI

Appendix B

Conservation Significant Values Likelihood of Occurrence Analysis

Table 11: Criteria for assessing the likelihood of occurrence of Threatened or Priority flora and fauna within a 30 km radius of the survey area.

Likelihood	Criteria
Present	Species is recorded within the survey area.
Likely	Species has been previously recorded in close proximity and suitable habitat occurs within the survey area.
Possible	Species previously recorded within 10 km and suitable habitat occurs in the survey area.
Unlikely	The species has been recorded locally through database searches. However, suitable habitat for the species does not occur at the survey area or suitable habitat may occur but the species has a highly restricted distribution, is very rare and only known from a limited number of populations. Species is unlikely to occur due to the site lacking critical habitat, only containing marginally suitable habitat, and/or the survey area is considerably degraded. The species has not been recorded in the survey area despite adequate survey effort.
Highly Unlikely	No suitable habitat within the survey area or the survey area is outside the species' natural distribution.

Table 12: Potential conservation significant flora located within 30 km of the survey area and likelihood of occurrence analysis (post survey).
NB - Species are sorted by likelihood of presence. Numerous resources specific to Threatened and Priority flora listed below were used in the likelihood assessment (Archer, 2016; Brophy, 2013; Euclid, n.d.; Hislop, 2009; Hislop, 2014; JSTOR, 2000 - ; Maslin, 2018; WAH, 1998 - ; WANOSCG, 1974 - ; Wheeler, 2004).

Family	Species	Vernacular	Status (WA)	Nature Map	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Pre-Survey Likelihood of Occurrence Analysis	Post-Survey Likelihood of Occurrence and Flora Survey Outcomes
Orchidaceae	*Pterostylis faceta*		P3			X	Annual herb. Fl Green.	Mallee dominated shrubland, dense low heath. Mixed soil types.	Aug to Sept	Possible	Possible - significant limitation that not flowering within survey period.
Fabroniaceae	*Fabronia hampeana*		P2	X		X	Moss species. Silver green species.	Often growing on Macrozamia species. Mixed woodlands.		Outside of expertise of surveyors.	Unlikely - lack of suitable host plants. No Macrozamia species present.
Ericaceae	*Leucopogon corymbiformis*		P2	X		X	Open or erect low shrub with white flowers. <0.5 m high.	Associated with *Banksia speciosa* woodland and deep white sands.	Aug to Sept	Likely - extensive and common around survey site.	Unlikely - not detected. Ericaceae species not easily identifiable sent to WA Herbarium for confirmation.
Fabaceae	*Daviesia pauciflora*		P3	X		X	Diffuse, many stemmed, sprawling shrub. 0.3-0.8 m high. Lacking formal leaves. Fl. Yellow and red.	White or grey sand over laterite or limestone. Flats. Associated with deep sands, often with *Banksia speciosa* or Kwongkan shrublands.	Oct to Dec or Jan	Likely	Unlikely - not detected.
Proteaceae	*Persoonia scabra*		P3	X		X	Clumped, spreading shrub. Fl. Yellow.	Gravelly loam, sandy soils. Slopes. Mixed soil types. Eucalyptus, Allocasuarina or Agonis woodlands.	Sep to Nov.	Likely	Unlikely - not detected.
Ericaceae	*Brachyloma mogin*		P3	X		X	Compact shrub, 0.4 m high. Fl. Red/pink/white.	Grey clayey sand. Swamp flat. Open woodland in areas that become inundated in winter. Field observations occur on sand banks surrounding salt lakes.	Jun	Likely	Unlikely - not detected.
Goodeniaceae	*Dampiera sericantha*		P3	X		X	Erect, slender perennial, herb, 0.05-0.3(-0.6) m high, stems with blunt angles. Fl. Blue.	Sand, sometimes with gravel. Plains. Associated with disturbance.	May or Aug to Dec.	Likely	Unlikely - not detected. Dampiera species present determined as non-threatened *Dampiera parvifolia* due to leaf and flower structure.
Ericaceae	*Conostephium marchantiorum*		P3	X		X	Erect, much branched shrub. 0.4-1.8 m high. Red, purple, brown and yellow flower. Bright green and hairy leaves.	White/grey or light yellow sand. Plains on edges of salt lakes, plains, creek lines. Open Mallee and scrub heath communities.	Mar or Jul or Nov	Likely - extensive and common around survey site. Widespread and suitable habitat.	Unlikely - not detected.
Proteaceae	*Grevillea baxteri*	Cape Arid Grevillea	P4	X		X	Erect to spreading shrub. 0.8-4 m high. Large and bushy form. Toothbrush grevillea form, flower colour yellow-orange-brown-red.	Sand, sandplains, often acidic soils. Wide associated vegetation type; scrubby heathland. Often associated with gravel or overlying heavier soils.	Feb or May to Jul or Sept to Dec	Likely	Unlikely - not detected.
Euphorbiaceae	*Stachystemon vinosus*		P4	X		X	Compact shrub, to 0.1 m high. Fl. Purple -red/white.	Fine loamy sand, stony soils. Sandplains, rock crevices on breakaways.	Sep to Nov	Likely - distribution occurred in general vicinity, likely suitable habitat present.	Unlikely - not detected.
Ericaceae	*Leucopogon remotus*		P1	X		X	Woody shrub of 1 m high x 8 m wide.	Associated with mixed woodlands and variety of soil types. Sand or sandy loam. Slopes, flats or edges of plains near salt lakes.	Jul	Possible	Unlikely - not detected. Ericaceae species not easily identifiable sent to WA Herbarium for confirmation.
Myrtaceae	*Darwinia* sp. Gibson (R.D. Royce 3569)		P1	X		X	Compact shrub to 0.4 m high. Flowers yellow/orange. Small succulent looking shrub.	Grey-brown sandy clay and white sand on margins of salt lakes and road verges. Common on sandy rises immediately around normally dry lakes.	Jun to July	Possible	Unlikely - not detected.
Cyperaceae	*Schoenus* sp. Grey Rhizome (K.L. Wilson 2922)		P1	X		X	Grass-like or herb (sedge), 0.06-0.08 m high.	Sandy clay, sand. Scattered subcoastal (<30 km of coastline) from Cape Arid to Albany.		Possible	Unlikely - not detected. Schoenus species present not dwarf/small in form.
Ericaceae	*Leucopogon* sp Lake Magenta (K. R. Newbey 3387)		P1	X				Uplands; sand or sand over laterite.	Nov	Possible	Unlikely - not detected. Ericaceae species not easily identifiable sent to WA Herbarium for confirmation.
Ericaceae	*Styphelia coelophylla*		P1	X			Erect shrub, 0.3-0.6 m high. Fl. Pink/white.	Gravelly sandy soils.	Sep to Nov.	Possible	Unlikely - not detected. Ericaceae species not easily identifiable sent to WA Herbarium for confirmation.

Table 11 continued.

Family	Species	Vernacular	Status (WA)	Nature Map	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Pre-Survey Likelihood of Occurrence Analysis	Post-Survey Likelihood of Occurrence and Flora Survey Outcomes
Myrtaceae	*Baeckea* sp. Gibson (K.R. Newbey 11084)		P1	X		X	Spreading, erect, mid-dense shrub, to 2 m high. Fl. Pink.	Brown sandy loam over laterite & granite. Moderately exposed hills, cleared bushland.	Jun or Nov to Dec.	Possible	Unlikely - not detected.
Dilleniaceae	*Hibbertia turleyana*		P2	X		X	Procumbent shrub to 0.2 m high, to 0.35 m wide. Fl. Yellow.	Dry white sand. Flats, seasonally wet areas.	August	Possible	Unlikely - not detected. Hibbertia species present did not bear similarity.
Polygalaceae	*Comesperma griffinii*		P2	X		X	Annual or perennial herb to 0.15 m high. Fl. White.	Yellow or grey sands, plains. Very wide and scattered distribution from Geraldton to Esperance.	Oct	Possible	Unlikely - not detected.
Asparagaceae	*Thysanotus brachiatus*		P2	X			Rhizomatous, leafless perennial, herb, to 0.3 m high. Fl. Purple.	Grey sand.	Nov - dec	Possible	Unlikely - not detected. Thysanotus species present confirmed by WA Herbarium to be non-threatened *Thysanotus sparteus.*
Orchidaceae	*Paracaleana parvula*		P2	X		X	Perennial, herb to 0.18 m high. Fl. Yellow/green.	Deep white sands, plains. Distribution clustered towards Cape Arid and only single record in Esperance townsite vicinity.	Oct to Nov	Possible	Unlikely - not detected.
Rhamnaceae	*Spyridium mucronatum* subsp. *multiflorum*		P2	X		X	Erect or spreading shrub, 0.15-0.6 m high. Fl. White-cream-yellow.	Gravelly loam or clay.	Oct to Dec or Jan.	Possible	Unlikely - not detected.
Polygalaceae	*Comesperma calcicola*		P3	X		X	Soft perennial herb, to 0.3 m high. Fl. Pink.	Calcareous or semi-saline clay loams, limestone. Areas around saline water.	Oct to Dec or Jan	Possible	Unlikely - not detected.
Proteaceae	*Isopogon alcicornis*	Elkhorn Coneflower	P3	X		X	Low, lignotuberous shrub, 0.3-0.5 m high to 0.6 m wide. Flowers yellow, white, pink. Distinctive shaped leaves forming cluster. No distinct stems.	Sandy soils, skeletal loam, sandhills, sandplains.	Oct to Dec or Feb	Possible	Unlikely - not detected.
Proteaceae	*Persoonia cymbifolia*		P3	X		X	Erect, spreading shrub, 0.20.6 (1) m high. Fl. Yellow.	Sandy soils. On flats or in rock crevices.	Dec or Jan	Possible	Unlikely - not detected.
Ericaceae	*Styphelia rotundifolia*		P3	X		X	Erect, compact shrub to 1.5 m high x 1.5 m wide. Fl. Cream and erect.	Mixed heath and shrublands. Mostly recorded in coastal areas.	April	Possible	Unlikely - not detected. Ericaceae species not easily identifiable sent to WA Herbarium for confirmation.
Fabaceae	*Bossiaea flexuosa*		P3	X		X	Compact shrub to 0.6 m high. Fl. Yellow-orange-red-brown.	Deep sandy soil.	Sept to Nov	Possible	Unlikely - not detected.
Myrtaceae	*Kunzea salina*		P3	X		X	Low shrub <1 m. Very small leaves. Spreading shrub. Fl. White.	Adjacent to salt lake periphery in low shrub margin. Winter wet lowlands with grey/white and sands and clay. Saline water bodies. Low heathland.	Dec to Jan	Possible	Unlikely - not detected.
Myrtaceae	*Melaleuca dempta*		P3	X		X	Shrub, 0.2-0.6 m high. White cream flowers. Rounder and more circular leaves to similar non-threatened *Melaleuca calycina.*	Shrubland and mallee. White clayey soils. Sometimes recorded on salt lakes.	Aug	Possible	Unlikely - not detected.
Fabaceae	*Acacia euthyphylla*		P3	X		X	Shrub, 0.7-2 m high. Fl. Yellow.	Grey/white sand, clay loam. Margins of salt lakes and marshes. Seasonal swamps in tall Myrtaceous shrubland and Mallee Woodland.	Aug to Sept	Possible	Unlikely - not detected.
Lamiaceae	*Pityrodia chrysocalyx*		P3	X		X	Erect, branched shrub, 0.3-0.75(-1) m high. Fl. White.	Sandy soils.	Aug to Oct.	Possible	Unlikely - not detected.
Myrtaceae	*Eucalyptus foliosa*		P3	X		X	Mallee to 4 m high, bark smooth.	Grey/white sandy clay. Flats adjacent to salt lake. Distribution between Grass Patch and Gibson.		Possible	Unlikely - not detected.
Myrtaceae	*Eucalyptus semiglobosa*		P3	X		X	Mallee to 6 m, bark smooth grey over tan. Fl. Cream-white-yellow.	White sand over laterite, silty sand on edge of granite shelf, limestone. Hillslopes, gullies, cliffs.		Possible	Unlikely - not detected.
Loganiaceae	*Adelphacme minima*		P3	X		X	Annual.	Small post fire.	Sept -Oct; Nov-Jan	Possible - extremely wide distribution cross the state.	Unlikely - not detected.

Table 11 continued.

Family	Species	Vernacular	Status (WA)	Nature Map	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Pre-Survey Likelihood of Occurrence Analysis	Post-Survey Likelihood of Occurrence and Flora Survey Outcomes
Malvaceae	*Commersonia rotundifolia*	Round Leaved Rulingia	P3	X		X	Shrub to 1.5 m high. Semi-erect. Cream flowers, white calyx with green base. Petals cream, ligule on green base, staminodes white. Dull green leaves.	Open Eucalyptus woodland and shrubs, with *Eucalyptus platypus* or other Mallee or Mallet species. Well drained grey brown loams.	Oct to Dec	Possible - extremely wide distribution cross the state.	Unlikely - not detected.
Restionaceae	*Desmocladus biformis*		P3	X		X	Rhizomatous, densely tufted perennial, herb (sedge-like), 0.1-0.2 m high.	Sand, sandy clay, lateritic soils. Dry sites.	Sep to Oct.	Possible - single record in Esperance and likely to be cryptic species.	Unlikely - not detected.
Frankeniaceae	*Frankenia glomerata*	Cluster Head Frankenia	P4			X	Prostrate shrub. Fl. Pink-white.	White sand.	Nov	Possible	Unlikely - not detected.
Myrtaceae	*Eucalyptus dolichorhyncha*		P4	X		X	Mallee or tree, 1-5 m high. Flowers yellow. Distinct elongated operculum bud caps, differentiating from non-threatened *Eucalyptus forrestiana*.	White or yellowish sandy clay or clay. Flats or slightly rising ground. Mallee Woodlands.	Jan to Mar or May	Possible	Unlikely - not detected.
Scrophulariaceae	*Eremophila glabra* subsp. Scaddan (C. Turley s.n. 10/11/2005)		T - Cr En	X	X	X	Large shrub, fl. Green.	Associated with habitat for salt lakes in the Scaddan/Esperance region.	August to November	Unlikely	Unlikely - confirmed lack of suitable habitat.
Proteaceae	*Lambertia echinata* subsp *echinata*	Prickly Honeysuckle	T - En	X	X	X	Prickly, much branched, non-lignotuberous shrub. 1.5 m high. Fl. Orange, red to pink. Leaves with tridentate shape.	Gravely sandy loam, brown sandy loam, white grey sand, granite, laterite. Entirely restricted or known from Cape Le Grand National park.	Sept to Oct	Unlikely - distribution restricted to Cape Le grand. Lack of suitable habitat present.	Unlikely - confirmed lack of suitable habitat.
Euphorbiaceae	*Ricinocarpos trichophorus*	Barrens Weeding Bush	T - En		X		Erect, openly branching shrub, 0.3-1 m high. Fl. White.	Sandy clay, loam. Breakaways, among sandstone rocks.	May or Aug to Sep	Unlikely - lack of suitable soil type, distribution extremely broad.	Unlikely - confirmed lack of suitable habitat.
Haemodoraceae	*Anigozanthos bicolor* subsp *minor*	Little Kangaroo Paw	T - En	X	X	X	Rhizomatous, perennial, herb, 0.05-0.2 m high. Fl. Green & red.	White Sand. Well-watered or winter-wet sites. Subcoastal freshwater sumps, off granite. Moist sandy soils in heath communities dominated by Thryptomene, Borya sp, Leptospermum sp. *And Diuris laxiflora* and in shallow soils over granite.	Aug to Oct	Unlikely	Unlikely - confirmed lack of suitable habitat.
Haemodoraceae	*Conostylis lepidospermoides*		T - Vu	X		X	Rhizomatous, tufted perennial, grass-like or herb, 0.17-0.36 m high. Fl. Yellow.	Grey or yellow-brown sand over laterite.	Sep to Oct	Unlikely	Unlikely - confirmed lack of suitable habitat.
Myrtaceae	*Eucalyptus merrickiae*	Goblet Mallee	T - Vu	X	X	X	Malle, 2-4(6) m high. Bark rough and flaky. Distinguished by extremely red bud caps. Silver sheen to leaves.	Sandy clay, grey sand. Associated strongly with salt lakes in the Scaddan to Salmon Gums area, Esperance.	Aug to Nov	Unlikely	Unlikely - confirmed lack of suitable habitat.
Haloragaceae	*Myriophyllum muelleri*		P1	X		X	Slender, aquatic annual, herb. Stems to 0.6 m long. Fl. Red.	Lagoons. Two records - Nambung River near Gingin and pond off South Coast Hwy.		Unlikely	Unlikely - confirmed lack of suitable habitat.
Euphorbiaceae	*Beyeria physaphylla*		P1	X		X	Shrub, to 0.5 m high. Scraggly. Flowers axial, separate male and female flowers.	Restricted to Scaddan. Grows in Mallee Eucalypt with Melaleuca, Hakea and Leptospermum sp. On grey sandy soil on edge of salt lakes.	Sept	Unlikely	Unlikely - confirmed lack of suitable habitat.
Fabaceae	*Acacia diminuta*		P1	X		X	Intricately branched, spreading or glaberous shrub to 0.2 m high. Fl. Yellow-cream.	Sandy clay or sandy loam. Sometimes over shallow ironstone gravel. Occurs 200km from West River to west of Truslove Nature Reserve. Shrub mallee.	Oct to Nov	Unlikely	Unlikely - confirmed lack of suitable habitat.
Goodeniaceae	*Goodenia turleyae*		P1	X		X	Annual herb, 0.03-0.04 m high. White or grey-brown sand over clay, yellow-brown gravelly clay and granite.	Moist sheltered areas near salt lakes.		Unlikely	Unlikely - confirmed lack of suitable habitat.
Goodeniaceae	*Scaevola archeriana*		P1	X			Erect, resprouting, multi-stemmed, clonal herb, to 0.45 m high.	Sandy and sandy-clay loam soils. Sandplains, road verges.	Jan- Feb	Unlikely	Unlikely - confirmed lack of suitable habitat.

Table 11 continued.

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Thymelaeaceae	*Pimelea pelinos*		P1	X		X	Erect, scraggly shrub, 0.3-0.6 m high. Fl. Cream.	Sandy clay, salt lakes.	Jun to Jul	Unlikely	Unlikely - confirmed lack of suitable habitat.
Araliaceae	*Hydrocotyle asterocarpa*	Starry Pennywort	P2	X		X	Small annual herb, trilobed and toothed leaves. Bright green with purple stem.	Sandy loam soils on margins of inland salt lakes, in low open shrubland often in sheltered positions of Tecticornia and Frankenia sp. Common on salt lakes and winter-wet flats between Salmon gums and Scaddan.	Winter annual - Sept to Nov	Unlikely	Unlikely - confirmed lack of suitable habitat.
Araliaceae	*Hydrocotyle tuberculata*	Bumpy Fruited Pennywort	P2	X		X	Small herb, 1-3 cm high, 2-4 cm wide, reddish green colour. Simple umbel flowers.	Low shrubs and samphire with Disphyma and *Wilsonia humilis*. Full sun area.	Oct	Unlikely	Unlikely - confirmed lack of suitable habitat.
Goodeniaceae	*Goodenia exigua*		P2	X		X	Perennial, prostrate, compact and rhizomatous shrub. 3 cm high x 4 cm wide. Yellow flowers. Perennial herb, ground hugging, flowers white with purplish brown markings.	Edge of salt lakes or seasonally inundated plains. Grey clay. Occurs in the Stirling Ra. and at Moirs Inlet, W.A. Grows in saline clays.		Unlikely	Unlikely - confirmed lack of suitable habitat.
Iridaceae	*Patersonia inaequalis*	Unequal Bract Patersonia	P2	X		X	Rhizomatous, tufted perennial, herb, 0.2-0.4 m high. Fl. White.	Sandy clay, lateritic or granitic sand.	Aug to Oct.	Unlikely	Unlikely - confirmed lack of suitable habitat.
Myrtaceae	*Eucalyptus sweedmaniana*		P2	X			Prostrate Mallee, smooth silver grey bark, large winged and pink fruit. Fl. Red to pink.	Restricted to east of Esperance in coastal habitat.	Sporadic	Unlikely - distribution restricted to Cape Arid region. Lack of suitable coastal habitat.	Unlikely - confirmed lack of suitable habitat.
Ericaceae	*Conostephium uncinatum*		P2	X		X	Erect shrub, 0.5-1.4 m high.	Deep sandy soils. Edges of salt lakes, undulating plains, claypans.		Unlikely - Distribution significantly further north of subject site.	Unlikely - confirmed lack of suitable habitat.
Ericaceae	*Astroloma* sp. Grass Patch (A.J.G. Wilson 110)		P2	X		X	Multi-stemmed, domed shrub. 0.2-0.4 m high. Red flowers. Flowers facing upwards, very skinny leaves.	White/grey sand, edge of salt lake in Melaleuca thickets.	June to August	Unlikely - lack of suitable habitat of Scaddan salt lakes. Distribution significantly further north of subject site.	Unlikely - confirmed lack of suitable habitat.
Chenopodiaceae	*Tecticornia indefessa*		P2	X		X	Prostrate, perennial shrub, 0.05-0.15 m high.	White to brown-grey sand. Near the edges of salt lakes.		Unlikely - lack of suitable habitat, no salt lake present.	Unlikely - confirmed lack of suitable habitat.
Araliaceae	*Trachymene anisocarpa* var *trichocarpa*		P3	X			Upright, spreading annual, herb, 0.3-1.5 m high. Peduncles up to 140 mm long. Distinguished by hairlike bristles on the fruits. Fl. Blue-white.	Flat, dry, brown sand loam. Potentially on granite. Eucalyptus woodland with mixed shrub understorey. Associated species of Acacia, *Melaleuca uncinata*, Pimelea, Dodonaea and Cassytha sp. Often associated with recently burnt or disturbed.	Oct to Nov.	Unlikely - lack of suitable habitat.	Unlikely - confirmed lack of suitable habitat.
Myrtaceae	*Astartea reticulata*		P3	X		X	Single-stemmed or basally branched shrub 0.7–1.5 m tall. Fl. Pale pink or white.	Occurs in winter-wet depressions or near watercourses along the coastal plain, commonly associated with the paperbark species *Melaleuca cuticularis*.	late November to January.	Unlikely	Unlikely - confirmed lack of suitable habitat.
Haloragaceae	*Gonocarpus pycnostachyus*		P3	X		X	Erect annual herb, 0.1-0.15 m high. Fl. Green-red.	Sand or clay soils. Wet depressions, granite rock.		Unlikely	Unlikely - confirmed lack of suitable habitat.
Fabaceae	*Acacia glaucissima*		P3	X			Dense, bushy shrub, 0.3-1.5 m high. Fl. Yellow.	Sand or clay. Flats, low-lying areas		Unlikely	Unlikely - confirmed lack of suitable habitat.

Table 11 continued.

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Fabaceae	*Acacia bartlei*		P3	X		X	Erect shrub or tree from 1.5-7 m tall. Narrow phyllodes, oblong to elliptic. Glabrous. Pods linear 20-65 mm long, 2.5-3.5 mm wide.	Uncommon, around Esperance. Flat or gently undulating landscape. Waterlogged depressions in brown or grey, sandy loam or clay-loam or in grey sand over clay adjacent to depressions. Tolerates level of salinity.	Late June ot Mid Oct	Unlikely	Unlikely - confirmed lack of suitable habitat.
Goodeniaceae	*Dampiera triloba*		P3	X		X	Erect, perennial herb or shrub to 0.5 m high. Fl. Blue.	Lowlands or semi-wet areas, slopes on edge of lakes.	Aug to Dec	Unlikely	Unlikely - confirmed lack of suitable habitat.
Goodeniaceae	*Goodenia laevis* subsp. *laevis*		P3	X		X	Erect, woody shrub or subshrub. 0.1-0.25 m high. Largest leaves 15-25 x 1-3 mm, entire. Fl. Yellow.	Brown sandy loam or clay, underlying geology of limestone, gypsum content or laterite. On flats or plains. Often associated strongly with disturbance and road verges. Often associated with Acacia, *Bossiaea leptacantha, Eucalyptus dissimulata* and *Grevillea huegelii*.	Aug to Dec	Unlikely	Unlikely - confirmed lack of suitable habitat.
Scrophulariaceae	*Eremophila chamaephila*	Earth Loving Eremophila	P3	X		X	Low, dome shaped Shrub, 0.1-0.25 m high. 0.2-0.8 m wide. Fl. Blue-purple.	White sand, clay or sandy clay. Sandplains, flats and disturbed road verges. Sometimes winter wet. Associated with Eucalyptus woodlands.	Nov to Dec	Unlikely	Unlikely - confirmed lack of suitable habitat.
Scrophulariaceae	*Eremophila compressa*	Wispy Eremophila	P3	X			Erect, often spindly shrub, 0.5-0.7(2) m high. Fl. White-cream.	Red brown clay or clay loam, sandy loam. Undulating plains.	Oct to Dec or Mar	Unlikely - distribution further north in Salmon Gums region.	Unlikely - confirmed lack of suitable habitat.
Asteraceae	*Haegiela tatei*		P4	X		X	Ascending to erect annual, herb, 0.02-0.08(-0.2) m high. Fl. White-yellow.	Clay, sandy loam, gypsum. Saline habitats.	Aug to Nov	Unlikely	Unlikely - confirmed lack of suitable habitat.
Myrtaceae	*Eucalyptus preissiana* subsp. *lobata*		P4	X		X	Mallee to 2.5 m high. Bark smooth. Fl. Yellow.	Sand. Coastal limestone rises and sand dunes.	Nov	Unlikely	Unlikely - confirmed lack of suitable habitat.
Myrtaceae	*Darwinia polycephala*		P4	X		X	Diffuse shrub, 0.1-0.5 m high. Fl. Red-purple.	Sand, clay or clayey sand. Flats near Salt Lakes, edges or dunes upslope of salt lakes. Shrub and Mallees, with herbs and sedges.	Mar or May to Jul or Sept	Unlikely	Unlikely - confirmed lack of suitable habitat.
Myrtaceae	*Melaleuca fissurata*		P4	X		X	Shrub, 0.5-2 (4) m. Fl. White/yellow.	White/grey sand or aeolian loamy sand, well drained. Margins of salt lakes, samphire flats, drainage lines, and salt pans. Open shrub Mallee and tall Shrubs.	Jul to Aug	Unlikely	Unlikely - confirmed lack of suitable habitat.
Fabaceae	*Kennedia glabrata*	Northcliffe Kennedia	T - Vu		X		Prostrate shrub, 0.05-0.5 m high, to 5 m wide. Fl. Red.	Soil pockets, sandy soils. Granite outcrops.	Aug to Nov.	Highly unlikely - Distribution occurring In Northcliffe, 600 km to the west of site.	Unlikely - confirmed lack of suitable habitat.
Myrtaceae	*Eucalyptus misella*		P1	X		X	Mallee, 1-3 m high. Bark smooth. Fl. Cream.	White, yellow or grey sand. Low lying sandplain.	Nov	Highly unlikely - distribution restricted to Frank Hann National Park, 300 km north-west of subject site.	Unlikely - confirmed lack of suitable habitat.
Proteaceae	*Conospermum quadripetalum*		P2	X			Diffuse, straggly shrub, 0.3-1 m high. Fl. Blue/white.	Sandy clay, grey sand. Flats behind coastal hills.	Sept-Nov	Highly unlikely - distribution restricted to Torndirrup in Albany, 500 km west of subject site.	Unlikely - confirmed lack of suitable habitat.
Frankeniaceae	*Frankenia brachyphylla*	Short Leaved Frankenia	P2	X			Small, decumbent shrub. Fl. White/pink.	Salt Lake margins.	Nov	Highly Unlikely - distribution restricted to Norseman area. Lack of suitable habitat present.	Unlikely - confirmed lack of suitable habitat.

Table 13: Potential Threatened and Priority Ecological Communities located within 30 km of the survey area.

Community Name	Status – BC Act 2016 (WA)	Status – EPBC Act 1999 (Cth)	Description	Pre-Survey Likelihood of Occurrence Analysis	Post-Survey Likelihood of Occurrence and Vegetation Survey Outcomes
Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia	Priority 3 (WA) EN (EPBC Act)	EN	Consists of predominantly obligate seeding Proteaceous shrubland and heath (Kwongkan) and Mallee heath on sandplain, duplex sand/clay and gravels overlying Eocene sediments, quartzite, schist, Yilgarn and Albany Fraser granite and greenstone ranges. Its flora is characterised by high species diversity and a high degree of endemism, particularly in the Stirling Range, Fitzgerald River National Park, Ravensthorpe Range and Russell Ranges. Due to the high levels of endemism, there are few species that exist across the entire range of the dense, obligate seeding Proteaceae dominated shrublands and Kwongkan of the Esperance Sandplains, however particular species have been identified as common dominant species in each of its ecodistricts (DoEE, 2015).	Likely	Detected – present within Vegetation Unit 1: Pro SL.
Subtropical and Temperate Coastal Saltmarsh	P3	Vu	Consists of the assemblage of plants, animals and micro-organisms associated with saltmarsh in coastal regions of sub-tropical and temperate Australia (south of 23oS latitude). It occurs on the coastal margin, along estuaries and coastal embayments and on low wave energy coast in places with at least some tidal connection, including rarely-inundated supratidal areas, intermittently opened or closed lagoons, and groundwater tidal influences. The community occurs on sandy or muddy substrate and may include coastal clay pans and similar habitats. It consists of dense to patchy areas of characteristic coastal saltmarsh plant species that include salt- tolerant herbs, succulent shrubs or grasses, and may also include bare sediment as part of the mosaic. It can occur where the proportional cover by tree canopy such as mangroves, Melaleucas or Casuarinas or seagrass is not greater than 50%. The description, area and condition thresholds that apply to the EPBC-listed TEC of the same name, also apply to this Priority ecological community.	Unlikely	Not detected

Table 14: Potential conservation significant fauna located within 30 km of the survey area and likelihood of occurrence analysis (post survey).
Note: Species are presented based on likelihood of occurrence. Habitat information taken from publicly available resources such as: DSEWPaC (2011) Survey guidelines for Australia's threatened mammals; DEWHA (2010) Survey guidelines for Australia's threatened birds; SPRAT profiles and species-specific recovery plans.

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Pre Survey)	Likelihood of Occurrence (Post Survey)	Habitat Present (Y/N)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
Cacatuidae	*Calyptorhynchus latirostris*	Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo	EN / EN	Eucalypt woodlands, especially those that contain salmon gum and wandoo, and in shrubland or kwongan heathland dominated by hakea, dryandra, banksia and grevillea species. It also occurs in remnant patches of native vegetation on land otherwise cleared for agriculture. It also forages in forests containing marri, jarrah or karri.	Possible	Present	Y	HIGH	Y	Suitable foraging habitat present in vegetation unit 1: Proteaceae Shrubland. Strip of Pine trees adjacent to this strip of vegetation. Recent and old foraging evidence observed.
Cacatuidae	*Calyptorhynchus* sp.	White-tailed Black Cocaktoo	EN / EN		Possible	Present	Y	HIGH	Y	Suitable foraging habitat present in vegetation unit 1: Proteaceae Shrubland. Strip of Pine trees adjacent to this strip of vegetation. Recent and old foraging evidence observed.
Peramelidae	*Isoodon fusciventer*	Quenda, southwestern brown bandicoot	P4 / -	Scrubby, often swampy, vegetation with dense cover up to 1 m high, often feeding in adjacent forest and woodland that is burnt on a regular basis. Forest, woodlands, heath and coastal scrub, usually on sandy combination soils.	Possible	Present	Y	HIGH	Y	Diggings and suitably sized runnels observed within survey area. Suitable habitat within vegetation unit 1:Proteaceae Shrubland.
Apodidae	*Apus pacificus*	Fork-tailed Swift	MI / MI	Dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. Almost exclusively aerial, flying from less than 1 m to at least 300 m above ground over inland plains but sometimes above foothills or in coastal areas.	Possible	Possible	Y	HIGH	N	Suitable diurnal refuge and hunting ground throughout survey area.
Accipitridae	*Elanus scriptus*	letter-winged kite	P4 / -	Semi-desert and desert along tree-lined creeks; hunts over grasslands and other low vegetation.	Possible	Possible	Y	HIGH	N	Suitable diurnal refuge and hunting ground throughout survey area.
Muridae	*Pseudomys occidentalis*	Western Mouse	P4 / -	Historical distribution. Preference for long unburnt habitat (between 30 and 50 yrs) on sandy clay loam or sandy loam. Vegetation in suitable habitats is variable and includes sparse low shrubland, tall dense shrubland, sparse to dense shrub mallee and mid-dense woodland. All sites where the western mouse has been collected have had patches of extremely dense vegetation.	Possible	Possible	Y	LOW	N	Marginal habitat present within vegetation unit 1:Proteaceae Shrubland.
Muridae	*Pseudomys shortridgei*	Heath mouse, Dayang	VU/EN	Historical distribution. Closest recent record Ravensthorpe. Floristically-rich, dry heathland in long unburnt vegetation.	Possible	Possible	Y	LOW	N	Marginal habitat present within vegetation unit 1:Proteaceae Shrubland.
Falconidae	*Falco peregrinus*	Peregrine Falcon	OS / -	It requires abundant prey and secure nest sites, and prefers coastal and inland cliffs or open woodlands near water.	Possible	Unlikely	N	HIGH	N	
Accipitridae	*Pandion haliaetus*	Osprey	MI / MI	Littoral and coastal habitats and terrestrial wetlands and offshore islands. Requires extensive areas of open fresh, brackish or saline water for foraging.	Possible	Unlikely	N	HIGH	N	
Elapidae	*Parasuta spectabilis* subsp. *Bushi*	spectacled hooded snake (Esperance), Mallee Black-headed Snake (Esperance area	P1	Variety of temperate to semiarid vegetation associations growing on light to heavy, often stony soils, including coastal shell grit beaches, dry sclerophyll forest of mallee and/or other Eucalyptus woodlands, heathlands, shrublands including chenopod, often with Triodia- Brown dominated understorey, and rocky ranges, slopes and foothills.	Possible	Unlikely	N	LOW	N	
Archaeidae	Zephyrarchaea marki	Cape Le Grand Assassin Spider	VU/-	Elevated leaf litter in *Banksia speciosa* thickets. Currently known from Cape Le Grand.	Possible	Unlikely	N	LOW	N	
Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	MI / MI	Almost entirely coastal, coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats.	Unlikely	Unlikely	N	HIGH	N	
Scolopacidae	*Arenaria interpres*	Ruddy Turnstone	MI / MI	Prefers coastal regions with exposed rock coast lines or coral reefs, platforms and shelves, often with shallow tidal pools and rocky, shingle or gravel beaches. Occasionally been sighted in estuaries, harbours, bays and coastal lagoons, among low saltmarsh or on exposed beds of seagrass, around sewage ponds and on mudflats.	Unlikely	Unlikely	N	HIGH	N	

Table 13 continued.

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Pre Survey)	Likelihood of Occurrence (Post Survey)	Habitat Present (Y/N)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
Iulomorphidae	Atelomastix anancita	Cape Arid atelomastix millipede	VU/-	Currently known from Le Grand National Park within the soil and beneath rocks in montane habitat.	Unlikely	Unlikely	N	LOW	N	
Iulomorphidae	Atelomastix brennani, sp. nov	Brennan's atelomastix millipede	VU/-	Currently known from the soil or under granite rocks within Le Grand National Park.	Unlikely	Unlikely	N	LOW	N	
Iulomorphidae	Atelomastix grandis	Le Grand atelomastix millipede	VU/-	Currently known from from Le Grand National Park under rocks or in soil on granite outcrops and within Agonis heath.	Unlikely	Unlikely	N	LOW	N	
Iulomorphidae	Atelomastix melindae	Moir's atelomastix millipede	VU/-	Currently known from the rocky outcrops and heath near the summit of Mount Arid in the Cape Arid National Park, and granite outcrop and eucalypt forest of Mount Belches, near the Duke of Orleans Bay.	Unlikely	Unlikely	N	LOW	N	
Iulomorphidae	Atelomastix sarahae	Comer's atelomastix millipede	VU/-	Currently only known from rocky outcrops near the summit of Mount Arid in the Cape Arid National Park.	Unlikely	Unlikely	N	LOW	N	
Ardeidae	*Botaurus poiciloptilus*	Australasian Bittern	EN / EN	Wetlands, permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and reeds (e.g., Phragmites, Cyperus, Eleocharis, Juncus, Typha, Baumea, Bolboschoenus) or cutting grass (Gahnia) growing over a muddy or peaty substrate.	Unlikely	Unlikely	N	HIGH	N	
Scolopacidae	*Calidris acuminata*	Sharp-tailed Sandpiper	MI / MI	Muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation.	Unlikely	Unlikely	N	HIGH	N	
Scolopacidae	*Calidris canutus*	Red Knot, knot	EN / EN & MI	Intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours; sometimes on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms or coral reefs.	Unlikely	Unlikely	N	HIGH	N	
Scolopacidae	*Calidris canutus* subsp. *rogersi*	Red Knot (north-eastern Siberia)	CR / CR & MI	Intertidal mudflats and sandflats in sheltered coasts, including bays harbours and estuaries.	Unlikely	Unlikely	N	HIGH	N	
Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper	CR / CR & MI	Intertidal mudflats in sheltered coastal areas, non-tidal swamps, lakes and lagoons near the coast, and occasionally around ephemeral and permanent lakes and dams with bare edges of mud or sand.	Unlikely	Unlikely	N	HIGH	N	
Scolopacidae	*Calidris melanotos*	Pectoral Sandpiper	MI / MI	Shallow fresh to saline wetlands.	Unlikely	Unlikely	N	HIGH	N	
Scolopacidae	*Calidris ruficollis*	Red-necked Stint	MI / MI	Coastal areas, including sheltered inlets, bays, lagoons and estuaries with intertidal mudflats; ephemeral or permanent shallow wetlands near the coast or inland, and sometimes flooded paddocks or damp grasslands (Higgins & Davies 1996).	Unlikely	Unlikely	N	HIGH	N	
Scolopacidae	*Calidris tenuirostris*	Great Knot	CR / CR & MI	Intertidal mudflats and sandflats in sheltered coasts, including bays harbours and estuaries.	Unlikely	Unlikely	N	HIGH	N	
Anatidae	*Cereopsis novaehollandiae*	Cape Barren Goose	VU / VU	It occurs on offshore islands and rocks, and at adjacent sites on the mainland. It inhabits grasslands and low fields of succulent herbs (comprised of Carpobrotus sp.), and occasionally occurs in open areas in taller and denser vegetation.	Unlikely	Unlikely	N	MODERATE	N	
Anatidae	*Cereopsis novaehollandiae* subsp. *grisea*	Recherche Cape Barren Goose	VU / VU	It occurs on offshore islands and rocks, and at adjacent sites on the mainland. It inhabits grasslands and low fields of succulent herbs (comprised of Carpobrotus sp.), and occasionally occurs in open areas in taller and denser vegetation.	Unlikely	Unlikely	N	MODERATE	N	
Charadriidae	*Charadrius bicinctus*	Double-banded Plover	MI / MI	littoral, estuarine and fresh or saline terrestrial wetlands and also saltmarsh, grasslands and pasture. It occurs on muddy, sandy, shingled or sometimes rocky beaches, bays and inlets, harbours and margins of fresh or saline terrestrial wetlands such as lakes, lagoons and swamps, shallow estuaries and rivers. The species is sometimes associated with coastal lagoons, inland saltlakes and saltworks. It is also found on seagrass beds, especially Zostera, which, when exposed at low tide, remain heavily saturated or have numerous water-filled depressions. This species sometimes utilises kelp beds found on open grassy areas including short pasture, ploughed or newly cropped paddocks, swards, airstrips, and sports grounds such as golf courses or race-tracks near the coast and further inland.	Unlikely	Unlikely	N	HIGH	N	

Table 13 continued.

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Pre Survey)	Likelihood of Occurrence (Post Survey)	Habitat Present (Y/N)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
Charadriidae	*Charadrius leschenaultii*	Greater Sand Plover	VU / VU & MI	Almost entirely coastal, inhabiting littoral and estuarine habitats. Mainly occur on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons. Seldom occur at shallow freshwater wetlands.	Unlikely	Unlikely	N	HIGH	N	
Dasyuridae	*Dasyurus geoffroii*	Chuditch, Western Quoll	VU / VU	Woodland or forest. Logs must have a diameter > 30 cm and a hollow with 7–20 cm diameter and 1 m length (Dunlop and Morris 2012). Burrows are constructed beneath habitat features such as stumps, logs, trees or rock outcrops.	Unlikely	Unlikely	N	HIGH	N	
Laridae	*Hydroprogne caspia*	Caspian Tern	MI / MI	Sheltered coastal embayments (harbours, lagoons, inlets, bays, estuaries and river deltas) and those with sandy or muddy margins are preferred. They also occur on near-coastal or inland terrestrial wetlands that are either fresh or saline, especially lakes (including ephemeral lakes), waterholes, reservoirs, rivers and creeks.	Unlikely	Unlikely	N	HIGH	N	
Megapodiidae	*Leipoa ocellata*	Malleefowl	VU / VU	Arid and semi-arid areas dominated by mallee eucalypts on sandy soils. They are known to also occur in Mulga (*Acacia aneura*), Broombush (*Melaleuca uncinata*), Scrub Pine (*Callitris verrucosa*), Eucalyptus woodlands and coastal heathlands. Malleefowl require abundant leaf litter and a sandy substrate for the successful construction of nest mounds.	Unlikely	Unlikely	N	MODERATE	N	
Scolopacidae	*Limicola falcinellus*	Broad-billed Sandpiper	MI / MI	Sheltered parts of the coast, favouring estuarine mudflats but also occasionally occur on saltmarshes, shallow freshwater lagoons, saltworks and sewage farms, and in areas with large soft intertidal mudflats, which may have shell or sandbanks nearby. Occasionally they occur on reefs or rocky platforms. They have also been recorded in creeks, swamps and lakes near the coast, particularly those with bare mudflats or sand exposed by receding water.	Unlikely	Unlikely	N	HIGH	N	
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	MI (& VU or CR at subsp. level) / MI (& VU or CR at subsp. level)	Inhabit estuarine mudflats, beaches and mangroves.	Unlikely	Unlikely	N	HIGH	N	
Scolopacidae	*Limosa lapponica menzbieri*	Northern Siberian Bar-tailed Godwit	CR (& MI at sp. level) / CR (& MI at sp. level) /	Occurs mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. It has also been recorded in coastal sewage farms and saltworks, saltlakes and brackish wetlands near coasts, sandy ocean beaches, rock platforms, and coral reef-flats.	Unlikely	Unlikely	N	HIGH	N	
Motacillidae	*Motacilla cinerea*	Grey Wagtail	MI / MI	Species has a strong association with water (wetlands, water courses banks of lakes and marshes, artificial wetlands).	Unlikely	Unlikely	N	HIGH	N	
Scolopacidae	*Numenius madagascariensis*	Eastern Curlew	CR / CR & MI	Intertidal mudflats and sandflats, often with beds of seagrass, on sheltered coasts, especially estuaries, mangrove swamps, bays, harbours and lagoons.	Unlikely	Unlikely	N	HIGH	N	
Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis	MI / MI	Fresh water marshes at the edges of lakes and rivers, lagoons, flood-plains, wet meadows, swamps, reservoirs, sewage ponds, rice-fields and cultivated areas under irrigation. The species is occasionally found in coastal locations such as estuaries, deltas, saltmarshes and coastal lagoons.	Unlikely	Unlikely	N	HIGH	N	
Charadriidae	*Pluvialis fulva*	Pacific Golden Plover	MI / MI	Coastal habitats, occasionally fresh, brackish or saline wetlands or claypans especially with muddy margins and often with submerged vegetation or short emergent grass. Other terrestrial habitats include short grass in paddocks, or ploughed or recently burnt areas.	Unlikely	Unlikely	N	HIGH	N	
Charadriidae	*Pluvialis squatarola*	Grey Plover	MI / MI	Sheltered embayments, estuaries and lagoons with mudflats and sandflats; terrestrial wetlands such as near-coastal lakes and swamps, or salt-lakes (Marchant & Higgins 1993).	Unlikely	Unlikely	N	HIGH	N	
Charadriidae	*Thinornis rubricollis*	Hooded Plover, Hooded Dotterel	P4 / -	Ocean sandy beaches and coastal lakes.	Unlikely	Unlikely	N	HIGH	N	
Scolopacidae	*Tringa glareola*	Wood Sandpiper	MI / MI	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.	Unlikely	Unlikely	N	HIGH	N	
Scolopacidae	*Tringa nebularia*	Common Greenshank, greenshank	MI / MI	Typical habitat is often found to be sheltered coasts with reefs and rock platforms or with intertidal mudflats.	Unlikely	Unlikely	N	HIGH	N	

Table 13 continued.

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Pre Survey)	Likelihood of Occurrence (Post Survey)	Habitat Present (Y/N)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
Scolopacidae	*Tringa stagnatilis*	Marsh Sandpiper	MI / MI	Prefers permanent or ephemeral wetlands of varying salinity, including swamps, lagoons, billabongs, saltpans, saltmarshes, estuaries, pools on inundated floodplains, and intertidal mudflats and also regularly at sewage farms and saltworks.	Unlikely	Unlikely	N	HIGH	N	
Procellariidae	*Ardenna carneipes*	Flesh-footed Shearwater	VU / MI	Mainly occurs in the subtropics over continental shelves and slopes and occasionally inshore waters. Breeds on islands in burrows on sloping ground in coastal forest, scrubland, shrubland or grassland.	Highly Unlikely	Highly Unlikely	N	HIGH	N	
Scolopacidae	*Calidris alba*	Sanderling	MI / MI	Almost entirely coastal mostly on open sandy beaches exposed to open sea-swell, and also on exposed sandbars and spits, and shingle banks, where they forage in the wave-wash zone and amongst rotting seaweed.	Highly Unlikely	Highly Unlikely	N	HIGH	N	
Anatidae	*Oxyura australis*	Blue-billed Duck	P4 / -	Prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation.	Highly Unlikely	Highly Unlikely	N	HIGH	N	
Psittacidae	*Pezoporus flaviventris*	Western Ground Parrot	CR / CR	Preferred habitat includes low coastal and near coastal heathlands, unburnt for at least five years.	Highly Unlikely	Highly Unlikely	N	LOW	N	
Hydryphantidae	*Pseudohydryphantes doegi*	Doeg's Watermite	P2 / -	Pseudohydryphantes is a genus of water mites that are found in lentic (still fresh water) and lotic (moving fresh water).	Highly Unlikely	Highly Unlikely	N	HIGH	N	
Stercorariidae	*Stercorarius antarcticus lonnbergi*	Brown Skua	P4 -	Marine, oceanic species.	Highly Unlikely	Highly Unlikely	N	HIGH	N	
Laridae	*Sternula nereis nereis*	Australian Fairy Tern	VU / VU	Coastal areas and embayments of a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands and mainland coastline.	Highly Unlikely	Highly Unlikely	N	HIGH	N	
Diomedeidae	*Thalassarche chlororhynchos*	Atlantic Yellow-nosed Albatross	VU / MI	Marine species. Builds nests built on tussock grass, on rocks and under trees.	Highly Unlikely	Highly Unlikely	N	HIGH	N	
Diomedeidae	*Thalasseus bergii*	Crested Tern	MI / MI	Tropical and subtropical coastlines, foraging in the shallow waters of lagoons, coral reefs, estuaries, bays, harbours and inlets, along sandy, rocky, coral or muddy shores, on rocky outcrops in open sea, in mangrove swamps and also far out to sea on open water. It shows a preference for nesting on offshore islands, low-lying coral reefs, sandy or rocky coastal islets, coastal spits, lagoon mudflats, and artificial islets in saltpans and sewage works within 3 km of the coast.	Highly Unlikely	Highly Unlikely	N	HIGH	N	
Scolopacidae	*Tringa brevipes*	Grey-tailed Tattler	MI & P4 / MI	Typical habitat is often found to be sheltered coasts with reefs and rock platforms or with intertidal mudflats.	Highly Unlikely	Highly Unlikely	N	HIGH	N	
Bivalvia	*Westralunio carteri*	Carter's Freshwater Mussel	VU / -	Patchily distributed in sandy/muddy sediments of freshwater lakes, rivers and streams with greatest densities associated with woody debris and overhanging riparian vegetation near stream banks and edges of lakes/dams.	Highly Unlikely	Highly Unlikely	N	MODERATE	N	

Appendix C

Conservation Status Definitions and Condition Scale

Table 15: Conservation code definitions for flora and fauna as listed as threatened or specially protected.
Threatened, Extinct and Specially Protected fauna or flora are species which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such.

Threat Category	Definition
Threatened - Critically endangered species (CR)	Facing an extremely high risk of extinction in the wild in the immediate future.
Threatened - Endangered species (EN)	Facing a very high risk of extinction in the wild in the near future.
Threatened - Vulnerable species (VU)	Facing a high risk of extinction in the wild in the medium-term future.
Threatened - Extinct (EX)	There is no reasonable doubt that the last member of the species has died.
Threatened – Extinct in the wild (EW)	Species 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.
Specially protected species - Migratory species (MI)	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; 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.
Specially protected species – Conservation Dependent (CD)	Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened.
Specially protected species – Other specially protected species (OS)	Fauna otherwise in need of special protection to ensure their conservation.

Table 16: Conservation code definitions for flora and fauna as listed as Priority.
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.

Threat Category	Definition
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.
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.
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.
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.

Table 17: Conservation code definitions for ecological communities listed as threatened (TEC).

Threat Category	Definition
Presumed Totally Destroyed (PD)	An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future.
Critically Endangered (CR)	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.
Endangered (EN)	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.
Vulnerable (VU)	An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.

Table 18: Conservation code definitions for ecological communities listed as priority (PEC).
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.

Threat Category	Definition
Priority One (P1)	Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤5 occurrences or a total area of ≤100ha), and appear to be under immediate threat.
Priority Two (P2)	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.
Priority Three (P3)	(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.
Priority Four (P4)	Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring.
Priority Five (P5)	Conservation Dependent 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.

Table 19: Condition Rating Scale (adapted from Keighery 1994) outlined in EPA (2016a).

Vegetation Condition Rating	Description
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.
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.
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.
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.
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.

Appendix D

Species Lists and Relevé Data

Table 20: Flora Species List recorded within survey area.

Family	Genus	Species	Subspecies	Vernacular	Invasive
Aizoaceae	*Carpobrotus*	*virescens*		Coastal Pigface	
Anarthriaceae	*Anarthria*	*laevis*			
Anarthriaceae	*Anarthria*	*scabra*			
Araliaceae	*Trachymene*	*pilosa*		Native Parsnip	
Asparagaceae	*Lomandra*	*mucronata*			
Asparagaceae	*Thysanotus*	*sparteus*			
Asteraceae	*Arctotheca*	*calendula*		Cape Weed	X
Asteraceae	*Cotula*	*coronopifolia*		Water Buttons	X
Asteraceae	*Hypochaeris*	*glabra*		Silky Cat's Ears	X
Asteraceae	*Hypochaeris*	*radiata*		Flatweed	X
Asteraceae	*Pseudognaphalium*	*luteoalbum*		Jersey Cudweed	X
Asteraceae	*Blennospora*	*drummondii*			
Asteraceae	*Gnephosis*	*drummondii*			
Asteraceae	*Gnephosis*	*tenuissima*			
Asteraceae	*Pterochaeta*	*paniculata*		Wooly Waitzia	
Asteraceae	*Vellereophyton*	*dealbatum*		White Cudweed	
Asteraceae	*Ursinia*	*anthemoides*		Ursinia	X
Campanulaceae	*Monopsis*	*debilis*			X
Casuarinaceae	*Allocasuarina*	*humilis*		Dwarf Sheoak	
Casuarinaceae	*Allocasuarina*	*huegeliana*		Rock Sheoak	
Casuarinaceae	*Allocasuarina*	*thyoides*		Horned Sheoak	
Crassulaceae	*Crassula*	*decumbens*		Rufous Stonecrop	
Cyperaceae	*Caustis*	*dioica*		Puzzle Grass	
Cyperaceae	*Cyperus*	*tenellus*		Tiny Flat Sedge	X
Cyperaceae	*Ficinia*	*nodosa*		Knotted Club Rush	
Cyperaceae	*Lepidobolus*	*chaetocephalus*			
Cyperaceae	*Lepidosperma*	*squamatum*			
Cyperaceae	*Mesomelaena*	*stygia*	var. stygia		
Cyperaceae	*Mesomelaena*	*tetragona*		Semaphore Sedge	
Cyperaceae	*Schoenus*	*subflavus*		Yellow Bog Rush	
Cyperaceae	*Chorizandra*	*enodis*		Black Bristle Brush	
Cyperaceae	*Schoenus*	*caespititius*			
Cyperaceae	*Schoenus*	*pleiostemoneus*			
Cyperaceae	*Cyathochaeta*	*equitans*		Tibetan Flags	
Dilleniaceae	*Hibbertia*	*gracilipes*		Australian Buttercup	
Dilleniaceae	*Hibbertia*	*racemosa*		Stalked Guinea Flower	
Dilleniaceae	*Hibbertia*	*ulicifolia*			
Droseraceae	*Drosera*	*drummondii*			
Droseraceae	*Drosera*	*leucoblasta*		Wheel Sundew	
Ericaceae	*Leucopogon*	sp. Coujinup (M.A. Burgman 1085)			
Ericaceae	*Lysinema*	*ciliatum*		Curry Flower	
Ericaceae	*Styphelia*	*breviflora*			
Ericaceae	*Styphelia*	Sp. South Coast (J. M. Powell 3374)			
Euphorbiaceae	*Stachystemon*	*polyandrus*			

Table 19 continued.

Family	Genus	Species	Subspecies	Vernacular	Invasive
Fabaceae	*Acacia*	*aemula*	subsp. *aemula*		
Fabaceae	*Acacia*	*cyclops*		Coastal Wattle	
Fabaceae	*Acacia*	*gonophylla*			
Fabaceae	*Acacia*	*myrtifolia*			
Fabaceae	*Acacia*	*saligna*		Orange Wattle	
Fabaceae	*Chorizema*	*aciculare*		Needle Leaf Chorizema	
Fabaceae	*Daviesia*	*apiculata*			
Fabaceae	*Gastrolobium*	*spinosum*		Prickly Poison	
Fabaceae	*Gompholobium*	*knightianum*			
Fabaceae	*Gompholobium*	*marginatum*			
Fabaceae	*Gompholobium*	*baxteri*			
Fabaceae	*Trifolium*	*campestre*		Hop Clover	X
Goodeniaceae	*Dampiera*	*lavandulacea*			
Goodeniaceae	*Dampiera*	*fasciculata*		Bundled-leaf Dampiera	
Goodeniaceae	*Goodenia*	*incana*		Hoary Goodenia	
Goodeniaceae	*Goodenia*	*micrantha*			
Goodeniaceae	*Goodenia*	*pterigosperma*			
Goodeniaceae	*Goodenia*	*scapigera*		White Goodenia	
Goodeniaceae	*Goodenia*	*trinervis*			
Haemodoraceae	*Haemodorum*	*discolor*		Bloodroot	
Haemodoraceae	*Conostylis*	*bealiana*		Angel Trumpets	
Haloragaceae	*Glischrocaryon*	*roei*			
Hemerocallidaceae	*Agrostocrinum*	*scabrum*	var. *scabrum*	Blue Grass Lilly	
Hemerocallidaceae	*Chamaescilla*	*corymbosa*		Blue Squill	
Hemerocallidaceae	*Dianella*	*brevicaulis*		Flax Lilly	
Hemerocallidaceae	*Tricoryne*	*elatior*		Yellow Autumn Lilly	
Iridaceae	*Patersonia*	*lanata*		Wooly Purple Flag	
Iridaceae	*Patersonia*	*occidentalis*		Purple Flag	
Iridaceae	*Romulea*	*rosea*		Guildford Grass	X
Juncaceae	*Juncus*	*bufonius*		Toad Rush	X
Juncaceae	*Juncus*	*acutus*	var. *acutus*	Spiny Rush	X
Juncaginaceae	*Triglochin*	*mucronata*			
Lauraceae	*Cassytha*	*flava*		Dodder Laurel	
Loganiaceae	*Orianthera*	*callosa*			
Loranthaceae	*Nuytsia*	*floribunda*		Mundjar, Christmas Tree	
Malvaceae	*Lasiopetalum*	sp. Mt Ragged (T.E.H. Aplin 4349)			
Myrtaceae	*Beaufortia*	*empetrifolia*		South Coast Beaufortia	
Myrtaceae	*Beaufortia*	*schaueri*		Pink Beaufortia	
Myrtaceae	*Calothamnus*	*gracilis*		One-sided Bottle Brush	
Myrtaceae	*Chamelaucium*	*ciliatum*			
Myrtaceae	*Conothamnus*	*aureus*			

Table 19 continued.

Family	Genus	Species	Subspecies	Vernacular	Invasive
Myrtaceae	*Darwinia*	*vestita*		Pom-pom Darwinia	
Myrtaceae	*Eucalyptus*	*pleurocarpa*		Tallerack, Silver Mallee	
Myrtaceae	*Eucalyptus*	*micranthera*		Alexander River Mallee	
Myrtaceae	*Leptospermum*	*laevigatum*		Victorian Tea Tree	X
Myrtaceae	*Leptospermum*	*oligandrum*			
Myrtaceae	*Leptospermum*	*spinescens*			
Myrtaceae	*Melaleuca*	*cuticularis*		Saltwater Paperbark	
Myrtaceae	*Melaleuca*	*pulchella*		Crab Claw Melaleuca	
Myrtaceae	*Melaleuca*	*scabra*		Rough Honey Myrtle	
Myrtaceae	*Melaleuca*	*tuberculata*	var *tuberculata*		
Myrtaceae	*Micromyrtus*	*elobata*	subsp. *elobata*		
Myrtaceae	*Phymatocarpus*	*maxwellii*			
Myrtaceae	*Oxymyrrhine*	*gracilis*			
Myrtaceae	*Baeckea*	*latens*			
Myrtaceae	*Taxandria*	*spathulata*			
Myrtaceae	*Micromyrtus*	*imbricata*			
Myrtaceae	*Verticordia*	*minutifolia*			
Orchidaceae	*Disa*	*bracteata*		South African Orchid	X
Orchidaceae	*Diuris*	*laxiflora*		Bee Orchid	
Orchidaceae	*Microtis*	*media*	subsp. *media*	Mignonette Orchid	
Orchidaceae	*Pyrorchis*	*nigricans*		Red Beaks	
Pinaceae	*Pinus*	*radiata*		Pine Tree	X
Pittosporaceae	*Billardiera*	*fusiformis*		Australian Bluebell	
Poaceae	*Austrostipa*	*elegantissima*			
Poaceae	*Avena*	*fatua*		Wild Oats	X
Poaceae	*Briza*	*maxima*		Blowfly Grass	X
Poaceae	*Briza*	*minor*		Shivery Grass	X
Poaceae	*Eragrostis*	*curvula*		African Lovegrass	X
Poaceae	*Lolium*	*perenne*		Annual Ryegrass	X
Poaceae	*Neurachne*	*alopecuroidea*		Foxtail Mulga grass	
Poaceae	*Austrostipa*	*semibarbata*			
Poaceae	*Vulpia*	*muralis*		Fox Grass	X
Poaceae	*Polypogon*	*monspeliensis*		Annual Beardgrass	X
Polygalaceae	*Comesperma*	*ciliatum*		Twining Lovers	
Primulaceae	*Lysimachia*	*arvensis*		Pimpernel	X
Proteaceae	*Adenanthos*	*cuneatus*		Jug Flower	
Proteaceae	*Banksia*	*blechnifolia*			
Proteaceae	*Banksia*	*obovata*		Wedge Leaved Banksia	

Table 19 continued.

Family	Genus	Species	Subspecies	Vernacular	Invasive
Proteaceae	*Banksia*	*obtusa*		Shining Honeypot	
Proteaceae	*Banksia*	*repens*		Creeping Banksia	
Proteaceae	*Grevillea*	*pauciflora*			
Proteaceae	*Hakea*	*adnata*			
Proteaceae	*Hakea*	*cinerea*		Ashy Hakea	
Proteaceae	*Hakea*	*corymbosa*		Cauliflower Hakea	
Proteaceae	*Hakea*	*trifurcata*		Two Leaf Hakea	
Proteaceae	*Isopogon*	*polycephalus*		Clustered Coneflower	
Proteaceae	*Lambertia*	*inermis*	var *drummondii*	Chiddick, Native Honeysuckle	
Proteaceae	*Lambertia*	*inermis*	var *inermis*		
Proteaceae	*Petrophile*	*fastigiata*			
Proteaceae	*Synaphea*	*oligantha*			
Proteaceae	*Synaphea*	*media*			
Proteaceae	*Synaphea*	*petiolaris*	subsp. *petiolaris*		
Restionaceae	*Desmocladus*	*flexuosus*			
Restionaceae	*Hypolaena*	*humilis*			
Restionaceae	*Lepidobolus*	*chaetocephalus*			
Restionaceae	*Desmocladus*	*quiricanus*			
Rhamnaceae	*Cryptandra*	*recurva*			
Rubiaceae	*Opercularia*	*vaginata*		Dogweed	
Rutaceae	*Cyanothamnus*	*ramosus*	subsp *anethifolius*		
Stylidiaceae	*Levenhookia*	*pusilla*		Midget Stylewort	
Stylidiaceae	*Levenhookia*	*stipitata*		Common Stylewort	
Stylidiaceae	*Stylidium*	*macranthum*		Crab Claws	
Stylidiaceae	*Stylidium*	*rupestre*		Rock Triggerplant	
Thymelaeaceae	*Pimelea*	*angustifolia*		Narrow Leaved Pimelea	

Relevé	R1	**Veg Code**	1: Pro SL	**Date Surveyed**	04/11/2021
Location	349.824KM. Located in the southern area of the survey area, south of Stafford Road crossing.				
GPS (Lat, Long)	121.7967791669, -33.5938418346				
Landform and Slope	Plain, Flat.				
Soils	Sand, Light Grey.				
Hydrology	Good Drainage.				
Vegetation description	Vegetation Description (NVIS, 2017): U ^*Lambertia inermis* var *inermis*, *Eucalyptus pleurocarpa*, *Nuytsia* floribunda\shrub, tree, mallee\5\r; M+ ^^*Isopogon polycephalus*, *Adenanthos cuneatus*, *Allocasuarina humilis*\shrub\c\3; G ^*Caustis dioica*, +/-*Desmocladus flexuosa*, *Trachymene pilosa*\sedge, herb\c\1. Vegetation Description (Muirs, 1977): *Nuytsia floribunda* Open Low Woodland B, over *Eucalyptus pleurocarpa* and *Eucalyptus micranthera* Very open Tree Mallee, over *Lambertia inermis* var *inermis* and *Acacia cyclops* Open Scrub, over *Adenanthos cuneatus*, *Allocasuarina humilis* and *Calothamnus gracilis* Heath A and B, over *Isopogon polycephalus* and *Taxandria spathulata* Dwarf Scrub C, over *Caustis dioica* Tall Sedge, over *Desmocladus flexuosus*, *Hypolaena humilis* and *Lepidobolus chaetocephalus* Low Sedge, over *Trachymene pilosa*, *Levenhookia pusilla* and *Microtis media* subsp *media* Very Open Herbs.				
Condition	Good.				
Comments					

Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m			
Trees 10-30m			
Trees <10m	**Pinus radiata*		V 2-10%
M1 >8			
M2 <8	*Eucalyptus pleurocarpa*		E <5%
Shrub >2m	*Lambertia inermis var inermis*	*Nuytsia floribunda, Acacia cyclops*	V 2-10%
Shrub 1-2m	*Allocasuarina humilis*	*Hakea trifurcata*	V 2-10%
Shrub 0.5-1m	*Isopogon polycephalus*	*Taxandria spathulata, Adenanthos cuneatus*	S 10-30%
Shrub <0.5m	*Hibbertia ulicifolia*		E <5%
Sedge	*Caustis dioica*	*Lepidobolus chaetocephalus, Desmocladus flexuosus*	M 30-70%
Herb	*Trachymene pilosa*	*Levenhookia pusilla, Microtis media* subsp *media, *Hypochaeris glabra, *Ursinia anthemoides*	V 2-10%
Grass	**Avena fatua*		E <5%

Relevé	R2	**Veg Code**	1: Pro SL	**Date Surveyed**	04/11/2021
Location	349.945KM. Located in the southern area of the survey area, south of Stafford Road railway crossing.				
GPS (Lat, Long)	121.79705, -33.5949131679				
Landform and Slope	Plain, Flat.				
Soils	Sand, Light Grey.				
Hydrology	Good Drainage.				
Vegetation description	Vegetation Description (NVIS, 2017): U ^*Lambertia inermis* var *inermis*, *Eucalyptus pleurocarpa*, *Nuytsia floribunda*\shrub, tree, mallee\5\r; M+ ^^*Isopogon polycephalus, Adenanthos cuneatus*, *Allocasuarina humilis*\shrub\c\3; G ^*Caustis dioica*, *+/-Desmocladus flexuosa*, *Trachymene pilosa*\sedge, herb\c\1. Vegetation Description (Muirs, 1977): Nuytsia floribunda Open Low Woodland B, over *Eucalyptus pleurocarpa* and *Eucalyptus micranthera* Very open Tree Mallee, over *Lambertia inermis* var *inermis* and *Acacia cyclops* Open Scrub, over *Adenanthos cuneatus*, *Allocasuarina humilis* and *Calothamnus gracilis* Heath A and B, over *Isopogon polycephalus* and *Taxandria spathulata* Dwarf Scrub C, over *Caustis dioica* Tall Sedge, over *Desmocladus flexuosus*, *Hypolaena humilis* and *Lepidobolus chaetocephalus* Low Sedge, over *Trachymene pilosa*, *Levenhookia pusilla* and *Microtis media* subsp *media* Very Open Herbs.				
Condition	Very Good.				
Comments					

Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m			
Trees 10-30m			
Trees <10m			
M1 >8m			
M2 <8m	*Eucalyptus micranthera*		E <5%
Shrub >2m	*Lambertia inermis* var *inermis*	*Nuytsia floribunda, Acacia cyclops*	V 2-10%
Shrub 1-2m	*Adenanthos cuneatus*	*Allocasuarina humilis, Calothamnus gracilis*	M 30-70%
Shrub 0.5-1m			
Shrub <0.5m			
Sedge	*Caustis dioica*	*Desmocladus flexuosus, Hypolaena humilis*	M 30-70%
Herb	*Levenhookia pusilla*	*Tricoryne elatior, Trachymene pilosa, Microtis media* subsp *media*	V 2-10%
Grass	*Neurachne alopecuroidea*	**Avena fatua, *Eragrostis curvula*	E <5%

Quadrat	Q1	**Veg Code**	1: Pro SL	**Date Surveyed**	05/11/2021
Location	349.191KM. Located ~220m north of Stafford Road railway crossing, on the eastern railway reserve.				
GPS (Lat, Long)	121.7948097429, -33.5883901007				
Landform and Slope	Flat Plain.				
Soils	Light Grey sands.				
Hydrology	Good drainage.				
Vegetation description	Vegetation Description (NVIS, 2017): U ^*Lambertia inermis* var *inermis*, *Eucalyptus pleurocarpa*, *Nuytsia floribunda*\shrub, tree, mallee\5\r; M+ ^^*Isopogon polycephalus, Adenanthos cuneatus*, *Allocasuarina humilis*\shrub\c\3; G ^*Caustis dioica*, *+/-Desmocladus flexuosa*, *Trachymene pilosa*\sedge, herb\c\1. Vegetation Description (Muirs, 1977): Nuytsia floribunda Open Low Woodland B, over *Eucalyptus pleurocarpa* and *Eucalyptus micranthera* Very open Tree Mallee, over *Lambertia inermis* var *inermis* and *Acacia cyclops* Open Scrub, over *Adenanthos cuneatus*, *Allocasuarina humilis* and *Calothamnus gracilis* Heath A and B, over *Isopogon polycephalus* and *Taxandria spathulata* Dwarf Scrub C, over *Caustis dioica* Tall Sedge, over *Desmocladus flexuosus*, *Hypolaena humilis* and *Lepidobolus chaetocephalus* Low Sedge, over *Trachymene pilosa*, *Levenhookia pusilla* and *Microtis media* subsp *media* Very Open Herbs.				
Condition	Very Good.				
Comments	10x10m size for middle and understorey. 20x20m size for overstorey.				

Species Name	**Form**	**Height (m)**	**Cover (%)**	**Flowering/Fruiting**
Isopogon polycephalus		S-shrub	i 10-30%	FL/FR
Dampiera lavandulacea		S-shrub	r <10%	
Hibbertia ulicifolia		S-shrub		Fruiting
Levenhookia pusilla		H-herb	r <10%	Flowering
Desmocladus flexuosus		V-sedge	i 10-30%	
Lepidosperma squamatum		V-sedge	i 10-30%	Flowering
Xanthosia huegelii		H-herb		Flowering
Caustis dioica		V-sedge	i 10-30%	Flowering
Calothamnus gracilis		S-shrub	r <10%	Fruiting
Chorizandra enodis		S-shrub	r <10%	
Cryptandra myriantha		S-shrub		Flowering
Grevillea pauciflora		S-shrub	r <10%	
Austrostipa elegantissima		G-grass	r <10%	Flowering
Lepidobolus chaetocephalus		V-sedge	r <10%	Flowering
**Hypochaeris radiata*		H-herb		
Chamaescilla corymbosa		H-herb		
Cassytha flava				FL/FR
**Briza maxima*		G-grass	r <10%	Fruiting
Daviesia apiculata		S-shrub		Fruiting
Neurachne alopecuroidea		G-grass	i 10-30%	Flowering
Allocasuarina huegeliana		S-shrub		Flowering
**Avena fatua*		G-grass		FL/FR
**Lolium perenne*		G-grass		Fruiting
Goodenia scapigera		S-shrub		Flowering
Lysinema ciliatum		S-shrub		Flowering
Micromyrtus elobata subsp *elobata*		S-shrub		Flowering
**Ursinia anthemoides*		H-herb	r <10%	Fruiting
Hibbertia gracilipes		S-shrub		
Stylidium macranthum		H-herb		Flowering
Acacia cyclops		S-shrub	r <10%	Fruiting
Jacksonia ramosa		S-shrub	r <10%	FL/FR
Goodenia incana		H-herb		
Microtis media subsp *media*		H-herb		Flowering
Gompholobium marginatum		S-shrub	i 10-30%	FL/FR
Banksia obtusa		S-shrub	r <10%	Flowering
Leptospermum oligandrum		S-shrub		Flowering

Quadrat One continued.

Species Name	Form	Height (m)	Cover (%)	Flowering/Fruiting
Beaufortia empetrifolia		S-shrub	r <10%	FL/FR
Melaleuca tuberculata var *tuberculata*		S-shrub		Fruiting
Chorizema aciculare		S-shrub		
Gastrolobium spinosum		S-shrub		FL/FR
Austrostipa semibarbata		G-grass	r <10%	Flowering
Conothamnus aureus		S-shrub		FL/FR
Allocasuarina thyoides		S-shrub	r <10%	Fruiting
Verticordia inclusa		S-shrub		Flowering
Taxandria spathulata		S-shrub		FL/FR

Quadrat	Q2	Veg Code	1: Pro SL	Date Surveyed	05/11/2021
Location	349KM. Located 430m north of Stafford Road railway crossing, on the eastern railway reserve.				
GPS (Lat, Long)	121.7941638154, -33.5865679030				
Landform and Slope	Flat Plain.				
Soils	Light Grey sands.				
Hydrology	Good drainage.				
Vegetation description	Vegetation Description (NVIS, 2017): U ^*Lambertia inermis* var *inermis*, *Eucalyptus pleurocarpa*, *Nuytsia floribunda*\shrub, tree, mallee\5\r; M+ ^^*Isopogon polycephalus, Adenanthos cuneatus*, *Allocasuarina humilis*\shrub\c\3; G ^*Caustis dioica*, *+/-Desmocladus flexuosa*, *Trachymene pilosa*\sedge, herb\c\1. Vegetation Description (Muirs, 1977): Nuytsia floribunda Open Low Woodland B, over *Eucalyptus pleurocarpa* and *Eucalyptus micranthera* Very open Tree Mallee, over *Lambertia inermis* var *inermis* and *Acacia cyclops* Open Scrub, over *Adenanthos cuneatus*, *Allocasuarina humilis* and *Calothamnus gracilis* Heath A and B, over *Isopogon polycephalus* and *Taxandria spathulata* Dwarf Scrub C, over *Caustis dioica* Tall Sedge, over *Desmocladus flexuosus*, *Hypolaena humilis* and *Lepidobolus chaetocephalus* Low Sedge, over *Trachymene pilosa*, *Levenhookia pusilla* and *Microtis media* subsp *media* Very Open Herbs.				
Condition	Very Good.				
Comments	10x10m size for middle and understorey. 20x20m size for overstorey.				

Species Name	Form	Height (m)	Cover (%)	Flowering/Fruiting
Caustis dioica	V-sedge	0.5	i 10-30%	Flowering
Patersonia lanata	V-sedge	0.1	r <10%	Fruiting
**Hypochaeris radiata*	H-herb			Flowering
Adenanthos cuneatus	S-shrub	0.5	r <10%	Flowering
Poaceae *sp*	G-grass	1	r <10%	Flowering
**Lysimachia arvensis*	H-herb			Flowering
**Lolium perenne*	G-grass			Fruiting
**Avena fatua*	G-grass	1		FL/FR
**Ursinia anthemoides*	H-herb			Fruiting
Cyanothamnus ramosus subsp *anethifolius*	S-shrub	0.1		
Conothamnus aureus	S-shrub	1	i 10-30%	
Lepidobolus chaetocephalus	V-sedge	0.1	r <10%	
Desmocladus flexuosus	V-sedge		i 10-30%	
Mesomelaena stygia subsp *stygia*	V-sedge	0.1		
Allocasuarina humilis	S-shrub	1.5	r <10%	Flowering
**Disa bracteata*	H-herb			Flowering
Microtis media subsp *media*	H-herb		r <10%	Flowering
Levenhookia pusilla	H-herb			Flowering
Cyathochaeta equitans	G-grass	1	r <10%	
Isopogon polycephalus	S-shrub	1	r <10%	FL/FR
Chamaescilla corymbosa	H-herb			Fruiting
Trachymene pilosa	H-herb			FL/FR
Cassytha flava				
Beaufortia empetrifolia	S-shrub	0.5	r <10%	Fruiting
Hibbertia gracilipes	S-shrub	0.2		Flowering
**Vulpia muralis*	G-grass	0.2		Flowering
Drosera drummondii	H-herb			
Gompholobium knightianum	S-shrub			
Stylidium rupestre	H-herb			Flowering
Orianthera callosa	S-shrub			Flowering
Melaleuca tuberculata var *tuberculata*	S-shrub	0.1		FL/FR
Diuris laxiflora	H-herb			Flowering
Hibbertia ulicifolia	S-shrub	0.1		
Lambertia inermis var *inermis*	S-shrub	2	r <10%	Flowering

Quadrat Two continued.

Species Name	Form	Height (m)	Cover (%)	Flowering/Fruiting
**Leptospermum laevigatum*	T-tree	2		Fruiting
Hypolaena humilis	V-sedge	0.5		Flowering
Taxandria spathulata	S-shrub	2	r <10%	FL/FR
Billardiera fusiformis			r <10%	Flowering

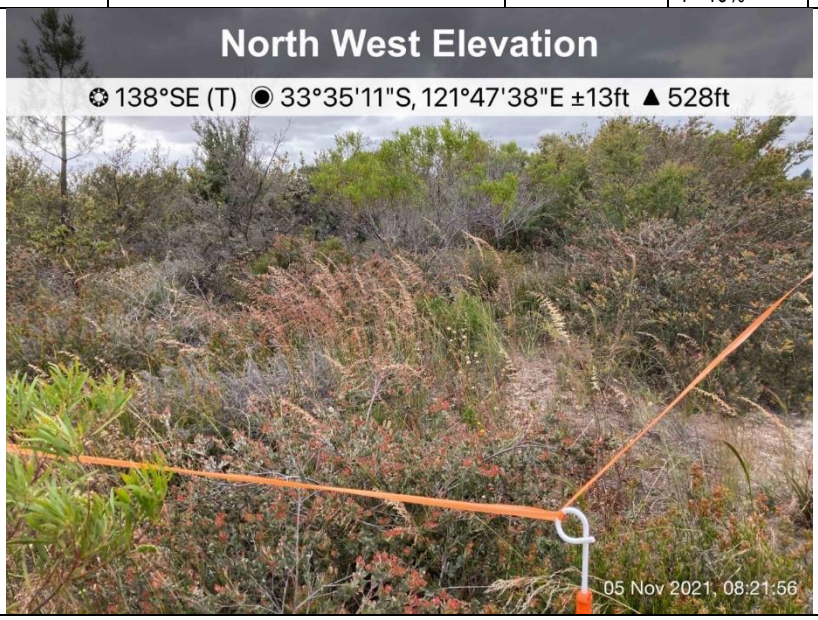


Table 21: Fauna species recorded within survey area.

Family	Species	Common Name	Conservation Code	Comments
Birds				
Anatidae	*Anas castanea*	Chestnut Teal		
Anatidae	*Anas superciliosa*	Pacific Black Duck		
Meliphagidae	*Anthochaera carunculata*	Red Wattlebird		
Meliphagidae	*Anthochaera lunulata*	Western Wattlebird		
Cacatuidae	*Calyptorhynchus latirostris*	Carnaby's Cockatoo	EN	Identified through the presence of chewed pine cones
Covidae	*Corvus coronoides*	Australian Raven		
Phasianidae	*Coturnix pectoralis*	Stubble Quail		
Artamidae	*Cracticus torquatus*	Grey Butcherbird		
Peramelidae	*Isoodon fusciventer*	Quenda	P4	Identified through suitably sized runnels and diggings
Meliphagidae	*Manorina flavigula*	Yellow-throated Miner		
Monarchidae	*Myiagra inquieta*	Restless Flycatcher		
Petroicidae	*Petroica boodang*	Scarlet Robin		
Columbidae	*Phaps chalcoptera*	Common Bronzewing		
Meliphagidae	*Phylidonyris novaehollandiae*	New Holland Honeyeater		
Acanthizidae	*Sericornis frontalis*	White-browed Scrubwren		
Invertebrate				
Apidae	*Apis mellifera*	European Honey Bee		
Araneidae	*Austracantha minax*	Christmas Spider		
Agriolimacidae	*Deroceras reticulatum*	Reticulated slug		
Formicidae	*Iridomyrmex purpureus*	Southern Meat Ant		
Blaberidae	*Panesthia australis*	Australian Bush Cockroach		
Pieridae	*Pieris rapae*	Cabbage White		
Mammals				
Macropodidae	*Macropus fuliginosus*	Western Grey Kangaroo		
Leporidae	*Oryctolagus cuniculus*	Rabbit		
Tachyglossidae	*Tachyglossus aculeatus*	Echidna		
Canidae	*Vulpes vulpes*	Fox		
Reptiles				
Elapidae	*Pseudonaja affinis affinis*	Dugite		
Scincidae	*Tiliqua rugosa*	Bobtail Skink		
Amphibian				
Myobatrachidae	*Crinia* sp.	Myobatrachidae		

Appendix E

NatureMap and EPBC Act PMST reports

Australian Government

Department of Agriculture, Water and the Environment

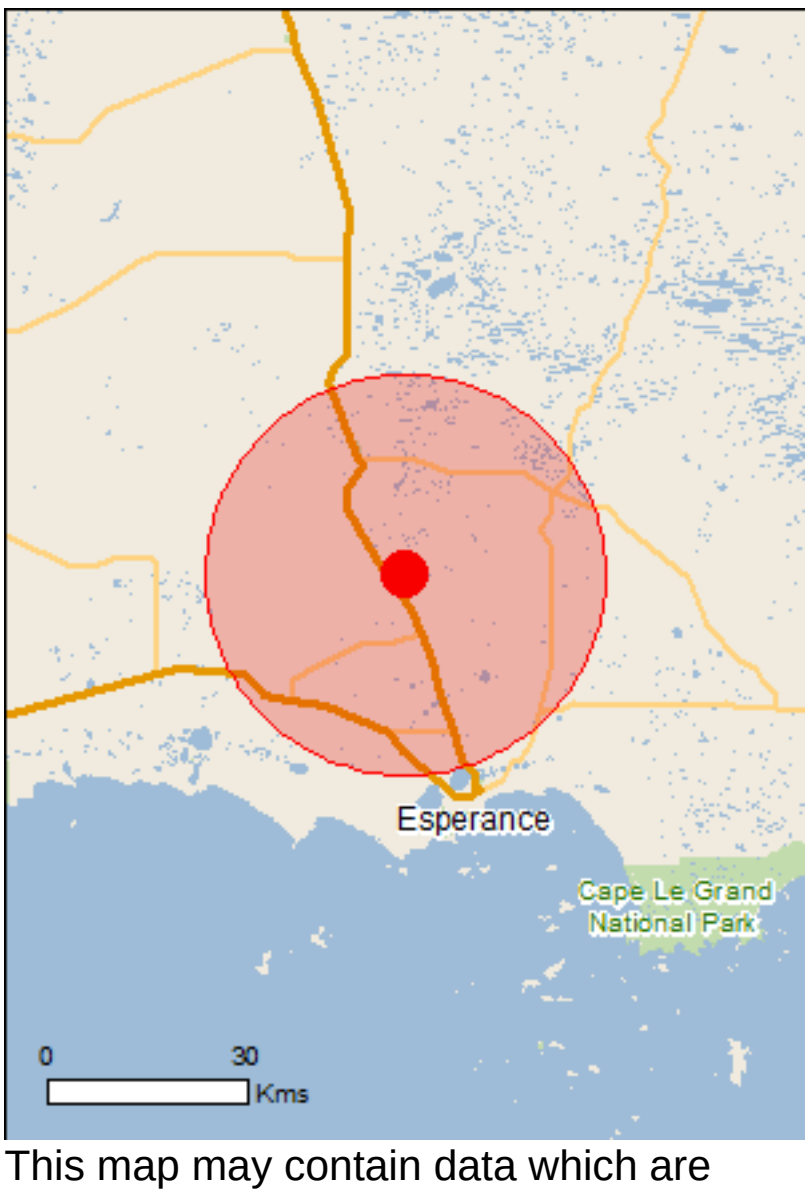
EPBC Act Protected Matters Report

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.

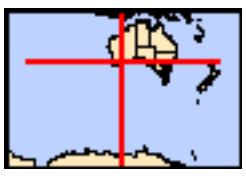
Report created: 02/11/21 15:45:47



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2015

Coordinates

Buffer: 30.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	2
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	20
Listed Migratory Species:	16

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:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	25
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	18
Regional Forest Agreements:	None
Invasive Species:	13
Nationally Important Wetlands:	3
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[Resource Information]
Name	Proximity
Lake gore	Within 10km of Ramsar
Lake warden system	Within Ramsar site

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
Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia	Endangered	Community likely to occur within area

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area
Cereopsis novaehollandiae grisea Cape Barren Goose (south-western), Recherche Cape Barren Goose [25978]	Vulnerable	Species or species habitat known to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Critically Endangered	Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species

Name	Status	Type of Presence
		habitat known to occur within area
Mammals		
Dasyurus geoffroii		
Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat may occur within area
Plants		
Anigozanthos bicolor subsp. minor		
Little Kangaroo Paw, Two-coloured Kangaroo Paw, Small Two-colour Kangaroo Paw [21241]	Endangered	Species or species habitat known to occur within area
Eremophila glabra subsp. Scaddan (C. Turley s.n. 10/11/2005)		
[89454]	Critically Endangered	Species or species habitat known to occur within area
Eucalyptus merrickiae		
Goblet Mallee [13119]	Vulnerable	Species or species habitat known to occur within area
Kennedia glabrata		
Northcliffe Kennedia [16452]	Vulnerable	Species or species habitat likely to occur within area
Lambertia echinata subsp. echinata		
Prickly Honeysuckle [56729]	Endangered	Species or species habitat may occur within area
Ricinocarpos trichophorus		
Barrens Wedding Bush [19931]	Endangered	Species or species habitat likely to occur within area
Reptiles		
Caretta caretta		
Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
Chelonia mydas		
Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area
Dermochelys coriacea		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area

Listed Migratory Species [Resource Information]

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

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Marine Species		
Caretta caretta		
Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
Chelonia mydas		
Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area
Dermochelys coriacea		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Migratory Terrestrial Species		
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat known to occur

Name	Threatened	Type of Presence
		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 likely to 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 known to occur within area
[Calidris ruficollis](#) Red-necked Stint [860]		Species or species habitat known to occur within area
[Charadrius bicinctus](#) Double-banded Plover [895]		Species or species habitat known to 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 likely to occur within area
[Pandion haliaetus](#) Osprey [952]		Species or species habitat likely to occur within area
[Tringa nebularia](#) Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land -

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
[Apus pacificus](#) Fork-tailed Swift [678]		Species or species habitat likely to occur within area
[Ardea ibis](#) Cattle Egret [59542]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
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 likely to 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 known to occur within area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area
Cereopsis novaehollandiae grisea Cape Barren Goose (south-western), Recherche Barren Goose [25978]	Vulnerable	Species or species habitat known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Species or species habitat known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat 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
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Species or species habitat known to occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
[Tringa nebularia](#)		
Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Reptiles		
[Caretta caretta](#)		
Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
[Chelonia mydas](#)		
Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area
[Dermochelys coriacea](#)		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Dalyup	WA
Esperance 827 and Part 373 & 826	WA
Helms Arboretum	WA
Kendall Road	WA
Lake Mortijinup	WA
Lake Warden	WA
Mount Ridley	WA
Mullet Lake	WA
Shark Lake	WA
Speddingup East	WA
Truslove North	WA
Truslove Townsite	WA
Unnamed WA04182	WA
Unnamed WA24511	WA
Unnamed WA24953	WA
Unnamed WA31313	WA
Unnamed WA32259	WA
Woody Lake	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
Birds		
Anas platyrhynchos		
Mallard [974]		Species or species habitat likely to occur within area
Columba livia		
Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Streptopelia senegalensis		
Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to 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
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Carrichtera annua Ward's Weed [9511]		Species or species habitat may occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area

Nationally Important Wetlands	[Resource Information]
Name	State
Lake Warden System	WA
Mortijinup Lake System	WA
Pink Lake	WA

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

-33.59027 121.79525

Acknowledgements

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

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

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

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

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NatureMap
Mapping Western Australia's biodiversity

NatureMap Species Report

Created By Guest user on 02/11/2021

Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 121° 47' 45" E,33° 35' 25" S
Buffer 30km
Group By Kingdom

Kingdom	Species	Records
Animalia	647	10052
Chromista	3	3
Fungi	38	68
Plantae	1175	4089
TOTAL	**1863**	**14212**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Animalia					
1.	24559	*Acanthagenys rufogularis (Spiny-cheeked Honeyeater)*			
2.	24260	*Acanthiza apicalis (Broad-tailed Thornbill, Inland Thornbill)*			
3.	24261	*Acanthiza chrysorrhoa (Yellow-rumped Thornbill)*			
4.	24265	*Acanthiza uropygialis (Chestnut-rumped Thornbill)*			
5.	24560	*Acanthorhynchus superciliosus (Western Spinebill)*			
6.	25535	*Accipiter cirrocephalus (Collared Sparrowhawk)*			
7.	25536	*Accipiter fasciatus (Brown Goshawk)*			
8.		*Acercella falcipes*			
9.	42368	*Acritoscincus trilineatus (Western Three-lined Skink)*			
10.	25755	*Acrocephalus australis (Australian Reed Warbler)*			
11.	41323	*Actitis hypoleucos (Common Sandpiper)*		IA	
12.		*Adversaeschna brevistyla*			
13.		*Aedes (Och.) sp. 1 (nr. nigrithorax) (SAP)*			
14.		*Aedes camptorhynchus*			
15.		*Aedes sp.*			
16.	25544	*Aegotheles cristatus (Australian Owlet-nightjar)*			
17.		*Agaue tenuipes*			
18.		*Agauopsis miliaris*			
19.		*Agraptocorixa eurynome*			
20.		*Agraptocorixa parvipunctata*			
21.		*Agraptocorixa sp.*			
22.		*Alboa worooa*			
23.		*Aldrichetta forsteri*			
24.		*Allodessus bistrigatus*			
25.	24860	*Amphibolurus norrisi (Mallee Tree Dragon)*			
26.	25647	*Amytornis striatus (Striated Grasswren)*			
27.		*Aname mainae*			
28.	24310	*Anas castanea (Chestnut Teal)*			
29.	24312	*Anas gracilis (Grey Teal)*			
30.	24313	*Anas platyrhynchos (Mallard)*			
31.	24315	*Anas rhynchotis (Australasian Shoveler)*			
32.	24316	*Anas superciliosa (Pacific Black Duck)*			
33.		*Anax papuensis*			
34.	47414	*Anhinga novaehollandiae (Australasian Darter)*			
35.		*Anisops baylii*			
36.		*Anisops gratus*			
37.		*Anisops hackeri*			
38.		*Anisops hyperion*			
39.		*Anisops sp.*			
40.		*Anisops thienemanni*			
41.		*Anostraca (unident.)*			
42.	24561	*Anthochaera carunculata (Red Wattlebird)*			
43.	24562	*Anthochaera lunulata (Western Little Wattlebird)*			

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44.	24599	*Anthus australis subsp. australis (Australian Pipit)*			
45.		*Antiporus gilberti*			
46.		*Antiporus occidentalis*			
47.		*Apocyclops dengizicus*			
48.	25554	*Apus pacificus (Fork-tailed Swift, Pacific Swift)*		IA	
49.	24285	*Aquila audax (Wedge-tailed Eagle)*			
50.		*Araneus necopinus*			
51.		*Araneus senicaudatus*			
52.		*Arcella discoides*			
53.		*Arcella hemisphaerica*			
54.		*Arcella sp. b (SAP)*			
55.	25558	*Ardea ibis (Cattle Egret)*			
56.	41324	*Ardea modesta (great egret, white egret)*			
57.	24340	*Ardea novaehollandiae (White-faced Heron)*			
58.	24341	*Ardea pacifica (White-necked Heron)*			
59.	24610	*Ardeotis australis (Australian Bustard)*			
60.	25736	*Arenaria interpres (Ruddy Turnstone)*		IA	
61.		*Argiope trifasciata*			
62.		*Arrenurus (Truncaturus) sp. (SAP)*			
63.		*Arripis truttaceus*			Y
64.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
65.	24353	*Artamus cyanopterus (Dusky Woodswallow)*			
66.		*Artoria cingulipes*			
67.		*Artoria flavimana*			
68.		*Artoria taeniifera*			
69.		*Artoriopsis eccentrica*			
70.		*Artoriopsis expolita*			
71.		*Artoriopsis joergi*			
72.		*Ascorhis occidua*			
73.		*Asplanchna brightwelli*			
74.		*Astigmata sp.*			Y
75.		*Atherinosoma wallacei*			
76.		*Austracantha minax*			
77.		*Australocyclops australis*			
78.		*Australocyclops similis*			
79.		*Australocypris insularis*			
80.		*Australocypris sp.*			
81.		*Australomedusa ?baylii (SAP)*			
82.		*Austroagrion cyane*			
83.		*Austrochiltonia sp.*			
84.		*Austrochiltonia subtenuis*			
85.		*Austrolestes analis*			
86.		*Austrolestes annulosus*			
87.		*Austrolestes aridus*			
88.		*Austrolestes io*			
89.		*Austrolestes sp.*			
90.	24318	*Aythya australis (Hardhead)*			
91.		*Barnardius zonarius*			
92.		*Bdelloidea med-large contracted of RJS (SAP)*			
93.		*Bdelloidea sp.*			
94.		*Bdelloidea sp. 2:2*			
95.		*Bennelongia barangaroo lineage*			
96.		*Bennelongia frumenta*			
97.		*Berosus discolor*			
98.		*Berosus munitipennis*			
99.		*Berosus nutans*			
100.		*Berosus sp.*			
101.		*Bezzia sp. (not 1 or 2)*			
102.		*Bezzia sp. 2 (SAP)*			
103.		*Bivalvia sp.*			
104.	24319	*Biziura lobata (Musk Duck)*			
105.		*Boeckella triarticulata*			
106.		*Boolathana mainae*			
107.		*Brachionus angularis*			
108.		*Brachionus cf. nilsoni (SAP)*			
109.		*Brachionus cf. plicatilis (SAP)*			
110.		*Brachionus leydigii*			
111.		*Brachionus plicatilis complex ("towerinninensis" form)*			Y
112.		*Brachionus plicatilis s.l.*			
113.		*Brachionus quadridentatus*			

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114.		*Brachionus quadridentatus cluniorbicularis*			
115.		*Brachionus rotundiformis*			
116.		*Brachionus sp.*			
117.		*Brachionus urceolaris s.l.*			
118.		*Branchipodidae sp.*			
119.		*Caboncypris kondininensis*			
120.	25598	*Cacomantis flabelliformis (Fan-tailed Cuckoo)*			
121.	24427	*Cacomantis flabelliformis subsp. flabelliformis (Fan-tailed Cuckoo)*			
122.	42307	*Cacomantis pallidus (Pallid Cuckoo)*			
123.	24269	*Calamanthus campestris (Rufous Fieldwren)*			
124.		*Calamoecia clitellata*			
125.		*Calamoecia sp. 342 (ampulla variant) (CB)*			
126.		*Calanoida sp.*			
127.	24779	*Calidris acuminata (Sharp-tailed Sandpiper)*		IA	
128.	24780	*Calidris alba (Sanderling)*		IA	
129.	25738	*Calidris canutus (Red Knot, knot)*		IA	
130.	24783	*Calidris canutus subsp. rogersi (Red Knot (north-eastern Siberia))*		T	
131.	24784	*Calidris ferruginea (Curlew Sandpiper)*		T	
132.	24786	*Calidris melanotos (Pectoral Sandpiper)*		IA	
133.	24788	*Calidris ruficollis (Red-necked Stint)*		IA	
134.	24790	*Calidris tenuirostris (Great Knot)*		T	
135.		*Callogobius mucosus*			
136.	24734	*Calyptorhynchus latirostris (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)*		T	
137.	48400	*Calyptorhynchus sp. (white-tailed black cockatoo)*		T	
138.		*Candonocypris novaezelandiae*			
139.		*Capitella sp.*			
140.		*Capitellidae sp.*			
141.		*Carabidae sp.*			
142.		*Ceinidae sp.*			
143.		*Centropyxis aculeata*			
144.		*Centropyxis cassis*			Y
145.		*Centropyxis sp. b (SAP)*			
146.		*Ceratopogonidae sp.*			
147.		*Ceratopogonidae sp. A (SAP)*			
148.	24086	*Cercartetus concinnus (Western Pygmy-possum, Mundarda)*			
149.		*Cercophonius granulosus*			
150.	25551	*Cereopsis novaehollandiae (Cape Barren Goose)*		T	
151.	24320	*Cereopsis novaehollandiae subsp. grisea (Recherche Cape Barren Goose, Cape Barren Goose)*		T	
152.		*Ceriodaphnia n. sp. c (Berner sp.#1) (SAP)*			
153.	25575	*Charadrius leschenaultii (Greater Sand Plover)*		T	
154.	24377	*Charadrius ruficapillus (Red-capped Plover)*			
155.	24321	*Chenonetta jubata (Australian Wood Duck, Wood Duck)*			
156.	47909	*Cheramoeca leucosterna (White-backed Swallow)*			
157.		*Chironomidae sp.*			
158.		*Chironominae sp.*			
159.		*Chironomus aff. alternans (V24) (CB)*			
160.		*Chironomus occidentalis*			
161.		*Chironomus tepperi*			
162.	24980	*Christinus marmoratus (Marbled Gecko)*			
163.		*Chroicocephalus novaehollandiae*			
164.	24288	*Circus approximans (Swamp Harrier)*			
165.	24289	*Circus assimilis (Spotted Harrier)*			
166.		*Cladopelma curtivalva*			
167.	24774	*Cladorhynchus leucocephalus (Banded Stilt)*			
168.		*Cladotanytarsus sp. A (SAP)*			
169.		*Cletocamptus aff deitersi*			
170.		*Clinohelea sp.*			
171.		*Clynotis albobarbatus*			
172.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
173.	24399	*Columba livia (Domestic Pigeon)*	Y		
174.		*Colurella colurus*			
175.		*Colurella uncinata*			
176.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
177.		*Cordylophora sp.*			Y
178.		*Corixidae sp.*			
179.		*Cormocephalus michaelseni*			
180.	25592	*Corvus coronoides (Australian Raven)*			
181.	24417	*Corvus coronoides subsp. perplexus (Australian Raven)*			

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182.		*Corynoneura sp. (V49) (SAP)*			
183.	24671	*Coturnix pectoralis (Stubble Quail)*			
184.	25701	*Coturnix ypsilophora (Brown Quail)*			
185.		*Coxiella glabra*			
186.		*Coxiella sp.*			
187.		*Coxiella sp. 3 (ABP)*			Y
188.		*Coxiella striatula*			
189.	24420	*Cracticus nigrogularis (Pied Butcherbird)*			
190.	25595	*Cracticus tibicen (Australian Magpie)*			
191.	25596	*Cracticus torquatus (Grey Butcherbird)*			
192.	25398	*Crinia georgiana (Quacking Frog)*			
193.	25399	*Crinia glauerti (Clicking Frog)*			
194.	25401	*Crinia pseudinsignifera (Bleating Froglet)*			
195.	30893	*Cryptoblepharus buchananii*			
196.	30888	*Cryptoblepharus pulcher subsp. clarus*			
197.		*Cryptochironomus griseidorsum*			
198.	25460	*Ctenophorus maculatus (Spotted Military Dragon)*			
199.	24879	*Ctenophorus maculatus subsp. griseus (Spotted Military Dragon)*			
200.	25040	*Ctenotus gemmula (Jewelled South-west Ctenotus (Swan Coastal Plain subpop P3), skink)*			
201.	25047	*Ctenotus impar*			
202.	25049	*Ctenotus labillardieri*			
203.	25074	*Ctenotus schomburgkii*			
204.		*Culicidae sp.*			
205.		*Culicoides sp.*			
206.		*Curculionidae sp.*			
207.		*Cyclosa trilobata*			
208.	24322	*Cygnus atratus (Black Swan)*			
209.		*Cyprideis australiensis*			
210.		*Cyprididae sp.*			
211.		*Cyprinotus cingalensis*			
212.		*Cyprinotus cingalensis (ex edwardi)*			
213.		*Cytherideidae sp.*			Y
214.		*Daphnia australis*			
215.		*Daphnia carinata*			
216.		*Daphnia queenslandensis*			
217.		*Daphnia sp.*			
218.		*Daphnia truncata*			
219.		*Daphnia wardi*			
220.	25673	*Daphoenositta chrysoptera (Varied Sittella)*			
221.		*Dasyhelea sp.*			
222.	24995	*Delma australis*			
223.	25766	*Delma fraseri (Fraser's Legless Lizard)*			
224.	25346	*Dermochelys coriacea (Leatherback Turtle)*		T	
225.		*Dero digitata*			
226.		*Diacypris 'gunyidi' (ms name) (SAP)*			
227.		*Diacypris compacta*			
228.		*Diacypris sp.*			
229.		*Diacypris sp. 581 (n. sp.) (SAP)*			Y
230.		*Diacypris spinosa*			
231.		*Diaprepocoris barycephala*			
232.		*Diaprepocoris sp.*			
233.		*Dicrotendipes conjunctus*			
234.		*Dicrotendipes pseudoconjunctus*			
235.		*Dicrotendipes sp.*			
236.		*Dicrotendipes sp. A (V47) (SAP)*			
237.		*Difflugia sp.*			
238.		*Difflugia sp. b (SAP)*			
239.	41403	*Diplodactylus calcicolus (South Coast Gecko)*			
240.		*Dolichopodidae sp.*			
241.		*Dolichopodidae sp. B (SAP)*			
242.	24470	*Dromaius novaehollandiae (Emu)*			
243.	24650	*Drymodes brunneopygia (Southern Scrub-robin)*			
244.		*Dytiscidae sp.*			
245.		*Ecnomus pansus/turgidus*			
246.		*Egretta garzetta*			
247.		*Egretta novaehollandiae*			
248.		*Elanus axillaris*			
249.	25250	*Elapognathus coronatus (Crowned Snake)*			
250.	47937	*Elseyornis melanops (Black-fronted Dotterel)*			

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251.		*Empididae sp.*			
252.		*Enchytraeidae sp.*			
253.		*Enochrus eyrensis*			
254.		*Enochrus sp.*			
255.		*Eolophus roseicapillus*			
256.		*Ephydridae sp.*			
257.		*Ephydridae sp. 3 (SAP)*			
258.		*Ephydridae sp. 6 (SAP)*			
259.		*Ephydridae sp. 7(SAP)*			
260.	24567	*Epthianura albifrons (White-fronted Chat)*			
261.	24379	*Erythrogonys cinctus (Red-kneed Dotterel)*			
262.	24043	*Eubalaena australis (Southern Right Whale)*		T	
263.		*Euchlanis dilatata*			
264.		*Eucyclops australiensis*			
265.	24816	*Eudyptes pachyrhynchus (Fiordland Penguin)*			
266.	24817	*Eudyptes sclateri (Erect-crested Penguin)*			Y
267.		*Euglypha sp.*			
268.		*Exosphaeroma sp.*			
269.		*Eylais sp.*			
270.	25621	*Falco berigora (Brown Falcon)*			
271.	25622	*Falco cenchroides (Australian Kestrel, Nankeen Kestrel)*			
272.	25623	*Falco longipennis (Australian Hobby)*			
273.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
274.		*Favonigobius lateralis*			
275.		*Ferrissia petterdi*			
276.		*Filinia longiseta*			
277.	25727	*Fulica atra (Eurasian Coot)*			
278.	24761	*Fulica atra subsp. australis (Eurasian Coot)*			
279.		*Galaxias maculatus*			
280.	39404	*Galaxias truttaceus (Trout Minnow)*			
281.	25730	*Gallirallus philippensis (Buff-banded Rail)*			
282.		*Gea theridioides*			
283.	25530	*Gerygone fusca (Western Gerygone)*			
284.		*Gianius sp. WA9 (SAP)*			Y
285.		*Gladioferens imparipes*			
286.	47962	*Glyciphila melanops (Tawny-crowned Honeyeater)*			
287.		*Glyptophysa cf. gibbosa (SAP)*			
288.	24443	*Grallina cyanoleuca (Magpie-lark)*			
289.		*Gymnocthebius sp. 1 (SAP)*			
290.		*Gymnometriocnemus sp. B (=V45=sp. A&2=ortho sp. O)*			
291.		*Gymnometriocnemus spp. (not V44 or V45)*			
292.		*Gyrinidae sp.*			
293.		*Habronestes grimwadei*			
294.	25627	*Haematopus fuliginosus (Sooty Oystercatcher)*			
295.	24485	*Haematopus fuliginosus subsp. fuliginosus (Sooty Oystercatcher)*			
296.	24487	*Haematopus longirostris (Pied Oystercatcher)*			
297.	24293	*Haliaeetus leucogaster (White-bellied Sea-Eagle)*			
298.	24295	*Haliastur sphenurus (Whistling Kite)*			
299.		*Halicyclops sp. 1 (nr ambiguus) (SAP)*			
300.		*Haliplus fuscatus*			
301.		*Haliplus sp.*			
302.		*Haloniscus searlei*			
303.		*Haloniscus sp.*			
304.		*Harpacticoida sp*			
305.	25410	*Heleioporus eyrei (Moaning Frog)*			
306.	25412	*Heleioporus psammophilus (Sand Frog)*			
307.		*Hellyethira litua*			
308.		*Helochares tenuistriatus*			
309.		*Hemicordulia tau*			
310.	25474	*Hemiergis initialis*			
311.	25115	*Hemiergis initialis subsp. initialis*			
312.	25475	*Hemiergis peronii*			
313.	25117	*Hemiergis peronii subsp. peronii*			
314.		*Heteroceridae sp.*			
315.		*Hexarthra fennica*			
316.		*Hexarthra mira*			
317.		*Hexarthra n. sp.a (cf. fennica with 7/7 unci teeth) (SAP)*			
318.	47965	*Hieraaetus morphnoides (Little Eagle)*			
319.	25734	*Himantopus himantopus (Black-winged Stilt)*			
320.		*Hirudinea sp.*			

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321.	24491	*Hirundo neoxena (Welcome Swallow)*			
322.		*Hoggicosa storri*			
323.		*Hogna crispipes*			
324.		*Hogna kuyani*			
325.		*Holasteron esperance*			Y
326.		*Hyderodes crassus*			
327.		*Hydra sp.*			
328.		*Hydrachna sp.*			
329.		*Hydrachnidae sp.*			
330.		*Hydrobiidae sp.*			
331.		*Hydrophilidae sp.*			
332.	48587	*Hydroprogne caspia (Caspian Tern)*		IA	
333.		*Hydryphantes meridianus*			
334.		*Hyphydrus elegans*			
335.		*Hyphydrus sp.*			
336.		*Idiommata blackwalli*			
337.		*Ilyocryptus cf. timmsi (SAP)*			Y
338.		*Ilyocypris australiensis*			
339.		*Ilyodromus sp.*			
340.		*Ischnura heterosticta heterosticta*			
341.	48588	*Isoodon fusciventer (Quenda, southwestern brown bandicoot)*		P4	
342.		*Isopeda leishmanni*			
343.		*Kennethia cristata*			
344.		*Keratella australis*			
345.		*Keratella cf. quadrata (SAP)*			
346.		*Keratella procurva*			
347.		*Keratella quadrata*			
348.		*Kiefferulus intertinctus*			
349.		*Kiefferulus martini*			
350.		*Koenikea nr australica (=verrucosa)*			
351.		*Laccobius clarus*			
352.		*Lampona cylindrata*			
353.		*Lancetes lanceolatus*			
354.		*Lancetes sp.*			
355.	24511	*Larus novaehollandiae subsp. novaehollandiae (Silver Gull)*			
356.	25638	*Larus pacificus (Pacific Gull)*			
357.		*Lecane (M) sp. A (ESP023)*			Y
358.		*Lecane [M] sp.*			
359.		*Lecane bulla*			
360.		*Lecane luna*			
361.		*Lecane sp. s.str.*			
362.	24557	*Leipoa ocellata (Malleefowl)*		T	
363.		*Lepadella discoidea*			
364.		*Lepadella patella*			
365.		*Lepidoptera (non-pyralid)*			
366.		*Lepidoptera (non-pyralid) sp. 3 (SAP)*			
367.		*Lepidoptera (non-pyralid) sp. 9 (SAP) (nr Pilbara sp. 3)*			
368.		*Leptatherina presbyteroides*			
369.		*Leptoceridae sp.*			
370.		*Leptocythere lacustris*			
371.	25131	*Lerista distinguenda*			
372.	25483	*Lerista microtis*			
373.	25153	*Lerista microtis subsp. intermedia*			
374.		*Lesquereusia sp.*			
375.		*Leydigia cf. leydigii (SAP)*			
376.	24573	*Lichenostomus cratitius (Purple-gaped Honeyeater)*			
377.	25659	*Lichenostomus leucotis (White-eared Honeyeater)*			
378.	25661	*Lichmera indistincta (Brown Honeyeater)*			
379.	25739	*Limicola falcinellus (Broad-billed Sandpiper)*		IA	
380.		*Limnesia dentifera*			
381.		*Limnichidae sp.*			
382.		*Limnochares australica*			
383.	25415	*Limnodynastes dorsalis (Western Banjo Frog)*			
384.		*Limnophyes vestitus (V41)*			
385.	30932	*Limosa lapponica (Bar-tailed Godwit)*		IA	
386.	25383	*Litoria cyclorhyncha (Spotted-thighed Frog)*			
387.		*Lophoictinia isura*			
388.		*Lycosa godeffroyi*			
389.		*Macrothrix breviseta*			
390.		*Macrothrix cf. breviseta (SAP)*			

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391.		*Macrothrix sp.*			
392.		*Macrotrachela sp. a (SAP)*			Y
393.	24326	*Malacorhynchus membranaceus (Pink-eared Duck)*			
394.	24551	*Malurus pulcherrimus (Blue-breasted Fairy-wren)*			
395.		*Manayunkia n. sp.*			
396.	24583	*Manorina flavigula (Yellow-throated Miner)*			
397.		*Maratus chrysomelas*			
398.	25758	*Megalurus gramineus (Little Grassbird)*			
399.		*Megaporus howittii*			
400.		*Megaporus solidus*			
401.		*Megaporus sp.*			
402.		*Melita kauerti*			
403.	25663	*Melithreptus brevirostris (Brown-headed Honeyeater)*			
404.	25184	*Menetia greyii*			
405.		*Meridiecyclops baylyi*			
406.	24598	*Merops ornatus (Rainbow Bee-eater)*			
407.		*Mesochra baylyi*			
408.		*Mesochra nr flava*			
409.		*Mesocyclops brooksi*			
410.		*Mesostigmata sp.*			
411.		*Microcarbo melanoleucos*			
412.		*Micronecta gracilis*			
413.		*Micronecta robusta*			
414.		*Micronecta sp.*			
415.		*Missulena granulosa*			
416.		*Missulena hoggi*			
417.		*Molycria quadricauda*			
418.		*Monohelea sp. 3 (SAP)*			
419.	25188	*Morethia adelaidensis*			
420.	25192	*Morethia obscura*			
421.	48008	*Morus serrator (Australasian Gannet)*			
422.	24223	*Mus musculus (House Mouse)*	Y		
423.		*Muscidae sp.*			
424.		*Muscidae sp. A (SAP)*			
425.		*Muscidae sp. D (SAP)*			
426.		*Myandra bicincta*			
427.	25610	*Myiagra inquieta (Restless Flycatcher)*			
428.	25420	*Myobatrachus gouldii (Turtle Frog)*			
429.		*Mytilocypris ambiguosa*			
430.		*Mytilocypris mytiloides*			
431.		*Mytilocypris sp.*			
432.		*Naididae (ex Tubificidae)*			
433.		*Necterosoma penicillatus*			
434.		*Necterosoma sp.*			
435.		*Necterosoma wollastoni*			
436.		*Nematoda sp.*			
437.	25421	*Neobatrachus albipes (White-footed Trilling Frog)*			
438.	25425	*Neobatrachus kunapalari (Kunapalari Frog)*			
439.	25426	*Neobatrachus pelobatoides (Humming Frog)*			
440.	24738	*Neophema elegans (Elegant Parrot)*			
441.	24739	*Neophema petrophila (Rock Parrot)*			
442.	24210	*Neophoca cinerea (Australian Sea-lion)*		T	
443.		*Nephila edulis*			
444.		*Nerthra sp.*			
445.		*Newnhamia fenestrata*			
446.		*Nicodamus mainae*			
447.		*Nilobezzia sp.*			
448.		*Nitocra near sp. 4 (SAP)*			
449.		*Nitocra reducta*			
450.		*Nitocra sp. 4 (SAP)*			
451.		*Nitocra sp. 5 (nr reducta) (SAP)*			
452.		*No invertebrates*			
453.		*Nomindra flavipes*			
454.		*Notalina spira*			
455.	25252	*Notechis scutatus (Tiger Snake)*			
456.		*Notholca salina*			
457.	24229	*Notomys mitchellii (Mitchell's Hopping-mouse)*			
458.		*Notonectidae sp.*			
459.		*Novakiella trituberculosa*			
460.	25564	*Nycticorax caledonicus (Rufous Night Heron)*			

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461.	24194	*Nyctophilus geoffroyi (Lesser Long-eared Bat)*			
462.		*Ochthebius sp.*			
463.		*Ochthebius sp. 4*			Y
464.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
465.		*Oecetis sp.*			
466.		*Oligochaeta sp.*			
467.		*Oniscidae sp.*			
468.		*Onychocamptus bengalensis*			
469.		*Opisthopora sp.*			
470.	24618	*Oreoica gutturalis (Crested Bellbird)*			
471.		*Oribatida sp.*			
472.		*Oribatida sp. 1 (PLP)*			Y
473.		*Oribatida sp. 2(PLP)*			Y
474.		*Orthetrum caledonicum*			
475.		*Orthocladiinae sp.*			
476.		*Orthocladiinae sp. G (SAP)*			
477.		*Orthocladiinae sp. I (SAP)*			
478.		*Orthocladiinae sp. J (SAP)*			
479.		*Orthocladiinae sp. P (SAP)*			
480.	24328	*Oxyura australis (Blue-billed Duck)*		P4	
481.		*Ozestheria packardi*			
482.	24619	*Pachycephala inornata (Gilbert's Whistler)*			
483.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
484.		*Palaemonetes australis*			
485.		*Paracyclops ?chiltoni (SAP)*			
486.		*Paralimnophyes pullulus (V42)*			
487.		*Paramerina levidensis*			
488.		*Paranais litoralis*			
489.		*Parartemia longicaudata*			
490.		*Parartemia sp.*			
491.	25253	*Parasuta gouldii*			
492.	25255	*Parasuta nigriceps*			
493.	25256	*Parasuta spectabilis subsp. bushi (spectacled hooded snake (Esperance), Mallee Black-headed Snake (Esperance area))*		P1	Y
494.	25681	*Pardalotus punctatus (Spotted Pardalote)*			
495.	24626	*Pardalotus punctatus subsp. xanthopyge (Yellow-rumped Pardalote)*			
496.	25682	*Pardalotus striatus (Striated Pardalote)*			
497.		*Paroster niger*			
498.	24648	*Pelecanus conspicillatus (Australian Pelican)*			
499.		*Pescecyclops sp. 434 (Stuart's original arnaudi sensu Sars)*			
500.		*Pescecyclops sp. 442=462=465=CB2 (salinarum in Morton)*			
501.	48060	*Petrochelidon ariel (Fairy Martin)*			
502.	48061	*Petrochelidon nigricans (Tree Martin)*			
503.	48066	*Petroica boodang (Scarlet Robin)*			
504.		*Pezidae sp.*			
505.	41348	*Pezoporus flaviventris (Western Ground Parrot)*		T	
506.	25697	*Phalacrocorax carbo (Great Cormorant)*			
507.	24665	*Phalacrocorax fuscescens (Black-faced Cormorant)*			
508.	25698	*Phalacrocorax melanoleucos (Little Pied Cormorant)*			
509.	24667	*Phalacrocorax sulcirostris (Little Black Cormorant)*			
510.	25699	*Phalacrocorax varius (Pied Cormorant)*			
511.	24409	*Phaps chalcoptera (Common Bronzewing)*			
512.	25587	*Phaps elegans (Brush Bronzewing)*			
513.		*Philodinidae sp.*			
514.	48071	*Phylidonyris niger (White-cheeked Honeyeater)*			
515.	24596	*Phylidonyris novaehollandiae (New Holland Honeyeater)*			
516.		*Physa acuta*			
517.		*Placobdelloides sp.*			
518.	24841	*Platalea flavipes (Yellow-billed Spoonbill)*			
519.	24842	*Platalea regia (Royal Spoonbill)*			
520.	25720	*Platycercus icterotis (Western Rosella)*			
521.		*Platycypris baueri*			
522.	24843	*Plegadis falcinellus (Glossy Ibis)*		IA	
523.		*Pleuroxus inermis*			
524.		*Pleuroxus jugosus*			
525.		*Pleuroxus sp.*			
526.		*Plumatella sp.*			
527.		*Plurispina cf. multituberculata (SPS)*			Y
528.		*Plurispina chauliodis*			
529.	24381	*Pluvialis dominica (American Golden Plover)*			

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530.	24382	*Pluvialis fulva (Pacific Golden Plover)*		IA	
531.	24383	*Pluvialis squatarola (Grey Plover)*		IA	
532.	25703	*Podargus strigoides (Tawny Frogmouth)*			
533.	25704	*Podiceps cristatus (Great Crested Grebe)*			
534.	25510	*Pogona minor (Dwarf Bearded Dragon)*			
535.	24681	*Poliocephalus poliocephalus (Hoary-headed Grebe)*			
536.		*Polypedilum nr vespertinus (M2) (SAP)*			
537.		*Polypedilum nr. convexum (SAP)*			
538.		*Polypedilum nubifer*			
539.		*Pomatiopsidae sp.*			
540.	24683	*Pomatostomus superciliosus (White-browed Babbler)*			
541.	25731	*Porphyrio porphyrio (Purple Swamphen)*			
542.	24767	*Porphyrio porphyrio subsp. bellus (Purple Swamphen)*			
543.	24769	*Porzana fluminea (Australian Spotted Crake)*			
544.	24771	*Porzana tabuensis (Spotless Crake)*			
545.		*Pristina jenkinae*			
546.		*Pristina longiseta*			
547.		*Procladius paludicola*			
548.		*Procladius villosimanus*			
549.		*Protozoan sp*			
550.		*Pseudogobius olorum*			
551.	44625	*Pseudohydryphantes doegi (Doeg's Watermite)*		P2	
552.	25259	*Pseudonaja affinis subsp. affinis (Dugite)*			
553.	25433	*Pseudophryne guentheri (Crawling Toadlet)*			
554.		*Pseudorhombus jenynsii*			
555.		*Psychodidae sp.*			
556.	42344	*Purnella albifrons (White-fronted Honeyeater)*			
557.		*Purpureicephalus spurius*			
558.	25008	*Pygopus lepidopodus (Common Scaly Foot)*			
559.		*Pyralidae sp.*			
560.	24243	*Rattus fuscipes (Western Bush Rat)*			
561.		*Raveniella cirrata*			
562.	24776	*Recurvirostra novaehollandiae (Red-necked Avocet)*			
563.		*Reticypris ?pinguis (SAP)*			
564.		*Reticypris clava*			
565.		*Reticypris sp. 557 (n. sp.) (SAP)*			
566.		*Reticypris walbu*			
567.		*Rhantus suturalis*			
568.	48096	*Rhipidura albiscapa (Grey Fantail)*			
569.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
570.		*Saldula brevicornis*			
571.		*Sarscypridopsis aculeata*			
572.		*Scatopsidae sp.*			
573.		*Schizopera clandestina*			
574.		*Sciomyzidae sp.*			
575.		*Scirtidae sp.*			
576.	25534	*Sericornis frontalis (White-browed Scrubwren)*			
577.	24279	*Sericornis frontalis subsp. maculatus (White-browed Scrubwren)*			
578.		*Sigara sp.*			
579.		*Sillago bassensis*			
580.		*Simocephalus elizabethae*			
581.	30948	*Smicrornis brevirostris (Weebill)*			
582.	24108	*Sminthopsis crassicaudata (Fat-tailed Dunnart)*			
583.	24112	*Sminthopsis granulipes (White-tailed Dunnart)*			
584.		*Sphaeriidae sp.*			
585.		*Sphaeromatidae sp.*			
586.	24645	*Stagonopleura oculata (Red-eared Firetail)*			
587.		*Staphylinidae sp.*			
588.		*Steatoda grossa*			
589.	25643	*Sterna hybrida (Whiskered Tern)*			
590.		*Sternopriscus multimaculatus*			
591.		*Sternopriscus sp.*			
592.	48594	*Sternula nereis (Fairy Tern)*			
593.	24329	*Stictonetta naevosa (Freckled Duck)*			
594.	25655	*Stipiturus malachurus (Southern Emu-wren)*			
595.	24554	*Stipiturus malachurus subsp. westernensis (Southern Emu-wren)*			
596.		*Storena fungina*			
597.		*Stratiomyidae sp.*			
598.	25597	*Strepera versicolor (Grey Currawong)*			
599.	25590	*Streptopelia senegalensis (Laughing Turtle-Dove)*	Y		

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600.	25518	*Strophurus spinigerus*			
601.	24943	*Strophurus spinigerus subsp. inornatus*			
602.		*Symphitoneuria wheeleri*			
603.		*Synsphyronus callus*			
604.		*Tabanidae sp.*			
605.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
606.	24331	*Tadorna tadornoides (Australian Shelduck, Mountain Duck)*			
607.		*Talitridae sp.*			
608.		*Tanypodinae sp.*			
609.		*Tanytarsus barbitarsis*			
610.		*Tanytarsus fuscithorax/semibarbitarsus*			
611.		*Tanytarsus nr bispinosus (SAP)*			
612.		*Tardigrada sp.*			
613.	24167	*Tarsipes rostratus (Honey Possum, Noolbenger)*			
614.		*Tasmanicosa leuckartii*			
615.		*Tasmanocoenis tillyardi*			
616.		*Testudinella patina*			
617.		*Tetragnatha nitens*			
618.		*Tetragnatha valida*			
619.	34007	*Thalassarche chlororhynchos (Atlantic Yellow-nosed Albatross)*		T	
620.	48597	*Thalasseus bergii (Crested Tern)*		IA	
621.	48135	*Thinornis rubricollis (Hooded Plover, Hooded Dotterel)*		P4	
622.	24845	*Threskiornis spinicollis (Straw-necked Ibis)*			
623.	25207	*Tiliqua rugosa subsp. rugosa*			
624.		*Tipulidae sp.*			
625.		*Tipulidae type F (SAP)*			
626.		*Tipulidae type J (SAP)*			Y
627.	25549	*Todiramphus sanctus (Sacred Kingfisher)*			
628.	24309	*Todiramphus sanctus subsp. sanctus (Sacred Kingfisher)*			
629.	48141	*Tribonyx ventralis (Black-tailed Native-hen)*			
630.		*Trichocerca sp.*			
631.	24803	*Tringa brevipes (Grey-tailed Tattler)*		P4	
632.	24806	*Tringa glareola (Wood Sandpiper)*		IA	
633.	24808	*Tringa nebularia (Common Greenshank, greenshank)*		IA	
634.	24809	*Tringa stagnatilis (Marsh Sandpiper, little greenshank)*		IA	
635.		*Triplectides australis*			
636.		*Turbellaria sp.*			
637.	48147	*Turnix varius (Painted Button-quail)*			
638.		*Urodacus novaehollandiae*			
639.	25577	*Vanellus miles (Masked Lapwing)*			
640.	24385	*Vanellus miles subsp. novaehollandiae (Masked Lapwing)*			
641.	24386	*Vanellus tricolor (Banded Lapwing)*			
642.	25225	*Varanus rosenbergi (Heath Monitor)*			
643.		*Venatrix pullastra*			
644.	34113	*Westralunio carteri (Carter's Freshwater Mussel)*		T	
645.		*Xanthagrion erythroneurum*			
646.		*Zonocypris sp BOS082*			Y
647.	25765	*Zosterops lateralis (Grey-breasted White-eye, Silvereye)*			

Chromista

648.	26778	*Dictyota furcellata*			
649.	35223	*Dictyota polyclada*			
650.	26949	*Hydroclathrus clathratus*			

Fungi

651.		*Agaricus sp.*			
652.	38762	*Auriscalpium barbatum*			
653.	48559	*Auritella arenicolens*			
654.	42106	*Austroparmelina conlabrosa*			
655.		*Boletus sp.*			
656.	27597	*Buellia disciformis*			
657.		*Caloplaca sp.*			
658.	27663	*Cladia aggregata*			
659.	48177	*Cladia muelleri*			
660.	28208	*Cladonia cervicornis subsp. verticillata*			
661.		*Claviceps purpurea*			
662.		*Coltricia cinnamomea*			
663.	27726	*Diplotomma alboatrum*			
664.	27748	*Flavoparmelia rutidota*			
665.	27750	*Flavoparmelia secalonica*			
666.	44983	*Fulgensia cranfieldii*			

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667.	27777	*Heterodermia obscurata*			
668.		*Hexagonia vesparia*			
669.	45301	*Jackelixia ligulata*			
670.		*Lecidea sp.*			
671.	38808	*Limacella pitereka*			
672.		*Peziza sp.*			
673.		*Physcia sp.*			
674.		*Phytophthora cinnamomi*			
675.	48835	*Pycnoporus coccineus*			
676.	28224	*Ramalina inflata subsp. australis*			
677.	28034	*Ramboldia crassithallina*			
678.		*Rhizopogon luteolus*			
679.	28065	*Teloschistes chrysophthalmus*			
680.	28066	*Teloschistes sieberianus*			
681.	28069	*Thelotrema lepadinum*			
682.	45838	*Tilletia ehrhartae*			
683.	28086	*Usnea dasaea*			
684.	28087	*Usnea inermis*			
685.	45909	*Ustilago tritici*			
686.		*Verrucaria sp.*			
687.	28172	*Xanthoparmelia reptans*			
688.	28327	*Xanthoparmelia semiviridis*			
Plantae					
689.	14608	*Acacia aemula subsp. aemula*			
690.	16108	*Acacia aemula subsp. muricata*			
691.	3226	*Acacia assimilis*			
692.	15468	*Acacia assimilis subsp. atroviridis*			
693.	41461	*Acacia bartlei*		P3	
694.	3238	*Acacia bidentata*			
695.	3239	*Acacia biflora*			
696.	3240	*Acacia binata*			
697.	3244	*Acacia brachyclada*			
698.	16114	*Acacia bracteolata*			
699.	3256	*Acacia chrysella*			
700.	3262	*Acacia cochlearis (Rigid Wattle)*			
701.	3276	*Acacia crassuloides*			
702.	3277	*Acacia crispula*			
703.	12672	*Acacia cupularis*			
704.	3278	*Acacia curvata*			
705.	3282	*Acacia cyclops (Coastal Wattle)*			
706.	3289	*Acacia delphina*			
707.	3296	*Acacia dermatophylla*			
708.	14071	*Acacia diminuta*		P1	
709.	14075	*Acacia euthyphylla*		P3	
710.	16123	*Acacia evenulosa*			
711.	3342	*Acacia fragilis*			
712.	14621	*Acacia glaucissima*		P3	
713.	3349	*Acacia glaucoptera (Flat Wattle)*			
714.	3353	*Acacia gonophylla*			
715.	16128	*Acacia hadrophylla*			
716.	3408	*Acacia lasiocalyx (Silver Wattle, Wilyurwur)*			
717.	11519	*Acacia lasiocarpa var. bracteolata*			
718.	15476	*Acacia latipes subsp. latipes*			
719.	3436	*Acacia maxwellii*			
720.	14465	*Acacia mimica var. angusta*			
721.	16134	*Acacia mutabilis subsp. mutabilis*			
722.	3453	*Acacia myrtifolia*			
723.	3457	*Acacia nigricans*			
724.	16138	*Acacia pachyphylla*			
725.	12265	*Acacia patagiata*			
726.	16139	*Acacia pinguiculosa subsp. teretifolia*			
727.	16141	*Acacia pravifolia*			
728.	3496	*Acacia preissiana*			
729.	3498	*Acacia pritzeliana*			
730.	14137	*Acacia profusa*			
731.	15482	*Acacia pulchella var. goadbyi*			
732.	3504	*Acacia pycnantha (Golden Wattle)*	Y		
733.	16147	*Acacia rostellata*			
734.	3525	*Acacia rostellifera (Summer-scented Wattle)*			
735.	3527	*Acacia saligna (Orange Wattle, Kudjong)*			

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736.	30034	*Acacia saligna subsp. pruinescens*			
737.	30032	*Acacia saligna subsp. saligna*			
738.	3548	*Acacia sorophylla*			
739.	18669	*Acacia sp. Ravensthorpe (R.S. Cowan & B.R. Maslin RSC A-760)*			
740.	15485	*Acacia sphacelata subsp. recurva*			
741.	3564	*Acacia subcaerulea*			
742.	13505	*Acacia sulcata var. planoconvexa*			
743.	3582	*Acacia triptycha*			
744.	15715	*Acacia varia var. parviflora*			
745.	6295	*Acrotriche cordata (Coast Ground Berry)*			
746.	20328	*Acrotriche sp. Israelite Bay (M. Hislop & F. Hort MH 2630)*			
747.	43201	*Adelphacme minima*		P3	
748.	1773	*Adenanthos cuneatus (Coastal Jugflower)*			
749.	4582	*Adriana quadripartita (Bitter Bush)*			
750.	20331	*Aeonium arboreum*	Y		
751.	1505	*Agave americana (Century Plant)*	Y		
752.	23501	*Agrostocrinum scabrum subsp. scabrum*			
753.	185	*Aira cupaniana (Silvery Hairgrass)*	Y		
754.	1719	*Allocasuarina acuaria*			
755.	1721	*Allocasuarina campestris*			
756.	1730	*Allocasuarina helmsii*			
757.	1732	*Allocasuarina humilis (Dwarf Sheoak)*			
758.	13907	*Allocasuarina lehmanniana subsp. ecarinata*			
759.	1739	*Allocasuarina thuyoides (Horned Sheoak)*			
760.	48620	*Althenia preissii*			
761.	4905	*Alyogyne hakeifolia*			
762.	43023	*Alyogyne sp. Hutt River (B.J. Lepschi & T.R. Lally 2310)*			
763.	35909	*Amansia pinnatifida*			
764.	2655	*Amaranthus albus (Tumbleweed)*	Y		
765.	37280	*Amaranthus muricatus*	Y		Y
766.	2669	*Amaranthus retroflexus (Redroot Amaranth)*	Y		
767.	126	*Amphibolis antarctica (Sea Nymph)*			
768.	195	*Amphipogon avenaceus*			
769.	200	*Amphipogon turbinatus*			
770.	1058	*Anarthria gracilis*			
771.	1059	*Anarthria humilis*			
772.	1060	*Anarthria laevis*			
773.	1061	*Anarthria polyphylla*			
774.	1062	*Anarthria prolifera*			
775.	1063	*Anarthria scabra*			
776.	6316	*Andersonia macranthera*			
777.	6318	*Andersonia parvifolia*			
778.	29108	*Andersonia sp. Kulin (J.M. Powell 2588)*			
779.	40903	*Androcalva aphrix*			
780.	7833	*Angianthus preissianus*			
781.	12102	*Anigozanthos bicolor subsp. minor*		T	
782.	1415	*Anigozanthos rufus (Red Kangaroo Paw)*			
783.	6949	*Anthocercis littorea (Yellow Tailflower)*			
784.	7411	*Anthotium humile (Dwarf Anthotium)*			
785.	19627	*Aotus sp. Esperance (P.G. Wilson 7904)*			
786.	43548	*Aphelia sp. Albany (B.G. Briggs 596)*			
787.	6210	*Apium annuum*			
788.	6211	*Apium prostratum (Sea Celery)*			
789.	12040	*Apium prostratum subsp. prostratum var. prostratum (Sea Celery)*			
790.	7838	*Arctotheca calendula (Cape Weed, African Marigold)*	Y		
791.	13327	*Argentipallium niveum*			
792.	13329	*Argentipallium tephrodes*			
793.	8779	*Asparagus asparagoides (Bridal Creeper)*	Y		
794.	1364	*Asphodelus fistulosus (Onion Weed)*	Y		
795.	20347	*Astartea astarteoides*			
796.	42787	*Astartea reticulata*		P3	
797.	7845	*Asteridea asteroides*			
798.	6335	*Astroloma prostratum (Cranberry Heath)*			
799.	14503	*Astroloma sp. Grass Patch (A.J.G. Wilson 110)*		P2	
800.	6338	*Astroloma tectum*			
801.	2457	*Atriplex exilifolia*			
802.	2471	*Atriplex prostrata (Hastate Orache)*	Y		
803.	2475	*Atriplex semibaccata (Berry Saltbush)*			
804.	2481	*Atriplex vesicaria (Bladder Saltbush)*			
805.	17237	*Austrostipa elegantissima*			

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806.	17240	*Austrostipa flavescens*			
807.	17241	*Austrostipa hemipogon*			
808.	17242	*Austrostipa juncifolia*			
809.	17244	*Austrostipa macalpinei*			
810.	17250	*Austrostipa pycnostachya*			
811.	17255	*Austrostipa trichophylla*			
812.	17257	*Austrostipa variabilis*			
813.	231	*Avellinia michelii*	Y		
814.	233	*Avena barbata (Bearded Oat)*	Y		
815.	5352	*Baeckea latens*			
816.	20674	*Baeckea sp. Esperance (A.G. Gunness AG 2435)*			
817.	20620	*Baeckea sp. Gibson (K.R. Newbey 11084)*		P1	
818.	5373	*Baeckea uncinella*			
819.	32681	*Banksia armata (Prickly Dryandra)*			
820.	32682	*Banksia armata var. armata*			
821.	32683	*Banksia armata var. ignicida*			
822.	1805	*Banksia blechnifolia*			
823.	1832	*Banksia media (Southern Plains Banksia)*			
824.	32203	*Banksia nivea subsp. nivea*			
825.	1836	*Banksia nutans (Nodding Banksia)*			
826.	11360	*Banksia nutans var. nutans (Nodding Banksia)*			
827.	32198	*Banksia obovata (Wedge-leaved Dryandra)*			
828.	32197	*Banksia obtusa (Shining Honeypot)*			
829.	1837	*Banksia occidentalis (Red Swamp Banksia)*			
830.	1839	*Banksia petiolaris*			
831.	1840	*Banksia pilostylis*			
832.	1843	*Banksia pulchella (Teasel Banksia)*			
833.	1845	*Banksia repens (Creeping Banksia)*			
834.	1850	*Banksia speciosa (Showy Banksia)*			
835.	32035	*Banksia tenuis*			
836.	32036	*Banksia tenuis var. tenuis*			
837.	1856	*Banksia violacea (Violet Banksia)*			
838.	32315	*Barbula calycina*			
839.	741	*Baumea articulata (Jointed Rush)*			
840.	743	*Baumea juncea (Bare Twigrush)*			
841.	5383	*Beaufortia empetrifolia (South Coast Beaufortia)*			
842.	5388	*Beaufortia micrantha (Little Bottlebrush, Small-leaved Beaufortia)*			
843.	5391	*Beaufortia schaueri (Pink Beaufortia, Pink Bottlebrush)*			
844.	34262	*Beyeria physaphylla*		P1	Y
845.	34297	*Beyeria sulcata var. gracilis*			
846.	3154	*Billardiera coriacea*			
847.	25798	*Billardiera fusiformis (Australian Bluebell)*			
848.	3160	*Billardiera lehmanniana (Kurup)*			
849.	7856	*Blennospora drummondii*			
850.	749	*Bolboschoenus caldwellii (Marsh Club-rush)*			
851.	16627	*Boronia baeckeacea subsp. baeckeacea*			
852.	4411	*Boronia crassifolia*			
853.	16629	*Boronia fabianoides subsp. fabianoides*			
854.	4425	*Boronia inornata (Desert Boronia)*			
855.	15965	*Boronia inornata subsp. inornata*			
856.	15966	*Boronia inornata subsp. leptophylla*			
857.	11381	*Boronia ramosa subsp. anethifolia*			
858.	4441	*Boronia spathulata (Boronia)*			
859.	1267	*Borya constricta*			
860.	30234	*Bossiaea barbarae*			
861.	30254	*Bossiaea flexuosa*		P3	
862.	3712	*Bossiaea leptacantha*			
863.	3716	*Bossiaea preissii*			
864.	3718	*Bossiaea rufa*			
865.	17922	*Brachyloma mogin*		P3	
866.	7871	*Brachyscome ciliaris*			
867.	7874	*Brachyscome eyrensis*			
868.	7880	*Brachyscome lineariloba*			
869.	244	*Briza maxima (Blowfly Grass)*	Y		
870.	245	*Briza minor (Shivery Grass)*	Y		
871.	248	*Bromus catharticus (Prairie Grass)*	Y		
872.	249	*Bromus diandrus (Great Brome)*	Y		
873.	250	*Bromus hordeaceus (Soft Brome)*	Y		
874.	1366	*Bulbine semibarbata (Leek Lily)*			
875.	1277	*Caesia occidentalis*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
876.	13853	*Caladenia arrecta*			
877.	15333	*Caladenia attingens subsp. gracillima*			
878.	15334	*Caladenia brevisura*			
879.	1580	*Caladenia cairnsiana (Zebra Orchid)*			
880.	15342	*Caladenia cruscula*			
881.	15343	*Caladenia decora*			
882.	1586	*Caladenia discoidea (Dancing Orchid)*			
883.	1587	*Caladenia doutchiae*			
884.	15348	*Caladenia flava subsp. flava*			
885.	1594	*Caladenia graminifolia*			
886.	15353	*Caladenia heberleana*			
887.	18023	*Caladenia horistes*			
888.	1599	*Caladenia latifolia (Pink Fairy Orchid)*			
889.	15362	*Caladenia longicauda subsp. crassa*			
890.	13860	*Caladenia longicauda subsp. rigidula*			
891.	1603	*Caladenia longiclavata (Clubbed Spider Orchid)*			
892.	1605	*Caladenia marginata (White Fairy Orchid)*			
893.	15374	*Caladenia pachychila*			
894.	1617	*Caladenia sigmoidea*			
895.		*Caladenia sp.*			
896.	2846	*Calandrinia calyptrata (Pink Purslane)*			
897.	2848	*Calandrinia corrigioloides (Strap Purslane)*			
898.	2853	*Calandrinia eremaea (Twining Purslane)*			
899.	48569	*Calandrinia sp. Gypsum (F. Obbens & L. Hancock FO 10/14)*			
900.	40827	*Calandrinia tholiformis*			
901.	19084	*Calectasia gracilis*			
902.	5395	*Callistemon phoeniceus (Lesser Bottlebrush, Dubarda)*			
903.	93	*Callitris drummondii (Drummond's Cypress Pine)*			
904.	96	*Callitris preissii (Rottnest Island Pine, Maro)*			
905.	97	*Callitris roei (Roe's Cypress Pine)*			
906.	5408	*Calothamnus gilesii*			
907.	5409	*Calothamnus gracilis*			
908.	35816	*Calothamnus quadrifidus subsp. quadrifidus*			
909.	5449	*Calytrix decandra (Pink Starflower)*			
910.	5450	*Calytrix depressa*			
911.	5454	*Calytrix duplistipulata*			
912.	48451	*Calytrix hirta*			
913.	5465	*Calytrix leschenaultii*			
914.	5483	*Calytrix tetragona (Common Fringe-myrtle)*			
915.	3003	*Camelina sativa (False Flax)*	Y		
916.	32338	*Campylopus introflexus*	Y		
917.	2796	*Carpobrotus modestus (Inland Pigface)*			
918.	2952	*Cassytha glabella (Tangled Dodder Laurel)*			
919.	11211	*Cassytha glabella forma dispar*			
920.	2953	*Cassytha melantha (Large Dodder-laurel)*			
921.	2957	*Cassytha racemosa (Dodder Laurel)*			
922.	26570	*Caulerpa obscura*			
923.	760	*Caustis dioica*			
924.	7915	*Centaurea calcitrapa (Star Thistle)*	Y		
925.	7916	*Centaurea melitensis (Maltese Cockspur, Malta Thistle)*	Y		
926.	6539	*Centaurium erythraea (Common Centaury)*	Y		
927.	6214	*Centella asiatica*			
928.	19761	*Centipeda crateriformis subsp. compacta*			
929.	1121	*Centrolepis aristata (Pointed Centrolepis)*			
930.	1124	*Centrolepis cephaloformis*			
931.	13122	*Centrolepis cephaloformis subsp. cephaloformis*			
932.	1130	*Centrolepis humillima (Dwarf Centrolepis)*			
933.	1134	*Centrolepis polygyna (Wiry Centrolepis)*			
934.	13125	*Centrolepis strigosa subsp. strigosa*			
935.	26599	*Ceramium puberulum*			
936.	2889	*Cerastium glomeratum (Mouse Ear Chickweed)*	Y		
937.	1280	*Chamaescilla corymbosa (Blue Squill)*			
938.	1281	*Chamaescilla spiralis*			
939.	5489	*Chamelaucium axillare (Esperance Waxflower)*			
940.	5491	*Chamelaucium ciliatum*			
941.	5495	*Chamelaucium megalopetalum (Large Waxflower)*			
942.	3168	*Cheiranthera filifolia*			
943.	2490	*Chenopodium glaucum (Glaucous Goosefoot)*	Y		
944.	272	*Chloris virgata (Feathertop Rhodes Grass)*	Y		
945.	17689	*Chordifex laxus*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
946.	17834	*Chordifex sphacelatus*			
947.	13112	*Chorizema aciculare subsp. aciculare*			
948.	3759	*Chorizema nervosum*			
949.	13108	*Chorizema obtusifolium*			
950.	6543	*Cicendia filiformis (Slender Cicendia)*	Y		
951.	7937	*Cirsium vulgare (Spear Thistle, Scotch Thistle)*	Y		
952.	10804	*Clematis linearifolia*			
953.	6342	*Coleanthera coelophylla*		P1	
954.	14664	*Comesperma calcicola*		P3	
955.	4550	*Comesperma calymega (Blue-spike Milkwort)*			
956.	4552	*Comesperma confertum*			
957.	4553	*Comesperma drummondii (Drummond's Milkwort)*			
958.	4554	*Comesperma flavum*			
959.	14663	*Comesperma griffinii*		P2	
960.	4555	*Comesperma integerrimum*			
961.	4563	*Comesperma spinosum (Spiny Milkwort)*			
962.	4564	*Comesperma virgatum (Milkwort)*			
963.	4566	*Comesperma volubile (Love Creeper)*			
964.	40924	*Commersonia rotundifolia (Round-leaved Rulingia)*		P3	
965.	1868	*Conospermum distichum*			
966.	15518	*Conospermum filifolium subsp. filifolium*			
967.	16349	*Conospermum leianthum subsp. leianthum*			
968.	14003	*Conospermum quadripetalum*		P2	
969.	1883	*Conospermum teretifolium (Spider Smokebush)*			
970.	6346	*Conostephium marchantiorum*		P3	
971.	43107	*Conostephium papillosum*			
972.	11120	*Conostephium uncinatum*		P2	
973.	1424	*Conostylis bealiana*			
974.	1426	*Conostylis breviscapa*			
975.	1439	*Conostylis lepidospermoides (Sedge Conostylis)*		T	
976.	1445	*Conostylis phathyrantha*			
977.	11923	*Conostylis seorsiflora subsp. seorsiflora*			
978.	5500	*Conothamnus aureus*			
979.		*Conyza sp.*			
980.	20074	*Conyza sumatrensis*	Y		
981.	7418	*Coopernookia polygalacea*			
982.	7419	*Coopernookia strophiolata*			
983.	2891	*Corrigiola litoralis (Strapwort)*	Y		
984.	48700	*Corunastylis fuscoviridis*			
985.	12012	*Corynotheca micrantha var. panda*			
986.	7943	*Cotula australis (Common Cotula)*			
987.	7944	*Cotula bipinnata (Ferny Cotula)*	Y		
988.	7945	*Cotula coronopifolia (Waterbuttons)*	Y		
989.	7946	*Cotula cotuloides (Smooth Cotula)*			
990.	3136	*Crassula alata*	Y		
991.	3137	*Crassula colorata (Dense Stonecrop)*			
992.	3139	*Crassula exserta*			
993.	3142	*Crassula natans*	Y		
994.	15706	*Crassula natans var. minus*	Y		
995.	9076	*Cryptandra myriantha*			
996.	4809	*Cryptandra pungens*			
997.	16194	*Cryptandra recurva*			
998.	48865	*Cucumis myriocarpus subsp. myriocarpus*	Y		
999.	20717	*Cyanicula aperta*			
1000.	15114	*Cyanicula gemmata*			
1001.	769	*Cyathochaeta clandestina*			
1002.	17618	*Cyathochaeta equitans*			
1003.	42220	*Cyathostemon ambiguus*			
1004.	42080	*Cyathostemon blackettii*			
1005.	20422	*Cyathostemon tenuifolius*			
1006.	40661	*Cycnogeton lineare*			
1007.	6680	*Cynoglossum australe (Australian Hound's-tongue)*			
1008.	783	*Cyperus congestus (Dense Flat-sedge)*	Y		
1009.	815	*Cyperus tenellus (Tiny Flatsedge)*	Y		
1010.	2779	*Cypselocarpus haloragoides*			
1011.	10964	*Cyrtostylis robusta*			
1012.	7422	*Dampiera angulata*			
1013.	18632	*Dampiera angulata subsp. angulata*			
1014.	7439	*Dampiera fasciculata (Bundled-leaf Dampiera)*			
1015.	7451	*Dampiera lavandulacea*			

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1016.	7461	*Dampiera parvifolia (Many-bracted Dampiera)*			
1017.	7471	*Dampiera sacculata (Pouched Dampiera)*			
1018.	7474	*Dampiera sericantha*		P3	
1019.	7485	*Dampiera triloba*		P3	
1020.	5510	*Darwinia diosmoides*			
1021.	5525	*Darwinia polycephala*		P4	
1022.	20451	*Darwinia sp. Gibson (R.D. Royce 3569)*		P1	
1023.	35618	*Darwinia sp. Karonie (K. Newbey 8503)*			
1024.	35638	*Darwinia sp. Lake Cobham (K. Newbey 3262)*			
1025.	18574	*Darwinia sp. Ravensthorpe (G.J. Keighery 8030)*			
1026.	5533	*Darwinia vestita (Pom-pom Darwinia)*			
1027.	6218	*Daucus glochidiatus (Australian Carrot)*			
1028.	8977	*Daviesia aphylla*			
1029.	16736	*Daviesia apiculata*			
1030.	16577	*Daviesia articulata*			
1031.	3796	*Daviesia benthamii*			
1032.	15507	*Daviesia incrassata subsp. reversifolia*			
1033.	3818	*Daviesia lancifolia*			
1034.	14892	*Daviesia major*			
1035.	3823	*Daviesia nematophylla*			
1036.	12817	*Daviesia pauciflora*		P3	
1037.	16591	*Daviesia scoparia*			
1038.	3844	*Daviesia teretifolia*			
1039.	16593	*Desmocladus biformis*		P3	
1040.	16595	*Desmocladus flexuosus*			
1041.	46362	*Desmocladus lateriflorus*			
1042.	16471	*Desmocladus myriocladus*			
1043.	17846	*Desmocladus parthenicus*			
1044.	299	*Deyeuxia quadriseta (Reed Bentgrass)*			
1045.	16326	*Dianella brevicaulis*			
1046.	1259	*Dianella revoluta (Blueberry Lily)*			
1047.	32346	*Didymodon torquatus*			
1048.	38260	*Dielsiodoxa oligarrhenoides*			
1049.	3862	*Dillwynia acerosa*			
1050.	3864	*Dillwynia divaricata*			
1051.	3866	*Dillwynia uncinata (Silky Parrot Pea)*			
1052.	19649	*Disa bracteata*	Y		
1053.	7054	*Dischisma arenarium*	Y		
1054.	2799	*Disphyma crassifolium (Round-leaved Pigface)*			
1055.	11681	*Disphyma crassifolium subsp. clavellatum*			
1056.	327	*Distichlis distichophylla*			
1057.	7961	*Dittrichia graveolens (Stinkwort)*	Y		
1058.	12942	*Diuris concinna*			
1059.	12941	*Diuris conspicillata*			
1060.	42231	*Diuris decrementa*			
1061.	1634	*Diuris laxiflora (Bee Orchid)*			
1062.	46873	*Diuris littoralis*			
1063.	12937	*Diuris pulchella*			
1064.	4753	*Dodonaea amblyophylla*			
1065.	4756	*Dodonaea caespitosa*			
1066.	4758	*Dodonaea concinna*			
1067.	1640	*Drakaea glyptodon (King-in-his-carriage)*			
1068.	48726	*Drosera australis*			
1069.	48751	*Drosera drummondii*			
1070.	3098	*Drosera glanduligera (Pimpernel Sundew)*			
1071.	3102	*Drosera huegelii (Bold Sundew)*			
1072.	3105	*Drosera leucoblasta (Wheel Sundew)*			
1073.	3109	*Drosera menziesii (Pink Rainbow)*			
1074.	3113	*Drosera neesii (Jewel Rainbow)*			
1075.	3114	*Drosera nitidula (Shining Sundew)*			
1076.	3128	*Drosera ramellosa (Branched Sundew)*			
1077.	13227	*Drosera sargentii*			
1078.	3130	*Drosera scorpioides (Shaggy Sundew)*			
1079.	49090	*Drosera sp. Branched styles (S.C. Coffey 193)*			
1080.	48708	*Drosera trichocaulis*			
1081.	3135	*Drosera zonaria (Painted Sundew)*			
1082.	33480	*Dysphania pumilio (Clammy Goosefoot)*			
1083.	347	*Ehrharta calycina (Perennial Veldt Grass)*	Y		
1084.	349	*Ehrharta longiflora (Annual Veldt Grass)*	Y		
1085.		*Ehrharta sp.*			

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1086.	831	*Eleocharis sphacelata (Tall Spikerush, Djabren)*			
1087.	1643	*Elythranthera brunonis (Purple Enamel Orchid)*			
1088.	1644	*Elythranthera emarginata (Pink Enamel Orchid)*			
1089.	374	*Eragrostis cilianensis (Stinkgrass)*	Y		
1090.	376	*Eragrostis curvula (African Lovegrass)*	Y		
1091.	7180	*Eremophila alternifolia (Poverty Bush)*			
1092.	7187	*Eremophila calorhabdos (Red Rod)*			
1093.	7188	*Eremophila chamaephila*		P3	
1094.	7191	*Eremophila compressa*		P3	
1095.	16807	*Eremophila densifolia subsp. pubiflora*			
1096.	7198	*Eremophila deserti*			
1097.	7199	*Eremophila dichroantha (Bale-hook Eremophila)*			
1098.	7215	*Eremophila glabra (Tar Bush)*			
1099.	28351	*Eremophila glabra subsp. Scaddan (C. Turley s.n. 10/11/2005)*		T	
1100.	7226	*Eremophila ionantha (Violet-flowered Eremophila)*			
1101.	10780	*Eremophila psilocalyx*			
1102.	14633	*Eremophila subfloccosa subsp. glandulosa*			
1103.	20718	*Ericksonella saccharata*			
1104.	1646	*Eriochilus dilatatus (White Bunny Orchid)*			
1105.	4336	*Erodium moschatum (Musky Crowfoot)*	Y		
1106.	12740	*Erymophyllum tenellum*			
1107.	5550	*Eucalyptus angulosa (Ridge-fruited Mallee, Kwararl)*			
1108.	5551	*Eucalyptus angustissima (Narrow-leaved Mallee)*			
1109.	19508	*Eucalyptus calycogona subsp. calycogona*			
1110.	13518	*Eucalyptus captiosa*			
1111.	5600	*Eucalyptus conglobata (Port Lincoln Mallee)*			
1112.	20292	*Eucalyptus conglobata subsp. conglobata*			
1113.	20293	*Eucalyptus conglobata subsp. perata*			
1114.	5611	*Eucalyptus cylindriflora (White Mallee)*			
1115.	12869	*Eucalyptus densa subsp. densa*			
1116.	5622	*Eucalyptus dielsii (Cap-fruited Mallee)*			
1117.	5624	*Eucalyptus discreta*			
1118.	13517	*Eucalyptus dolichorhyncha*		P4	
1119.	5637	*Eucalyptus eremophila (Tall Sand Mallee)*			
1120.	12377	*Eucalyptus extensa*			
1121.	16043	*Eucalyptus famelica*		P3	
1122.	5648	*Eucalyptus flocktoniae (Merrit, Merid)*			
1123.	13022	*Eucalyptus foliosa*		P3	
1124.	5652	*Eucalyptus forrestiana (Fuchsia Gum)*			
1125.	14277	*Eucalyptus fraseri subsp. fraseri*			
1126.	18216	*Eucalyptus globulus*	Y		
1127.	5659	*Eucalyptus gomphocephala (Tuart, Duart)*			
1128.	5669	*Eucalyptus halophila*			
1129.	5675	*Eucalyptus incrassata (Lerp Mallee)*			
1130.	13535	*Eucalyptus indurata (Ironbark)*			
1131.	14299	*Eucalyptus kessellii*			
1132.	13065	*Eucalyptus kessellii subsp. eugnosta*			
1133.	13066	*Eucalyptus kessellii subsp. kessellii*			
1134.	5695	*Eucalyptus leptocalyx (Hopetoun Mallee)*			
1135.	19811	*Eucalyptus leptocalyx subsp. leptocalyx*			
1136.	12696	*Eucalyptus litorea*		P2	
1137.	13037	*Eucalyptus loxophleba subsp. lissophloia*			
1138.	5704	*Eucalyptus macrandra (Long-flowered Marlock, Dwed)*			
1139.	5712	*Eucalyptus merrickiae (Goblet Mallee)*		T	
1140.	5713	*Eucalyptus micranthera (Alexander River Mallee)*			
1141.	13023	*Eucalyptus misella*		P1	
1142.	5723	*Eucalyptus occidentalis (Flat-topped Yate, Moidj)*			
1143.	12695	*Eucalyptus perangusta*			
1144.	5745	*Eucalyptus pileata (Capped Mallee)*			
1145.	15742	*Eucalyptus platypus subsp. congregata*			
1146.	16180	*Eucalyptus pleurocarpa*			
1147.	15068	*Eucalyptus preissiana subsp. lobata*		P4	
1148.	13525	*Eucalyptus quadrans*			
1149.	12694	*Eucalyptus rigens (Saltlake Mallee)*			
1150.	13014	*Eucalyptus semiglobosa*		P3	
1151.	5772	*Eucalyptus sheathiana (Ribbon-barked Gum)*			
1152.	29700	*Eucalyptus sp. Truslove (M.I.H. Brooker 7499)*			
1153.	5775	*Eucalyptus spathulata (Swamp Mallet)*			
1154.	14189	*Eucalyptus sporadica*			
1155.	14206	*Eucalyptus spreta*			

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1156.	13030	*Eucalyptus suggrandis subsp. suggrandis*			
1157.	34778	*Eucalyptus sweedmaniana*		P2	
1158.	13027	*Eucalyptus tenera*			
1159.	5788	*Eucalyptus tetraptera (Four-winged Mallee)*			
1160.	12889	*Eucalyptus tumida*			
1161.	5796	*Eucalyptus uncinata (Hook-leaved Mallee)*			
1162.	15808	*Eucalyptus valens*			
1163.	12864	*Eucalyptus varia*			
1164.	12862	*Eucalyptus varia subsp. salsuginosa*			
1165.	12863	*Eucalyptus varia subsp. varia*			
1166.	8587	*Eucalyptus x erythrandra*			
1167.	5802	*Eucalyptus yilgarnensis (Yorrell)*			
1168.	19088	*Euchiton collinus*			
1169.	4648	*Euphorbia terracina (Geraldton Carnation Weed)*	Y		
1170.	37740	*Eutaxia inuncta*			
1171.	19614	*Eutaxia lutea*			
1172.	3879	*Eutaxia parvifolia*			
1173.	10977	*Exocarpos aphyllus (Leafless Ballart)*			
1174.	10765	*Exocarpos sparteus (Broom Ballart, Djuk)*			
1175.	20162	*Fabronia hampeana*		P2	
1176.	20216	*Ficinia nodosa (Knotted Club Rush)*			
1177.	5189	*Frankenia brachyphylla (Short Leaved Frankenia)*		P2	
1178.	5191	*Frankenia cinerea*			
1179.	5213	*Frankenia tetrapetala (Four Petaled Frankenia)*			
1180.	1944	*Franklandia fucifolia (Lanoline Bush)*			
1181.	18392	*Freesia alba x leichtlinii*	Y		
1182.	899	*Gahnia ancistrophylla (Hooked-leaf Saw Sedge)*			
1183.	901	*Gahnia australis*			
1184.	16249	*Gahnia sp. Headland (G.J. Keighery 8501)*			
1185.	16283	*Gahnia sp. L (K.R. Newbey 7888)*			
1186.	19677	*Gahnia sp. dull bases (K.R. Newbey 5111)*			
1187.	907	*Gahnia trifida (Coast Saw-sedge)*			
1188.	7323	*Galium murale (Small Goosegrass)*	Y		
1189.	19702	*Gastrolobium discolor*			
1190.	11044	*Gastrolobium heterophyllum*			
1191.	20453	*Gastrolobium latifolium*			
1192.	3913	*Gastrolobium parvifolium (Berry Poison)*			
1193.	20487	*Gastrolobium punctatum*			
1194.	3924	*Gastrolobium spinosum (Prickly Poison)*			
1195.	33620	*Glischrocaryon angustifolium*			
1196.	6143	*Glischrocaryon aureum (Common Popflower)*			
1197.	6145	*Glischrocaryon roei*			
1198.	26860	*Gloiocladia halymenioides*			
1199.	7991	*Gnephosis drummondii*			
1200.	8003	*Gnephosis tridens*			
1201.	6587	*Gomphocarpus fruticosus (Narrowleaf Cottonbush)*	Y		
1202.	3946	*Gompholobium baxteri*			
1203.	10909	*Gompholobium confertum*			
1204.	3950	*Gompholobium knightianum*			
1205.	11083	*Gompholobium scabrum*			
1206.	3957	*Gompholobium tomentosum (Hairy Yellow Pea)*			
1207.	3959	*Gompholobium viscidulum*			
1208.	6163	*Gonocarpus pycnostachyus*		P3	
1209.	7488	*Goodenia affinis (Silver Goodenia)*			
1210.	7499	*Goodenia concinna (Elegant Goodenia)*			
1211.	7517	*Goodenia incana (Hoary Goodenia)*			
1212.	17655	*Goodenia laevis subsp. laevis*		P3	
1213.	12551	*Goodenia micrantha*			
1214.	7537	*Goodenia pterigosperma*			
1215.	19051	*Goodenia scapigera subsp. scapigera*			
1216.	23461	*Goodenia turleyae*		P1	
1217.	7562	*Goodenia viscida (Viscid Goodenia)*			
1218.	1961	*Grevillea baxteri (Cape Arid Grevillea)*		P4	
1219.	2018	*Grevillea huegelii*			
1220.	2050	*Grevillea nudiflora*			
1221.	2053	*Grevillea oligantha*			
1222.	2061	*Grevillea pectinata (Comb-leaved Grevillea)*			
1223.	2070	*Grevillea plurijuga*			
1224.	19492	*Grevillea plurijuga subsp. plurijuga*			
1225.	19491	*Grevillea plurijuga subsp. superba*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1226.	32386	*Grimmia laevigata*			
1227.	5013	*Guichenotia micrantha (Small Flowered Guichenotia)*			
1228.	2804	*Gunniopsis glabra*			
1229.	2787	*Gyrostemon sheathii*			
1230.	12627	*Haegiela tatei*		P4	
1231.	1475	*Haemodorum spicatum (Mardja)*			
1232.	2126	*Hakea adnata*			
1233.	12224	*Hakea bicornata*			
1234.	2139	*Hakea cinerea (Ashy Hakea)*			
1235.	2142	*Hakea commutata*			
1236.	2145	*Hakea corymbosa (Cauliflower Hakea)*			
1237.	12226	*Hakea denticulata*			
1238.	2160	*Hakea ferruginea*			
1239.	2171	*Hakea laurina (Pincushion Hakea, Kodjet)*			
1240.	2175	*Hakea lissocarpha (Honey Bush)*			
1241.	2187	*Hakea nitida (Frog Hakea)*			
1242.	2188	*Hakea obliqua (Needles and Corks)*			
1243.	13335	*Hakea obliqua subsp. obliqua*			
1244.	2193	*Hakea pandanicarpa*			
1245.	16910	*Hakea pandanicarpa subsp. pandanicarpa*			
1246.	2197	*Hakea prostrata (Harsh Hakea)*			
1247.	2203	*Hakea ruscifolia (Candle Hakea)*			
1248.	2208	*Hakea strumosa*			
1249.	2212	*Hakea sulcata (Furrowed Hakea)*			
1250.	2214	*Hakea trifurcata (Two-leaf Hakea)*			
1251.	2216	*Hakea varia (Variable-leaved Hakea)*			
1252.	2218	*Hakea victoria (Royal Hakea, Dalyongurd)*			
1253.	31013	*Halgania anagalloides var. Southern (A.E. Orchard 1609)*			
1254.	6684	*Halgania andromedifolia*			
1255.	6691	*Halgania integerrima*			
1256.	6171	*Haloragis digyna*			
1257.	8008	*Helianthus annuus (Sunflower, Common Sunflower)*	Y		
1258.	8024	*Helichrysum leucopsideum*			
1259.	3016	*Heliophila pusilla*	Y		
1260.	6707	*Heliotropium curassavicum (Smooth Heliotrope)*			
1261.	439	*Hemarthria uncinata (Matgrass)*			
1262.	2689	*Hemichroa pentandra (Trailing Jointweed)*			
1263.	5108	*Hibbertia acerosa (Needle Leaved Guinea Flower)*			
1264.	5110	*Hibbertia andrewsiana*			
1265.	5117	*Hibbertia cuneiformis (Cutleaf Hibbertia)*			
1266.	5122	*Hibbertia eatoniae*			
1267.	5131	*Hibbertia gracilipes*			
1268.	20059	*Hibbertia hemignosta*			
1269.	20049	*Hibbertia hibbertioides var. meridionalis*			
1270.	5143	*Hibbertia lineata*			
1271.	20417	*Hibbertia oligantha*			
1272.	20349	*Hibbertia psilocarpa*			
1273.	5162	*Hibbertia racemosa (Stalked Guinea Flower)*			
1274.	5165	*Hibbertia rostellata*			
1275.		*Hibbertia sp.*			
1276.	5173	*Hibbertia subvaginata*			
1277.	20036	*Hibbertia turleyana*		P2	Y
1278.	19433	*Hibbertia ulicifolia*			
1279.	3966	*Hovea pungens (Devil's Pins, Puyenak)*			
1280.	3968	*Hovea trisperma (Common Hovea)*			
1281.	12742	*Hyalosperma demissum*			
1282.	5220	*Hybanthus epacroides (Spiny Hybanthus)*			
1283.	6223	*Hydrocotyle alata*			
1284.	48770	*Hydrocotyle asterocarpa (Starry Pennywort)*		P2	
1285.	6234	*Hydrocotyle medicaginoides (Trefoil Pennywort)*			
1286.	6239	*Hydrocotyle rugulosa*			
1287.	49013	*Hydrocotyle tuberculata (Bumpy-fruited Pennywort)*		P2	
1288.	26962	*Hymenocladia dactyloides*			
1289.	452	*Hyparrhenia hirta (Tambookie Grass)*	Y		
1290.	5827	*Hypocalymma strictum*			
1291.	8086	*Hypochaeris glabra (Smooth Catsear)*	Y		
1292.	9352	*Hypochaeris radicata (Flat Weed, Cats-ear)*	Y		
1293.	1070	*Hypolaena exsulca*			
1294.	1071	*Hypolaena fastigiata*			
1295.	17844	*Hypolaena humilis*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1296.	910	*Isolepis cernua (Nodding Club-rush)*			
1297.	912	*Isolepis cyperoides*			
1298.	917	*Isolepis marginata (Coarse Club-rush)*			
1299.	2220	*Isopogon alcicornis (Elkhorn Coneflower)*		P3	
1300.	2225	*Isopogon buxifolius*			
1301.	16880	*Isopogon formosus subsp. formosus*			
1302.	2234	*Isopogon polycephalus (Clustered Coneflower)*			
1303.	19998	*Isopogon sp. Fitzgerald River (D.B. Foreman 813)*			
1304.	2240	*Isopogon trilobus (Barrel Coneflower)*			
1305.	7399	*Isotoma scapigera (Long-scaped Isotome)*			
1306.	3992	*Isotropis cuneifolia (Granny Bonnets)*			
1307.	3997	*Jacksonia alata*			
1308.	4002	*Jacksonia capitata*			
1309.	4005	*Jacksonia condensata*			
1310.	4028	*Jacksonia spinosa*			
1311.	14741	*Jacksonia venosa*			
1312.	14777	*Jacksonia viscosa*			
1313.	1295	*Johnsonia acaulis*			
1314.	1175	*Juncus acutus (Spiny Rush)*	Y		
1315.	20454	*Juncus acutus subsp. acutus*	Y		
1316.	1176	*Juncus aridicola*			
1317.	1178	*Juncus bufonius (Toad Rush)*	Y		
1318.	1180	*Juncus capitatus (Capitate Rush)*	Y		
1319.	11922	*Juncus kraussii subsp. australiensis*			
1320.	1188	*Juncus pallidus (Pale Rush)*			
1321.	1194	*Juncus radula*			
1322.	4037	*Kennedia coccinea (Coral Vine)*			
1323.	37961	*Kennedia coccinea subsp. esotera*			
1324.	4044	*Kennedia prostrata (Scarlet Runner)*			
1325.	42680	*Kennedia sp. South coast (T.R. Lally 1576 & I.P. Lally)*			
1326.	5830	*Kunzea affinis*			
1327.	38222	*Kunzea salina*		P3	
1328.	11528	*Labichea lanceolata subsp. brevifolia*			
1329.	467	*Lagurus ovatus (Hare's Tail Grass)*	Y		
1330.	13647	*Lambertia echinata subsp. echinata*		T	
1331.	2248	*Lambertia inermis (Chittick, Djidiok)*			
1332.	16870	*Lambertia inermis var. drummondii*			
1333.	16871	*Lambertia inermis var. inermis*			
1334.	5030	*Lasiopetalum discolor*			
1335.	5035	*Lasiopetalum indutum*			
1336.	5047	*Lasiopetalum rosmarinifolium*			
1337.	35642	*Lasiopetalum sp. Mt Ragged (T.E.H. Aplin 4349)*			
1338.	27001	*Laurencia filiformis*			
1339.	27002	*Laurencia forsteri*			
1340.	4954	*Lawrencia diffusa*			
1341.	4955	*Lawrencia glomerata*			
1342.	4958	*Lawrencia spicata*			
1343.	4959	*Lawrencia squamata*			
1344.	1301	*Laxmannia brachyphylla (Stilted Paper-lily)*			
1345.	1304	*Laxmannia minor*			
1346.	1305	*Laxmannia omnifertilis*			
1347.	1306	*Laxmannia paleacea*			
1348.	1307	*Laxmannia ramosa (Branching Lily)*			
1349.	12029	*Laxmannia ramosa subsp. deflexa*			
1350.	11911	*Laxmannia ramosa subsp. ramosa*			
1351.	7569	*Lechenaultia brevifolia*			
1352.	7575	*Lechenaultia formosa (Red Leschenaultia)*			
1353.	7590	*Lechenaultia tubiflora (Heath Leschenaultia)*			
1354.	1051	*Lemna disperma (Duckweed)*			
1355.	3018	*Lepidium africanum (Rubble Peppercress)*	Y		
1356.	3044	*Lepidium rotundum (Veined Peppercress)*			
1357.	1073	*Lepidobolus chaetocephalus (Bristle-headed Chaff Rush)*			
1358.	1075	*Lepidobolus preissianus*			
1359.	929	*Lepidosperma carphoides (Black Rapier Sedge)*			
1360.	45756	*Lepidosperma fairallianum (Fairalls' Sword Sedge)*			
1361.	936	*Lepidosperma leptostachyum*			
1362.	939	*Lepidosperma pruinosum*			
1363.		*Lepidosperma sp.*			
1364.	33279	*Lepidosperma sp. Bandalup Scabrid (N. Evelegh 10798)*			
1365.	945	*Lepidosperma squamatum*			

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1366.	947	*Lepidosperma tenue*			
1367.	949	*Lepidosperma tuberculatum*			
1368.	1653	*Leporella fimbriata (Hare Orchid)*			
1369.	1078	*Leptocarpus coangustatus*			
1370.	46381	*Leptocarpus crebriculmis*			
1371.	2347	*Leptomeria lehmannii*			
1372.	2350	*Leptomeria pauciflora (Sparse-flowered Currant Bush)*			
1373.	2352	*Leptomeria preissiana*			
1374.	5848	*Leptospermum fastigiatum*			
1375.	5849	*Leptospermum incanum*			
1376.	5850	*Leptospermum laevigatum (Coast Teatree)*	Y		
1377.	5851	*Leptospermum maxwellii*			
1378.	5852	*Leptospermum nitens*			
1379.	5853	*Leptospermum oligandrum*			
1380.	5855	*Leptospermum roei*			
1381.	5857	*Leptospermum spinescens*			
1382.	12692	*Leptospermum subtenue*			
1383.	1088	*Lepyrodia macra (Large Scale Rush)*			
1384.	6358	*Leucopogon assimilis*			
1385.	34768	*Leucopogon canaliculatus*			
1386.	6368	*Leucopogon carinatus*			
1387.	6373	*Leucopogon concinnus*			
1388.	6374	*Leucopogon conostephioides*			
1389.	44222	*Leucopogon corymbiformis*		P2	
1390.	6383	*Leucopogon cuneifolius*			
1391.	6386	*Leucopogon dielsianus*			
1392.	6391	*Leucopogon fimbriatus*			
1393.	40940	*Leucopogon obovatus subsp. obovatus*			
1394.	6419	*Leucopogon obtusatus*			
1395.	6422	*Leucopogon opponens*			
1396.	6427	*Leucopogon parviflorus (Coast Beard-heath)*			
1397.	34769	*Leucopogon remotus*		P1	
1398.	6442	*Leucopogon rotundifolius*		P3	
1399.	19580	*Leucopogon sp. Bremer Bay (K.R. Newbey 4667)*			
1400.	14637	*Leucopogon sp. Coujinup (M.A. Burgman 1085)*			
1401.	16051	*Leucopogon sp. Kau Rock (M.A. Burgman 1126)*			
1402.	41769	*Leucopogon sp. Lake Magenta (K.R. Newbey 3387)*		P1	
1403.	14205	*Leucopogon sp. Mount Heywood (M.A. Burgman 1211)*			
1404.	34163	*Leucopogon sp. Newdegate (M. Hislop 3585)*			
1405.	6455	*Leucopogon woodsii (Nodding Beard-heath)*			
1406.	39820	*Levenhookia murfetii*			
1407.	7673	*Levenhookia pauciflora (Deceptive Stylewort)*			
1408.	7677	*Levenhookia stipitata (Common Stylewort)*			
1409.	27023	*Liagora harveyana*			
1410.	20647	*Lissanthe rubicunda*			
1411.	7402	*Lobelia gibbosa (Tall Lobelia)*			
1412.	7405	*Lobelia rarifolia*			
1413.	6504	*Logania buxifolia*			
1414.	6507	*Logania fasciculata*			
1415.	6509	*Logania micrantha*			
1416.	13129	*Logania perryana*			
1417.	6513	*Logania stenophylla*			
1418.	6515	*Logania vaginalis (White Spray)*			
1419.	478	*Lolium rigidum (Wimmera Ryegrass)*	Y		
1420.		*Lolium sp.*			
1421.	1224	*Lomandra collina (Pale Mat Rush)*			
1422.	1227	*Lomandra hastilis*			
1423.	14542	*Lomandra micrantha subsp. micrantha*			
1424.	14543	*Lomandra micrantha subsp. teretifolia*			
1425.	1233	*Lomandra mucronata*			
1426.	1234	*Lomandra nigricans*			
1427.	1241	*Lomandra rigida (Stiff Mat Rush)*			
1428.	1097	*Lyginia barbata*			
1429.	18049	*Lyginia imberbis*			
1430.	6456	*Lysinema ciliatum (Curry Flower)*			
1431.	34736	*Lysinema pentapetalum*			
1432.	5281	*Lythrum hyssopifolia (Lesser Loosestrife)*	Y		
1433.	2838	*Macarthuria apetala*			
1434.	14366	*Macrozamia dyeri*			
1435.	2553	*Maireana oppositifolia*			

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1436.	36480	*Malva arborea (Tree Mallow)*	Y		
1437.	19421	*Marianthus bicolor (Painted Marianthus)*			
1438.	4076	*Medicago lupulina (Black Medic)*	Y		
1439.	4080	*Medicago sativa (Alfalfa)*	Y		
1440.	4083	*Medicago truncatula (Barrel Medic)*	Y		
1441.	15063	*Melaleuca acuminata subsp. acuminata*			
1442.	5881	*Melaleuca brevifolia*			
1443.	5882	*Melaleuca bromelioides*			
1444.	37600	*Melaleuca calcicola*			
1445.	5885	*Melaleuca calycina*			
1446.	17982	*Melaleuca carrii*			
1447.	5896	*Melaleuca cordata*			
1448.	5898	*Melaleuca cucullata*			
1449.	5900	*Melaleuca cuticularis (Saltwater Paperbark)*			
1450.	15693	*Melaleuca dempta*		P3	
1451.	5909	*Melaleuca elliptica (Granite Bottlebrush, Ngow)*			
1452.	13269	*Melaleuca fissurata*		P4	
1453.	5913	*Melaleuca glaberrima*			
1454.	18277	*Melaleuca glena*			
1455.	19486	*Melaleuca hamata*			
1456.	5918	*Melaleuca haplantha*			
1457.	18274	*Melaleuca hnatiukii*			
1458.	13272	*Melaleuca incana subsp. tenella*			
1459.	5922	*Melaleuca lanceolata (Rottnest Teatree, Moonah)*			
1460.	19080	*Melaleuca linguiformis*			
1461.	5948	*Melaleuca pentagona*			
1462.	11686	*Melaleuca pentagona var. latifolia*			
1463.	15993	*Melaleuca pentagona var. pentagona*			
1464.	19609	*Melaleuca plumea*			
1465.	19092	*Melaleuca podiocarpa*			
1466.	5955	*Melaleuca pulchella (Claw Flower)*			
1467.	5960	*Melaleuca rigidifolia*			
1468.	18276	*Melaleuca sapientes*			
1469.	5961	*Melaleuca scabra (Rough Honeymyrtle, Wurru Bush)*			
1470.	18165	*Melaleuca societatis*			
1471.	5971	*Melaleuca striata*			
1472.	5972	*Melaleuca strobophylla*			
1473.	5973	*Melaleuca suberosa (Corky Honeymyrtle)*			
1474.	5974	*Melaleuca subfalcata*			
1475.	5979	*Melaleuca teuthidoides*			
1476.	19399	*Melaleuca thapsina*			
1477.	5980	*Melaleuca thymoides*			
1478.	5981	*Melaleuca thyoides*			
1479.	5982	*Melaleuca torquata*			
1480.	18126	*Melaleuca tuberculata var. macrophylla*			
1481.	5985	*Melaleuca undulata (Hidden Honey-myrtle)*			
1482.	15876	*Melaleuca viminea subsp. demissa*			
1483.	6883	*Mentha pulegium (Pennyroyal)*	Y		
1484.	956	*Mesomelaena stygia*			
1485.	11473	*Mesomelaena stygia subsp. stygia*			
1486.	957	*Mesomelaena tetragona (Semaphore Sedge)*			
1487.	27069	*Metagoniolithon stelliferum*			
1488.	6887	*Microcorys barbata*			
1489.	6893	*Microcorys glabra*			
1490.	18046	*Microcybe multiflora subsp. multiflora*			
1491.	4488	*Microcybe pauciflora (Yellow Microcybe)*			
1492.	34200	*Microcybe pauciflora subsp. Grass Patch (A. Strid 21921)*			
1493.	13785	*Microcybe pauciflora subsp. pauciflora*			
1494.	5993	*Micromyrtus elobata*			
1495.	20543	*Micromyrtus elobata subsp. elobata*			
1496.	5998	*Micromyrtus imbricata*			
1497.	8814	*Microtis brownii*			
1498.	10954	*Microtis media (Tall Mignonette Orchid)*			
1499.	15419	*Microtis media subsp. media*			
1500.	1660	*Microtis orbicularis (Dark Mignonette Orchid)*			
1501.	8106	*Millotia tenuifolia (Soft Millotia)*			
1502.	14344	*Millotia tenuifolia var. tenuifolia (Soft Millotia)*			
1503.	4667	*Monotaxis paxii*			
1504.	19179	*Moraea flaccida (One-leaf Cape Tulip)*	Y		
1505.	2412	*Muehlenbeckia adpressa (Climbing Lignum)*			

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1506.	7291	*Myoporum insulare (Blueberry Tree, boobialla)*			
1507.	6196	*Myriophyllum muelleri (Hooded Water Milfoil)*		P1	
1508.	6464	*Needhamiella pumilio*			
1509.	4492	*Nematolepis phebalioides*			
1510.	492	*Neurachne alopecuroidea (Foxtail Mulga Grass)*			
1511.	2401	*Nuytsia floribunda (Christmas Tree, Mudja)*			
1512.	6138	*Oenothera drummondii (Beach Evening Primrose)*	Y		
1513.	2365	*Olax benthamiana*			
1514.	2366	*Olax phyllanthi*			
1515.	8131	*Olearia ciliata (Fringed Daisy Bush)*			
1516.	8134	*Olearia exiguifolia (Small-leaved Daisy Bush)*			
1517.	11397	*Olearia passerinoides subsp. passerinoides*			
1518.	8146	*Olearia ramosissima (Much-branched Daisy Bush)*			
1519.	44401	*Olearia sp. Eremicola (Diels & Pritzel s.n. PERTH 00449628)*			
1520.	19582	*Olearia trifurcata*			
1521.	6465	*Oligarrhena micrantha*			
1522.	18255	*Opercularia vaginata (Dog Weed)*			
1523.	5227	*Opuntia stricta (Common Prickly Pear)*	Y		
1524.	46217	*Orianthera callosa*			
1525.	46255	*Orianthera campanulata*			
1526.	46316	*Orianthera serpyllifolia subsp. angustifolia*			
1527.	36181	*Ornduffia parnassifolia*			
1528.	4113	*Ornithopus compressus (Yellow Serradella)*	Y		
1529.	7122	*Orobanche minor (Lesser Broomrape)*	Y		
1530.	30375	*Oxalis exilis*			
1531.	4355	*Oxalis perennans*			
1532.	34841	*Oxymyrrhine gracilis*			
1533.	12641	*Ozothamnus blackallii*			
1534.	12645	*Ozothamnus lepidophyllus*			
1535.	2964	*Papaver hybridum (Rough Poppy)*	Y		
1536.	23499	*Paracaleana parvula*		P2	
1537.	516	*Parapholis incurva (Coast Barbgrass)*	Y		
1538.	1545	*Patersonia inaequalis (Unequal Bract Patersonia)*		P2	
1539.	1546	*Patersonia juncea (Rush Leaved Patersonia)*			
1540.	19670	*Patersonia lanata forma calvata*			
1541.	19669	*Patersonia lanata forma lanata*			
1542.	1549	*Patersonia maxwellii*			
1543.	1550	*Patersonia occidentalis (Purple Flag, Koma)*			
1544.	30472	*Patersonia occidentalis var. occidentalis*			
1545.	1552	*Patersonia rudis (Hairy Flag)*			
1546.	4343	*Pelargonium capitatum (Rose Pelargonium)*	Y		
1547.	4346	*Pelargonium littorale*			
1548.	40423	*Pentameris airoides (False Hairgrass)*	Y		
1549.	15136	*Persoonia cymbifolia*		P3	
1550.	2275	*Persoonia scabra*		P3	
1551.	2279	*Persoonia teretifolia*			
1552.	2296	*Petrophile fastigiata*			
1553.	2304	*Petrophile phylicoides*			
1554.	2311	*Petrophile squamata*			
1555.	20053	*Petrophile squamata subsp. northern (J. Monks 40)*			
1556.	2313	*Petrophile teretifolia*			
1557.	4501	*Phebalium lepidotum*			
1558.	18536	*Philotheca fitzgeraldii*			
1559.	18515	*Philotheca gardneri subsp. gardneri*			
1560.	18532	*Philotheca nodiflora subsp. lasiocalyx*			
1561.	1173	*Philydrella pygmaea (Butterfly Flowers)*			
1562.	555	*Phragmites australis (Common Reed)*	Y		
1563.	16825	*Phyllangium divergens*			
1564.	4675	*Phyllanthus calycinus (False Boronia)*			
1565.	4	*Phylloglossum drummondii (Pigmy Clubmoss)*			
1566.	6007	*Phymatocarpus maxwellii*			
1567.	5231	*Pimelea angustifolia (Narrow-leaved Pimelea)*			
1568.	5234	*Pimelea brachyphylla*			
1569.	11282	*Pimelea brevifolia subsp. brevifolia*			
1570.	5240	*Pimelea cracens*			
1571.	5241	*Pimelea drummondii*			
1572.	5242	*Pimelea erecta*			
1573.	5243	*Pimelea ferruginea*			
1574.	11402	*Pimelea imbricata var. piligera*			
1575.	12701	*Pimelea pelinos*		P1	

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1576.	6804	*Pityrodia chrysocalyx*		P3	
1577.	7297	*Plantago coronopus (Buckshorn Plantain)*	Y		
1578.	7299	*Plantago debilis*			
1579.	7301	*Plantago exilis*			
1580.	6250	*Platysace deflexa*			
1581.	6252	*Platysace effusa*			
1582.	27150	*Platysiphonia victoriae*			
1583.	577	*Poa poiformis (Coastal Poa)*			
1584.	8173	*Podolepis capillaris (Wiry Podolepis)*			
1585.	8180	*Podolepis rugata (Pleated Podolepis)*			
1586.	8181	*Podolepis tepperi*			
1587.	8182	*Podotheca angustifolia (Sticky Longheads)*			
1588.	8188	*Pogonolepis stricta*			
1589.	2419	*Polygonum aviculare (Wireweed)*	Y		
1590.	582	*Polypogon monspeliensis (Annual Beardgrass)*	Y		
1591.	14547	*Pomaderris brevifolia*			
1592.	16191	*Pomaderris rotundifolia*			
1593.	124	*Posidonia ostenfeldii*			
1594.	110	*Potamogeton drummondii*			
1595.	15424	*Praecoxanthus aphyllus*			
1596.	15425	*Prasophyllum calcicola*			
1597.	1671	*Prasophyllum elatum (Tall Leek Orchid)*			
1598.	1672	*Prasophyllum fimbria (Fringed Leek Orchid)*			
1599.	1674	*Prasophyllum giganteum (Bronze Leek Orchid)*			
1600.	17650	*Prasophyllum odoratissimum*			
1601.	1680	*Prasophyllum parvifolium (Autumn Leek Orchid)*			
1602.	6911	*Prostanthera baxteri*			
1603.	11304	*Prostanthera serpyllifolia subsp. microphylla*			
1604.	8189	*Pseudognaphalium luteoalbum (Jersey Cudweed)*			
1605.	13255	*Pterochaeta paniculata*			
1606.		*Pterostylis aff. nana*			
1607.	48670	*Pterostylis arbuscula*			
1608.	42121	*Pterostylis brevichila*			
1609.	1687	*Pterostylis dilatata*			
1610.	1689	*Pterostylis mutica (Midget Greenhood)*			
1611.	1693	*Pterostylis recurva (Jug Orchid)*			
1612.	12217	*Pterostylis sanguinea*			
1613.	1696	*Pterostylis sargentii (Frog Greenhood)*			
1614.	41981	*Pterostylis timothyi*			
1615.	10998	*Pterostylis turfosa (Bird Orchid)*			
1616.	1698	*Pterostylis vittata (Banded Greenhood)*			
1617.	2732	*Ptilotus holosericeus*			
1618.	2733	*Ptilotus humilis*			
1619.	2758	*Ptilotus seminudus*			
1620.	32417	*Ptychostomum angustifolium*			
1621.	31672	*Puccinellia longior*			
1622.	592	*Puccinellia stricta (Marsh Grass)*			
1623.	4165	*Pultenaea barbata*			
1624.	4170	*Pultenaea elachista*			
1625.	28286	*Pultenaea heterochila*			
1626.	20785	*Pultenaea indira subsp. indira*			
1627.	20790	*Pultenaea purpurea*			
1628.	4184	*Pultenaea spinulosa*			
1629.	4186	*Pultenaea tenuifolia*			
1630.	4187	*Pultenaea verruculosa*			
1631.	16367	*Pyrorchis nigricans (Red beaks, Elephants ears)*			
1632.	8195	*Quinetia urvillei*			
1633.	3061	*Raphanus raphanistrum (Wild Radish)*	Y		
1634.	3063	*Rapistrum rugosum (Turnip Weed)*	Y		
1635.	6014	*Regelia inops*			
1636.	2578	*Rhagodia baccata (Berry Saltbush)*			
1637.	2580	*Rhagodia crassifolia (Fleshy Saltbush)*			
1638.	2584	*Rhagodia preissii*			
1639.	13300	*Rhodanthe citrina*			
1640.	13294	*Rhodanthe laevis*			
1641.	13234	*Rhodanthe manglesii*			
1642.	13252	*Rhodanthe pygmaea*			
1643.	31911	*Ricinocarpos megalocarpus*			
1644.	11096	*Rinzia dimorphandra (Esperance Rinzia)*			
1645.	48269	*Rinzia icosandra (Recherche Mainland Rinzia)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1646.	1556	*Romulea rosea (Guildford Grass)*	Y		
1647.	10970	*Rostraria cristata*	Y		
1648.	20496	*Rubus laudatus*	Y		
1649.	2429	*Rumex acetosella (Sorrel)*	Y		
1650.	2430	*Rumex brownii (Swamp Dock)*	Y		
1651.	115	*Ruppia megacarpa*			
1652.	116	*Ruppia polycarpa*			
1653.	117	*Ruppia tuberosa*			
1654.	40431	*Rytidosperma acerosum*			
1655.	40425	*Rytidosperma caespitosum*			
1656.	40427	*Rytidosperma setaceum*			
1657.	48433	*Salicornia blackiana*			
1658.	48430	*Salicornia quinqueflora*			
1659.	48431	*Salicornia quinqueflora subsp. quinqueflora (Beaded Glasswort)*			
1660.	6483	*Samolus junceus*			
1661.	6484	*Samolus repens (Creeping Brookweed)*			
1662.	2356	*Santalum acuminatum (Quandong, Warnga)*			
1663.	2817	*Sarcozona praecox (Sarcozona)*			
1664.	20525	*Scaevola archeriana*		P1	
1665.	7607	*Scaevola cuneiformis (Wedge-leaved Scaevola)*			
1666.	7639	*Scaevola restiacea*			
1667.	13151	*Scaevola thesioides subsp. filifolia*			
1668.	41660	*Schenkia australis*			
1669.	976	*Schoenus breviculmis*			
1670.	978	*Schoenus brevisetis*			
1671.	979	*Schoenus caespititius*			
1672.	984	*Schoenus curvifolius*			
1673.	992	*Schoenus grandiflorus (Large Flowered Bogrush)*			
1674.	994	*Schoenus humilis*			
1675.	996	*Schoenus laevigatus*			
1676.	1004	*Schoenus nitens (Shiny Bog-rush)*			
1677.	1005	*Schoenus obtusifolius*			
1678.	1006	*Schoenus odontocarpus*			
1679.	1009	*Schoenus pleiostemoneus*			
1680.	17614	*Schoenus plumosus*			
1681.	16089	*Schoenus racemosus*			
1682.	1013	*Schoenus sculptus (Gimlet Bog-rush)*			
1683.	14626	*Schoenus sp. A1 Boorabbin (K.L. Wilson 2581)*			
1684.	16254	*Schoenus sp. G Broad Sheath (K.L. Wilson 2633)*			
1685.	16273	*Schoenus sp. Grey Rhizome (K.L. Wilson 2922)*		P1	
1686.	1016	*Schoenus subbarbatus (Bearded Bog-rush)*			
1687.	1018	*Schoenus subfascicularis*			
1688.	1019	*Schoenus subflavus (Yellow Bog-rush)*			
1689.	16251	*Schoenus subflavus subsp. long leaves (K.L. Wilson 2865)*			
1690.	1022	*Schoenus submicrostachyus*			
1691.	6544	*Sebaea ovata (Yellow Sebaea)*			
1692.	8207	*Senecio glossanthus (Slender Groundsel)*			
1693.	8224	*Siloxerus filifolius*			
1694.	14583	*Siloxerus multiflorus*			
1695.	8226	*Siloxerus pygmaeus*			
1696.	3071	*Sisymbrium officinale (Hedge Mustard)*	Y		
1697.	3072	*Sisymbrium orientale (Indian Hedge Mustard)*	Y		
1698.	6992	*Solanum capsiciforme (Native Pepper)*			
1699.	7017	*Solanum laciniatum (Kangaroo Apple)*	Y		
1700.	7022	*Solanum nigrum (Black Berry Nightshade)*	Y		
1701.	8230	*Sonchus asper (Rough Sowthistle)*	Y		
1702.	9367	*Sonchus hydrophilus (Native Sowthistle)*			
1703.	8231	*Sonchus oleraceus (Common Sowthistle)*	Y		
1704.	617	*Sorghum halepense (Johnson Grass)*	Y		
1705.	1560	*Sparaxis pillansii (Harlequin Flower)*	Y		
1706.	2914	*Spergularia diandra (Lesser Sand Spurry)*	Y		
1707.	8900	*Spergularia marina*			
1708.	2915	*Spergularia rubra (Sand Spurry)*	Y		
1709.	4201	*Sphaerolobium daviesioides (Prickly Globe-pea)*			
1710.	4205	*Sphaerolobium linophyllum*			
1711.	635	*Sporobolus virginicus (Marine Couch)*			
1712.	4828	*Spyridium globulosum (Basket Bush)*			
1713.	4830	*Spyridium microcephalum (Small-headed Spyridium)*			
1714.	14243	*Spyridium minutum*			
1715.	14426	*Spyridium mucronatum subsp. mucronatum*			

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1716.	14795	*Spyridium mucronatum subsp. multiflorum*		P2	
1717.	15140	*Spyridium polycephalum*			
1718.	31916	*Spyridium sp. Jerdacuttup (A. Williams 332)*			
1719.	4714	*Stachystemon brachyphyllus*			
1720.	4715	*Stachystemon polyandrus*			
1721.	20540	*Stachystemon vinosus*		P4	
1722.	20537	*Stachystemon virgatus*			
1723.	4733	*Stackhousia monogyna*			
1724.	4734	*Stackhousia muricata*			
1725.	9070	*Stackhousia pubescens (Downy Stackhousia)*			
1726.	43662	*Stackhousia sp. Thick sepals (A.E. Orchard 1547)*			
1727.	1315	*Stawellia gymnocephala*			
1728.	2918	*Stellaria media (Chickweed)*	Y		
1729.	15065	*Stenanthemum notiale subsp. notiale*			
1730.	16375	*Stirlingia anethifolia*			
1731.	2317	*Stirlingia simplex*			
1732.	7687	*Stylidium assimile (Bronze-leaved Triggerplant)*			
1733.	7692	*Stylidium breviscapum (Boomerang Triggerplant)*			
1734.	12057	*Stylidium corymbosum var. corymbosum*			
1735.	7741	*Stylidium insensitivum (Insensitive Trigger Plant)*			
1736.	34968	*Stylidium involucratum*			
1737.	7758	*Stylidium macranthum (Crab Claws)*			
1738.	7772	*Stylidium perpusillum (Tiny Triggerplant)*			
1739.	7774	*Stylidium piliferum (Common Butterfly Triggerplant)*			
1740.	7777	*Stylidium preissii (Lizard Triggerplant)*			
1741.	7785	*Stylidium repens (Matted Triggerplant)*			
1742.	7794	*Stylidium rupestre (Rock Triggerplant)*			
1743.		*Stylidium sp.*			
1744.	20599	*Stylidium turleyae*			
1745.	1260	*Stypandra glauca (Blind Grass)*			
1746.	6473	*Styphelia intertexta*			
1747.	48616	*Styphelia sp. Cascades (R. Davis 11037)*			
1748.	48618	*Styphelia sp. South Coast (J.M. Powell 3374)*			
1749.	2639	*Suaeda australis (Seablite)*			
1750.	2640	*Suaeda baccifera*	Y		
1751.	43203	*Surreya diandra*			
1752.	25902	*Symphyotrichum squamatum (Bushy Starwort)*	Y		
1753.	16860	*Synaphea media*			
1754.	12911	*Synaphea obtusata*			
1755.	16772	*Synaphea oligantha*			
1756.	2324	*Synaphea petiolaris (Synaphea)*			
1757.	16864	*Synaphea petiolaris subsp. petiolaris*			
1758.	2329	*Synaphea spinulosa*			
1759.	15534	*Synaphea spinulosa subsp. major*			
1760.	20102	*Taxandria callistachys*			
1761.	20103	*Taxandria spathulata*			
1762.	31552	*Tecticornia arbuscula*			
1763.	33236	*Tecticornia halocnemoides (Shrubby Samphire)*			
1764.	31873	*Tecticornia indefessa*		P2	
1765.	33319	*Tecticornia indica subsp. bidens*			
1766.	31718	*Tecticornia lepidosperma*			
1767.	34823	*Tecticornia loriae*			
1768.	31675	*Tecticornia lylei*			
1769.	31551	*Tecticornia moniliformis*			
1770.	33297	*Tecticornia pergranulata subsp. pergranulata (Blackseed Samphire)*			
1771.	33218	*Tecticornia pterygosperma subsp. pterygosperma*			
1772.	34845	*Tecticornia sparagosa*			
1773.	31716	*Tecticornia syncarpa*			
1774.	4256	*Templetonia retusa (Cockies Tongues)*			
1775.	35842	*Templetonia rossii*			
1776.	2823	*Tetragonia implexicoma (Bower Spinach)*			
1777.	46437	*Tetrapora preissiana*			
1778.	1034	*Tetraria capillaris (Hair Sedge)*			
1779.	35582	*Tetraria sp. Mt Madden (C.D. Turley 40 BP/897)*			
1780.	6935	*Teucrium myriocladum*			
1781.		*Thelymitra aff. pauciflora*			
1782.	1701	*Thelymitra antennifera (Vanilla Orchid)*			
1783.	1705	*Thelymitra crinita (Blue Lady Orchid)*			
1784.	11143	*Thelymitra graminea*			
1785.	19823	*Thelymitra occidentalis*			

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1786.	20732	*Thelymitra petrophila*			
1787.		*Thelymitra sp.*			
1788.	20735	*Thelymitra speciosa*			
1789.	1716	*Thelymitra tigrina (Tiger Orchid)*			
1790.	1718	*Thelymitra villosa (Custard Orchid)*			
1791.	20731	*Thelymitra vulgaris*			
1792.	5075	*Thomasia angustifolia (Narrow Leaved Thomasia)*			
1793.	5088	*Thomasia microphylla*			
1794.	5093	*Thomasia petalocalyx (Paper Flower)*			
1795.	5094	*Thomasia purpurea*			
1796.	2644	*Threlkeldia diffusa (Coast Bonefruit)*			
1797.	19698	*Thryptomene australis subsp. australis*			
1798.	6065	*Thryptomene saxicola (Rock Thryptomene)*			
1799.	1323	*Thysanotus brachiatus*		P2	
1800.	1341	*Thysanotus nudicaulis*			
1801.	1343	*Thysanotus patersonii*			
1802.	1351	*Thysanotus sparteus*			
1803.	1358	*Thysanotus triandrus*			
1804.	32444	*Tortula atrovirens*			
1805.	1368	*Trachyandra divaricata*	Y		
1806.	19047	*Trachymene anisocarpa var. trichocarpa*		P3	
1807.	6268	*Trachymene cyanopetala*			
1808.	6279	*Trachymene ornata (Spongefruit)*			
1809.	6280	*Trachymene pilosa (Native Parsnip)*			
1810.	1485	*Tribonanthes violacea (Violet Tiurndin)*			
1811.	32450	*Trichostomum eckelianum*			
1812.	41648	*Tricostularia aphylla*			
1813.	1037	*Tricostularia compressa*			
1814.	4289	*Trifolium angustifolium (Narrowleaf Clover)*	Y		
1815.	17542	*Trifolium arvense var. arvense*	Y		
1816.	4292	*Trifolium campestre (Hop Clover)*	Y		
1817.	4296	*Trifolium fragiferum (Strawberry Clover)*	Y		
1818.	4312	*Trifolium striatum (Knotted Clover)*	Y		
1819.	146	*Triglochin minutissima*			
1820.	147	*Triglochin mucronata*			
1821.	151	*Triglochin striata*			
1822.	152	*Triglochin trichophora*			
1823.	4737	*Tripterococcus brunonis (Winged Stackhousia)*			
1824.	98	*Typha domingensis (Bulrush, Djandjid)*			
1825.	8255	*Ursinia anthemoides (Ursinia)*	Y		
1826.	38388	*Ursinia anthemoides subsp. anthemoides*	Y		
1827.	7145	*Utricularia menziesii (Redcoats)*			
1828.	7148	*Utricularia multifida*			
1829.	7153	*Utricularia tenella*			
1830.	13160	*Velleia exigua*		P2	
1831.	7665	*Velleia trinervis*			
1832.	6072	*Verticordia brownii*			
1833.	6073	*Verticordia chrysantha*			
1834.	6076	*Verticordia densiflora (Compacted Featherflower)*			
1835.	6079	*Verticordia fastigiata (Mouse Featherflower)*			
1836.	6090	*Verticordia humilis*			
1837.	12432	*Verticordia inclusa*			
1838.	6096	*Verticordia minutiflora*			
1839.	12450	*Verticordia plumosa var. grandiflora*			
1840.	12451	*Verticordia plumosa var. incrassata*			
1841.	14718	*Verticordia sieberi var. sieberi*			
1842.	12470	*Verticordia vicinella*			
1843.	11474	*Vicia sativa subsp. nigra*	Y		
1844.	4325	*Viminaria juncea (Swishbush, Koweda)*			
1845.	8260	*Vittadinia australasica*			
1846.	8266	*Vittadinia gracilis*			
1847.	12052	*Vulpia myuros forma megalura*	Y		
1848.		*Vulpia sp.*			
1849.	7384	*Wahlenbergia capensis (Cape Bluebell)*	Y		
1850.	7386	*Wahlenbergia gracilenta (Annual Bluebell)*			
1851.	7389	*Wahlenbergia preissii*			
1852.	8275	*Waitzia acuminata (Orange Immortelle)*			
1853.	18108	*Watsonia meriana var. bulbillifera*	Y		
1854.	6939	*Westringia dampieri*			
1855.	9247	*Westringia rigida (Stiff Westringia)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1856.	6658	*Wilsonia backhousei (Narrow-leaf Wilsonia)*			
1857.	6659	*Wilsonia humilis (Silky Wilsonia)*			
1858.	6660	*Wilsonia rotundifolia (Round-leaf Wilsonia)*			
1859.	27369	*Wrangelia velutina*			
1860.	1389	*Wurmbea cernua*			
1861.	1394	*Wurmbea dioica (Early Nancy)*			
1862.	1255	*Xanthorrhoea platyphylla*			
1863.	6289	*Xanthosia huegelii*			

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.