RECONNAISSANCE FLORA, VEGETATION AND BASIC FAUNA SURVEY REPORT

Line 51 Esperance Branch Line – North of Gibson Townsite (354.239 to 354.923KM, Site 8)

Final v. 1

11/11/2022

Site Assessment: November 2021

BUSHFIRE | ENVIRONMENTAL | WATER | GIS

DOCUMENT CONTROL

Title: Reconnaissance flora and vegetation and basic fauna survey Report – Line 51 Esperance Branch Line, North of Gibson Townsite, 354.239 to 354.923 KM, Site 8.
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Job No.: AI005-010
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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 2.17 ha along Railway Line 51 within the north Gibson townsite locality, within the Shire of Esperance. Specifically, this was located along Railway Kilometre (KM) marking 354.239 to 354.923KM. This corresponded with Site 8 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 reconnaissance 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 require 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.

Three vegetation units consisting of native vegetation were recorded during the survey, vegetation unit 1: Proteaceae Shrubland (Pro SL), vegetation unit 2: *Taxandria spathulata* and *Baeckea latens* Shrubland (Taxspa Baelat SL), and vegetation unit 3: *Melaleuca cuticularis* semi-ephemeral wetland (Melcut WL). A portion of the survey area had historically been cleared and consisted of bare ground. Condition within the survey area ranged from Completely Degraded to Very Good (Keighery, 1994), primarily due to the dominance of invasive species and historical clearing. Floristic diversity was high, with 162 flora species recorded, consisting of 144 native species and 18 introduced species. Two species of priority flora were identified within the survey area, namely P3 *Persoonia scabra* and P3 *Comesperma calcicola.* No invasive species present within the survey area was listed as a Declared Pest (BAM Act 2007) or a Weed of National Significance (IPAC, 2017). A significant limitation was present for the detection for two priority species identified as 'Possible' to occur within the survey area that was not flowering at the time of the survey, P2 *Hibbertia turleyana* and P3 *Pterostylis faceta.* Vegetation Unit 1L Pro SL was analysed and determined to meet the Threatened (EPBC Act 1999) and Priority (BC Act 2016) ecological community 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province'. This was analysed in relation to the criteria for Kwongkan ecologically and for patch size criteria.

During the survey, a low level of fauna diversity was detected. A total of 15 taxa were recorded, including eight birds, three invertebrates, three mammals and one reptile. No Threatened or Priority listed species were observed, however potentially suitable habitat was identified for seven species. This includes the fork-tailed swift (*Apus pacificus*, MI), Carnaby's Cockatoo (*Calyptorhynchus latirostris*, EN), letter winged kite (*Elanus scriptus*, P4), quenda (*Isoodon fusciventer*, P4), western mouse (*Pseudomys occidentalis*, P4) heath mouse (*Pseudomys shortridgei*, VU), western brush wallaby (*Notamacropus irma*, P4) which are all considered as 'Possible' to occur.

Suitable habitat was identified for quenda (P4) within vegetation units 1: Proteaceae Shrubland (Pro SL), 2: *Taxandria spathulata* and *Baeckea latens* Shrubland (Taxspa Baelat SL), and 3: *Melaleuca cuticularis* semi-ephemeral wetland (Melcut WL). No signs of species presence were observed during the survey period. There is marginally suitable habitat present for the western mouse (P4) and heath mouse (VU) within vegetation units 1: Proteaceae Shrubland (Pro SL), 2: *Taxandria spathulata* and *Baeckea latens* Shrubland (Taxspa Baelat SL). For all three of these species the adjacent intact vegetation likely holds more habitat value than the thin strips and relatively small areas of vegetation present within the survey area. Whilst the vegetation within the survey area may form part of the animals immediate home range, the clearing is unlikely to significantly impact the ability of these species to move throughout the immediate landscape.

Carnaby's Cockatoo has been assessed as being 'Possible' to occur with low quality / marginal foraging habitat identified within vegetation units 1: Proteaceae Shrubland (Pro SL) due to the low diversity and quantity of preferred foraging species (i.e. eucalyptus and proteaceous plant species such as Banksia, Hakea, and Grevillea). The low quality and low quantity of feed species available is a likely limiting factor on Carnaby's utilising the area for foraging. If they were to utilise the area it is most likely by transient individuals, and not as an important or favoured feeding area. No signs of roosting were observed, and there was no potential rooting habitat 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 1 ha of high-quality habitat is to be removed. Given the habitat present 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 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 marginal daytime refuge and hunting habitat. Proposed clearing is unlikely to detrimentally impact these species.

1. Introduction, Scope and Background Information

Arc Infrastructure ("the client") commissioned Bio Diverse Solutions as Environmental Consultants to conduct a reconnaissance flora and vegetation survey and a basic (previously reconnaissance) fauna assessment during spring 2021 of a total of 2.17 ha along Line 51 (354.239 to 354.923KM) in the locality of north of the Gibson townsite, in the Shire of Esperance. The total 2.17 ha consists of two separate areas, covering the railway corridor on the eastern and western side of the railway line for 690m. These areas will be used for potential laydown sites, truck turn-arounds and widening the access track present.

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 unit, 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, located along Line 51 (354.239 to 354.923KM) in the north Gibson townsite locality, in the Shire of Esperance. The areas surveyed were 2.17 ha, the total length of the survey area is approximately 690 m (Figure 1). The survey area consists of two areas located on the western and eastern side of the railway line. 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 8 of the proposed programme for 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 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 corridor surrounding the railway line, 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 or part of existing lay down areas. The survey area is directly adjacent and part of a wider corridor of native vegetation surrounding the Coolgardie-Esperance Highway, managed by Main Roads. It is adjacent to Reserves 14554 and 26047, undeveloped road reserves, and Unallocated Crown Land (UCL) which consists of native vegetation surrounding the Gibson townsite. The surrounding landscape is dominated by the rural-urban fringe of the satellite settlement of Gibson.

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 proposed program) 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 17 (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 is aligned to the following legislation, guidelines and policies:

- Environmental Protection and Biodiversity Conservation Act 1999 (EP Act). Administered by the Australian Government 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; and
- DAWE (2022) Referral guideline for 3 WA threatened black cockatoo species.

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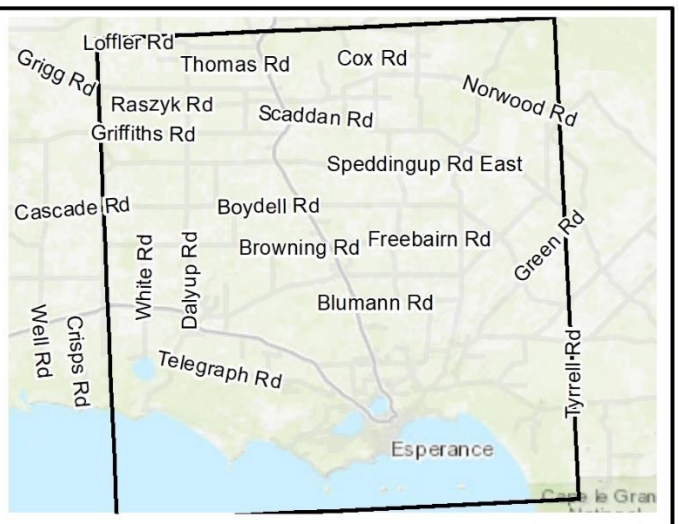
Scale
1:225,000@ A3
GDA MGA 94 Zone 51

Legend

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



Overview Map Scale 1:1,250,000

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

CLIENT Arc Infrastructure
Line 51 (354.239 to 354.923KM)
Site 8 – North of Gibson Townsite
Gibson, WA 6448

Figure 1: Survey Area Locality

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS **FINAL**	*FILE* **AI005-010**	*DATE* **23/06/2022**

1.3. Geology and Soils

Database searches shows the survey area lies within the Esperance System (245Es). The 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 types within the application area are mapped as the Esperance 3sd Phase (245Es_3sd) and Esperance 1 a Phase (245Es_1E1a). The Esperance 1 a Phase is described as "*Gravelly, yellow mottled duplex soil with < 30 cm of sand over gravel layer (Fleming (shallow)), Dy5.82, on level plain, <1% slope"* and the Esperance 3sd Phase is described as *"Saline drainage lines"* (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.

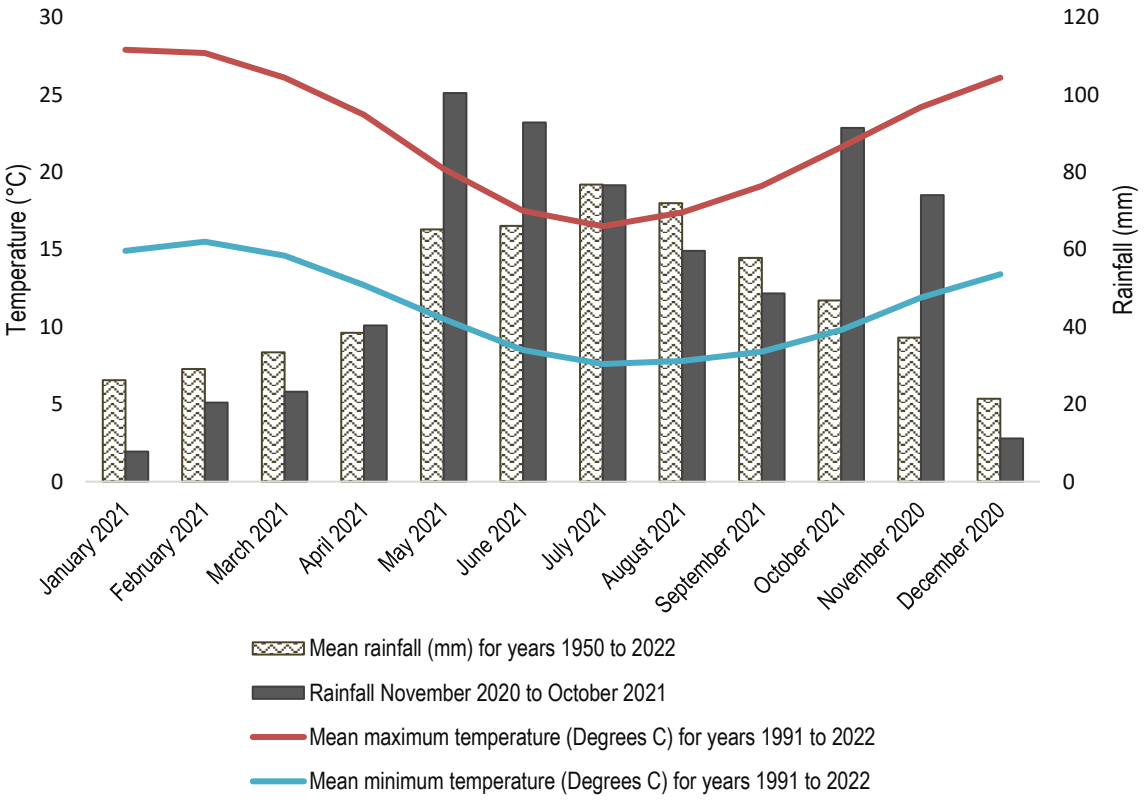


Figure 2: Temperature and Rainfall Data for Esperance BoM Weather Station No. 009542

1.5. Habitat Connectivity

Habitat connectivity assessments rely on a bioregional and landscape-scale approach to evaluate habitat for fauna movement and ecological linkage across a region. Habitat connectivity is largely reliant on remnant vegetation, recognising it plays a very important role in developing corridors between protected areas to assist in achieving long-term biodiversity management outcomes (Wilkins *et al*. 2006). The survey area lies within a highly modified landscape consisting of agricultural properties.

The Helms Arboretum is located approximately 7.3 km to the south and there are other small to large areas of remnant bushland located to the north, south, east and west of the survey area (Table 1). Immediately adjacent to the survey area (east and west) is undeveloped road reserve. There are two reserves to the west of the undeveloped road reserve which contain remnant vegetation (Table1), and UCL is located to the southwest. The survey area (and rail reserve) is ultimately linked to these surrounding areas of vegetation through the existing road reserves, and vegetation within private property.

Table 1: Reserve Details (GoWA, 2022).

Reserve Number	Responsible Agency	Current Purpose
14554	Main Roads Western Australia	Gravel
26047	Main Roads Western Australia	Gravel

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 Catchment (DWER, 2018a) and within the Dalyup River Hydrographic Sub-catchment (DWER, 2018b).

No RAMSAR wetlands, or significant wetlands are located within the survey area. However, the desktop survey did identify that the Lake Gore RAMSAR wetland is ~30km south west and the Lake Warden RAMSAR system is ~20km to the south east of the survey area (DAWE, 2021). The survey area is not present within the catchment of Lake Gore or Lake Warden RAMSAR system.

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 Figure 16 in Appendix A:

- **System Association Name**: Esperance.
- **Vegetation Association Number:** 6048.
- **Structure Description:** Scrub-heath.
- **Floristic Description:** Mixed heath with scattered tall shrubs Acacia spp., Proteaceae and Myrtaceae.
- **Remnant Vegetation by Beard Association Rarity in LGA:** 12.49% remaining (GoWA, 2019).
- **Remnant Vegetation by Beard Association Rarity in IBRA Region:** 14.21% remaining (GoWA, 2019).

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);
- Flora DBCA database records (DBCA, 2021a); and
- 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);
- Protected matters search tool (DAWE, 2021); and
- 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); and
- *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 season reconnaissance level flora and vegetation survey was undertaken by Katie White (Botanist) and Kimberly Jenkins (Technical Assistant) Bio Diverse Solutions on the 5th November 2021. The survey area was surveyed on foot using traverses, and systematically sampled through relevés and quadrats. 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. The vegetation units occurring within the survey area were mapped and described using opportunistic mapping, relevés and quadrat data. Vegetation units were distinguished through changes in structure, dominant taxa and cover characteristics, which is described in both Muirs (1977) and NVIS Level 5 (sub-association; DoEE, 2017) description methods.

Two relevés were systematically surveyed within representative vegetation units to enable analysis and categorisation across the ecological communities present (refer to Appendix B). A risk assessment was undertaken at the time of the survey to determine whether the TEC / PEC 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province' was potentially present. Within these vegetation units, quadrat sampling was undertaken, which is consistent of a Targeted Vegetation Survey methodology. A total of two quadrats were sampled, with photos and GPS coordinates recorded on the south-western corners. The flora was systematically recorded within the relevés and quadrats, and collections of plant specimens were 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.

Information collected within each relevé 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, primarily relating to two species not flowering at the time of the survey with limited detectability without flowering, namely P2 *Hibbertia turleyana* and P3 *Pterostylis faceta.* Additionally, minor limitations were present for a fire-ephemeral species and numerous undescribed, phrase-name species identified on the desktop assessment.

Table 2: Assessment of potential flora and vegetation survey limitations.

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 10 km desktop analysis. Kimberly Jenkins has 10 years' experience of working various technical assistant, field survey, education and other scientific roles.

Table 2 continued.

Limitation	Significance of limitation	Comment
Experience of personnel continued.	Nil	A single species of bryoflora (specifically a moss) was identified within the desktop assessment (Table 13, Appendix B), namely P2 *Fabronia hampeana.* This is outside the expertise of surveyors. A risk assessment was completed on suitable habitat present and was determined to be 'Unlikely' to occur.
Survey timing	Minor Major – P2 *Hibbertia turleyana* and P3 *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 towards the end of Spring on the 5th November 2021. Due to being towards the end of spring, numerous annual species such as Orchidaceae and Stylidiaceae were no longer presenting. Two species were identified as 'Possible' to occur in the LOO that were not flowering at the time of the survey, representing a significant limitation. Namely this applied to P2 *Hibbertia turleyana* and P3 *Pterostylis faceta.* Further detail is provided in Table 13, Appendix B. Additionally, 8 other species identified as 'Possible' to occur in the LOO are recorded flowering on the periphery of the survey timeframe or are species that are readily detectable and identifiable without flowers. For the species recorded flowering on the periphery of the survey period, it is likely that late blooms or fruit would be present and this represents a minor limitation.
Access restrictions	Nil	No access restrictions were encountered during the survey. It is noted that Vegetation Unit 1: Pro SL was extremely dense shrubland, which on occasions limited visibility of small herbs and Orchids.
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. Four species were identified in the desktop assessment (Table 13, 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), *Schoenus* sp. Grey Rhizome (K.L. Wilson 2922) and *Cyathostemon* sp. Esperance (A. Fairall 2431). Cautionary principles were applied for any species within these genera during identification.
Survey effort and extent	Nil	161 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.

Table 2 continued.

Limitation	Significance of limitation	Comment
Survey effort and extent continued.	Nil	A random meandering traverse ensured that all areas within 5-10 m of each other were covered. P2 *Paracaleana parvula* and P3 *Pterostylis faceta* were identified in the LOO as 'Possible' to occur (Table 13, Appendix B). 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. 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	Minor	The primary form of disturbance was the presence of access tracks adjacent to the railway line that were effectively cleared. On the buffer of these areas, detection of disturbance responding opportunists were present and may skew the representation of vegetation community. Vegetation Unit 2: Taxspa Baelat SL is likely an expression of historical disturbance, with excavation for material borrow pits evidently causing a lower depression. The floristic expression of the ecological community currently there has likely to have changed from historical disturbance. 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). It is possible that fire responding ephemeral species are stored in the soil seed bank that were not captured by this survey. This is particularly significant for fire-ephemeral species P3 *Adelphacme minima,* identified as 'Possible' within the LOO (Table 13, Appendix B).
Identification issues	Nil	The survey was undertaken on 5th of November during the peak flowering period for many south coast flora species to maximise ease of identifying them, 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 162 flora species, 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. For numerous Priority species listed on the desktop survey, there were similar non-Threatened species present. Sufficient taxonomic material through retained nuts, fruit, budding or if flowering, was sufficient for determination. Specific rationale is found per species in Table 13, Appendix B and Section 5.5. For species with limited information present, precautionary principles were applied or specimens submitted to the WA Herbarium for formal verification.

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 carried out 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.

It is noted since these surveys were undertaken in 2021 an updated referral guideline for the three WA threatened black cockatoo species as been released (DAWE, 2022). Although this guideline was therefore not utilised during the actual survey assessment period the contents has been taken into consideration upon preparation of this report.

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 significant fauna species utilising the general area and/or particular vegetation units, record the actual presence of conservation significant taxa, and undertake an opportunistic inventory of fauna species encountered whilst traversing the survey area on foot.

3.4. Targeted Black Cockatoo Habitat Assessment

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 breeds 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 Cockatoo have shown that the species utilises tree hollows ranging from 100 mm – 650 mm (average 260 mm) in diameter with a hollow 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. The updated *EPBC Guidelines for Black Cockatoos* (DAWE, 2022) outline general criteria for identifying foraging habitat for black cockatoos (Table 3) and now includes criteria for assessing quality.

This has been utilised were possible to score the foraging habitat available within the survey area post field, during the preparation of this report.

Assessment of foraging habitat was based on published ecological information for Carnaby's Cockatoo, which documents that this species prefers to feed in Kwongkan heathland, shrublands and woodlands dominated by proteaceous species, 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

In this survey, the presence of cockatoo feathers and faecal material were used as indicators of roosting activity, with tall trees of any species within close proximity to water being assessed as a potential roosting tree. The presence of roosting habitat if present was mapped in the field, and individual locations where roosting activity was encountered were GPS recorded.

Table 3: Habitats used by Carnaby's Cockatoo (DAWE, 2022).

Habitat	Carnaby's Cockatoo
Breeding	Generally in woodland or forest, but also breeds in partially cleared woodland or forest, including isolated trees. Nest in hollows in live or dead trees (many eucalypt species may provide suitable hollows), particularly salmon gum, wandoo, tuart, jarrah, flooded gum *(E. rudis)*, York gum, powderbark *(E. accedens)*, karri and marri.
Night Roosting	Generally in or near riparian environments or natural and artificial permanent water sources. Any tall trees may provide roosting habitat, but particularly flat-topped yate *(E. occidentalis),* salmon gum, wandoo, marri, karri, blackbutt, tuart, introduced eucalypts and introduced pines.
Foraging and common food items	Native shrubland, kwongan heathland and woodland on seeds, flowers and nectar of native proteaceous plant species (*Banksia* spp., *Hakea* spp. and *Grevillea* spp.), as well as *Callistemon* spp. and marri. Also seeds of introduced species including *Pinus* spp., *Erodium* spp., wild radish, canola, almonds, macadamia and pecan nuts; insects and insect larvae; occasionally apples and persimmons; and liquidambar.

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.

Table 4 continued.

Limitation	Constraint	Comment
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	A small section in the north of the survey area was underwater. Within this section the edge of the water was traversed. It is not expected to have impacted the survey results.
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.
Species detection probability (e.g., as a result of seasonal activity, fauna movement patterns and cryptic behaviours)	Minor	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), 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. 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 Likelihood of Occurrence (LOO) in Table 15, Appendix B.
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 21 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 used in the desktop assessment 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 16 and 17 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 68 Priority species were identified within the study area (30km buffer). Of these, two were assessed to be "Possible" to occur. Refer to Table 13 in Appendix B for LOO analysis. Species that have previously been recorded within a 10 km radius of the survey area are shown in Figure 3.

A single species of bryoflora (specifically a moss) was identified within the desktop assessment (Table 13, 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.

Two species were present that were not flowering at the time of the survey resulting in significantly limitations in the ability of surveyors to detect, namely P2 *Hibbertia turleyana* and P3 *Pterostylis faceta. H. turleyana* is a small, perennial shrub easily obscured by the dense shrubland without flowering and without flowers bears similarities to numerous other non-threatened species. *P. faceta* is an annual herbaceous species that would not be physically present at the time of the survey, presenting in August to early September. It is therefore likely that the field component of the survey did not detect these species if present.

4.2. Threatened and Priority Ecological Communities

Desktop Assessment of Threatened (TEC) or Priority (PEC) ecological communities identified two TEC / PEC, namely '*Subtropical and Temperate Coastal Saltmarsh* (CSM)*'* and '*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 and CSM as 'Unlikely'.

Conservation categories for Threatened and Priority ecological communities are presented in Tables 18 and 19 in Appendix C. NatureMap and Protected matters search tool database searches are provided in Appendix F.

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 5.

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)

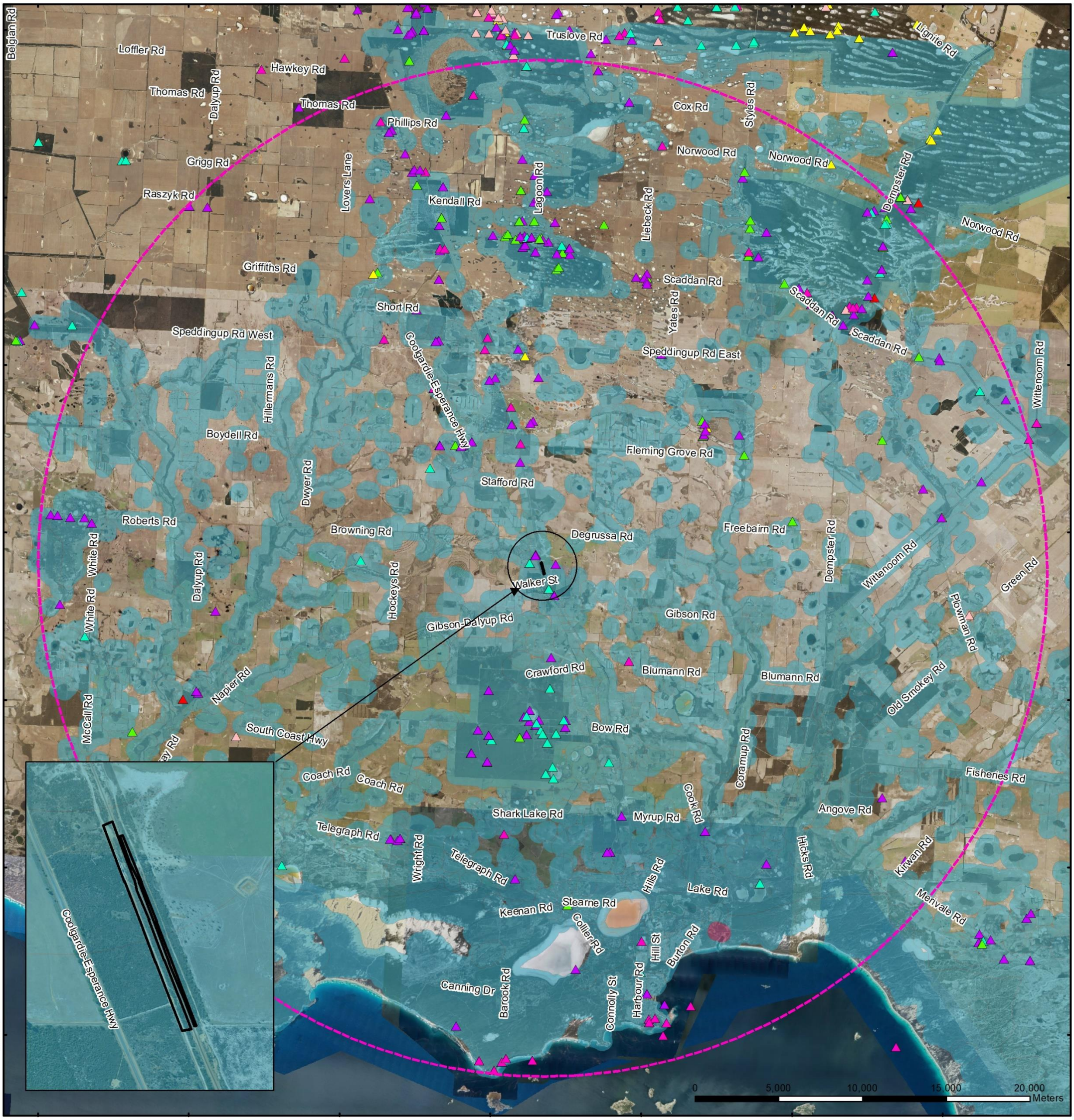
CSM is listed as a P3 PEC within WA under the *BC Act 2016* and as a Vulnerable TEC under the *EPBC Act 1999.* The community "consists of the assemblage of plants, animals and micro-organisms associated with saltmarsh in coastal regions of sub-tropical and temperate Australia (south of 23° S latitude). CSM is recognised by the below key diagnostic features and minimum condition thresholds outlined in Approved Conservation Advice Guidelines (DoE, 2015), which are outlined further below (Table 6). Refer to Table 14, 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 TEC / PEC is unlikely to occur within the survey area, being 10 km away from the coastline or distinct hydrological features that would allow for tidal interaction.



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Esperance, WA 6450
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Scale
1:225,000@ A3
GDA MGA 94 Zone 51

CLIENT Arc Infrastructure
Line 51 (354.239 to 354.923KM)
Site 8 – North of Gibson Townsite
Gibson, WA 6448

Figure 3: Desktop Flora & TEC/PEC Data (DBCA, 2021a; 2021b).

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-010	23/06/2022

Legend

- Survey Area
- 30km Study Area Buffer

Ecological Communities

State, Commonwealth

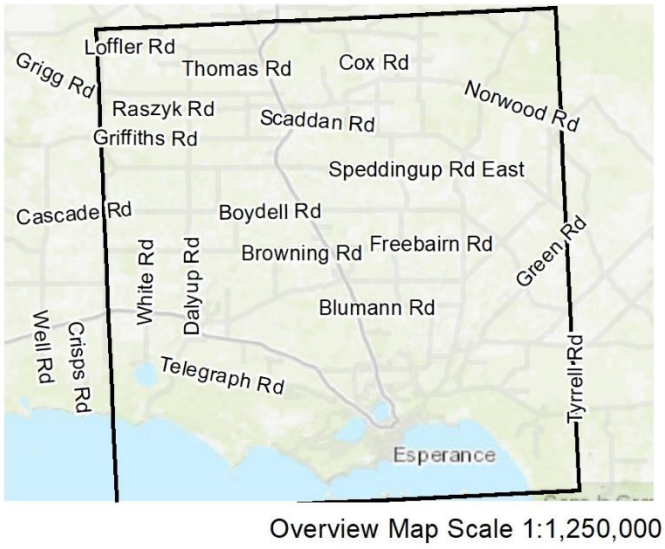
- Priority 3, Endangered
- Priority 3, Vulnerable

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 81 species of conservation significance within 30 km of the survey area. Of these, 43 were Threatened taxa under the *BC Act 2016* and / or *EPBC Act 1999* (critically endangered, endangered, or vulnerable), 12 were Priority listed or specially protected taxa and 26 were migratory species protected under international agreements. Of the 43 Threatened taxa and 12 Priority taxa, 22 are also migratory species protected under international agreements (Table 15, Appendix B). Of these 81 species, 20 species were assessed as 'Possible' to occur in the pre-field LOO analysis (Table 15, Appendix B). Species that have previously been recorded within a 30 km radius of the survey area are shown in Figure 4. Conservation categories for Threatened and Priority fauna are presented in Tables 16 and 17 in Appendix C. NatureMap and Protected Matters Search Tool database searches are provided in Appendix F.

The full species list compiled from all available data (Table 15, Appendix B) 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.

4.3.1. Potential Breeding, Foraging and Roosting Habitat for Black Cockatoos

Carnaby's Cockatoo has a wide-spread distribution across Western Australia, which extends from Kalbarri and Geraldton in the northwest of the state, inland to Morawa, Dowerin and Merredin and to the east of Esperance (DSEWPaC, 2012; DoEE, 2017b; and DAWE, 2022). The survey area lies within the known foraging range and breeding range of the Carnaby's Cockatoo (DSEWPaC, 2012; DoEE, 2017b; Rycken 2019 and DAWE, 2022).

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 9.6 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
1:225,000@ A3
GDA MGA 94 Zone 51

CLIENT Arc Infrastructure
Line 51 (354.239 to 354.923KM)
Site 8 – North of Gibson Townsite
Gibson, WA 6448

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

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-010	23/06/2022

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 Area
- 30km Study Area Buffer
- 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 162 flora species, consisting of 39 families and 107 genera were found. The most commonly occurring families were Myrtaceae and Proteaceae. The list includes 144 native species (refer to Table 21 Appendix D), and 18 introduced / alien species. The vegetation units identified across the survey area are described in Section 5.2. Refer to Figure 8A and 8B for vegetation mapping, and Table 21, Appendix D for full species list.

5.2. Vegetation Units

Three vegetation units were identified during the survey period, vegetation descriptions can be found in the following sections, with relevé data presented in Appendix D. Refer to Figures 5 – 7 for photographs of vegetation units and Figures 8A and 8B for extent. A portion of the survey area (0.81 ha) was also historically cleared, consisting of bare ground or entirely non-native invasive species (mostly agricultural grasslands). These areas were generally directly adjacent to the railway line in the form of access tracks or as access tracks between the railway line and the adjacent/nearest road (Coolgardie-Esperance Highway).

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-).

1. Vegetation unit: Proteaceae Shrubland (ProSL)

Vegetation Unit 1: Pro SL had extremely high beta and alpha diversity, in both species composition and minor changes in structured. It was largely dominated by Proteaceous and Myrtaceous shrublands, with a scattered *Nuytsia floribunda* and *Eucalyptus densa* subsp. *densa* Mallee overstorey. *Lambertia inermis* var *inermis* was often present as a dense, tall shrubland thicket creating another form of the overstorey of the community. The lower shrublands forming the midstorey were highly mixed in composition, commonly including *Phymatocarpus maxwellii, Hakea trifurcata* and *Micromyrtus elobata* subsp. *elobata.* The understorey was dominated by sedges, such as *Chorizandra enodis* and *Hypolaena humilis,* with scattered herbs. Vegetation Unit 1: Pro SL meets criteria to be considered the TEC (EPBC Act 1999) / PEC (BC Act 2016) Kwongkan, as further discussed in Section 5.6. Priority flora P3 *Persoonia scabra* was present within Vegetation Unit 1: Pro SL.

Vegetation Description (NVIS; DoEE, 2017): U ^*Lambertia inermis* var *inermis*, +/-*Eucalyptus densa* subsp. *densa*, *Acacia cyclops*\shrub, mallee\4\c; M^ ^^*Phymatocarpus maxwellii*, *Hakea trifurcata, Micromyrtus elobata* subsp. *elobata*\shrub\2,3\c; G ^^*Chorizandra enodis, Hypolaena humilis, Chamaescilla corymbosa*\sedge, herb\1\c.

Vegetation Description (Muir, 1977): *Eucalyptus densa* subsp. *densa* very open shrub Mallee, over *Lambertia inermis* var *inermis* and *Acacia cyclops* thicket, over *Phymatocarpus, Hakea trifurcata* and *Cyathostemon tenuifolius* Heath A and B, over *Micromyrtus elobata* subsp. *elobata* and *Adenanthos cuneatus* Dwarf Scrub C and D, over *Neurachne alopecuroidea* Open Low Grass, over *Caustis dioica* Tall Sedge, over *Chorizandra enodis, Hypolaena humilis* and *Desmocladus flexuosus* Low Sedge, over *Chamaescilla corymbosa* and *Opercularia vaginata* Open Herbs.

Area: 0.911 ha.

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

Condition: Very Good, Good, Degraded.

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

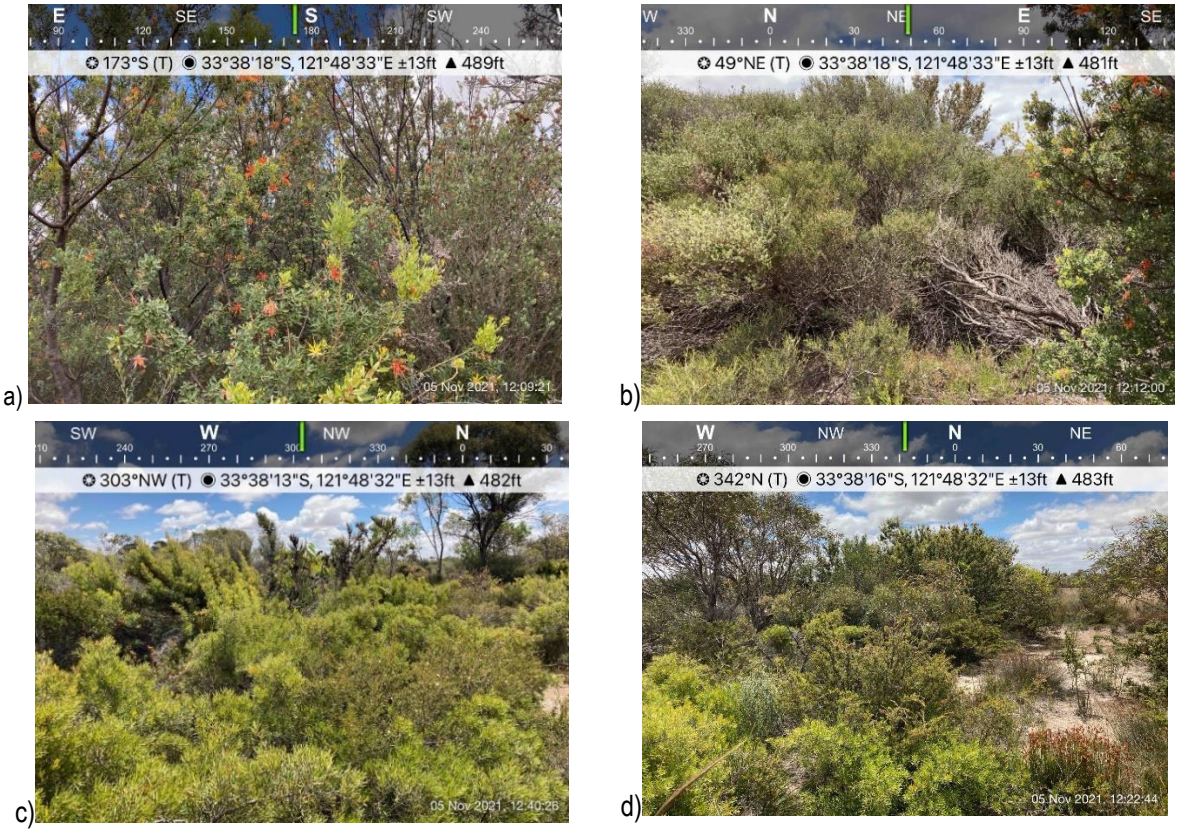


Figure 5: Vegetation Unit 1: Proteaceae Shrubland present within the survey area.
a) Dense *Lambertia inermis* var *inermis* thicket forming an isolated patch as a monoculture; b) Mixed shrubland with *L. inermis* var *inermis, Phymatocarpus maxwellii* and lower shrub layer of *Allocasuarina humilis* and *Adenanthos cuneatus.* c) Lower shrubland with dense *Banksia armata* and *Hakea trifurcata,* with *Eucalyptus densa* subsp. *densa* Mallee overstorey in the background. d) Lower shrubland of *H. trifurcata* and *Melaleuca scabra,* with *L. inermis* var *inermis* tall shrubs and *E. densa* subsp. *densa.*

2. Vegetation unit: *Taxandria spathulata* and *Baeckea latens* Shrubland (Taxspa Baelat SL)

Vegetation Unit 2: Taxspa Baelat SL is characterised by a dense Myrtaceous shrubland dominated by *Taxandria spathulata* and *Baeckea latens.* Minimal overstorey is present, with scattered *Nuytsia floribunda, Acacia cyclops* and *Melaleuca cuticularis* present. Low sedgeland is present, dominated by *Caustis dioica* and *Mesomelaena tetragona.* The change in vegetation unit is attributed to a lower profile in the soil, thought to be due to historical clearing and excavation of basic raw materials, resulting in a regenerated community of species preferring moister conditions and disturbance opportunists. It is thought that this area was likely historically Vegetation Unit 1: Pro SL but historical disturbance has resulted in an altered species expression and structure, with overall lower diversity of species present. Vegetation Unit 2: Taxspa Baelat SL does not bear resemblance to any TEC / PEC's. No species of priority flora were detected within this vegetation unit.

Vegetation Description (NVIS; DoEE, 2017): U ^*Nuytsia floribunda*, +/- *Acacia cyclops*, *Melaleuca cuticularis*\shrub\4\bc; M^ ^*Taxandria spathulata*, +/-*Baeckea latens*\shrub\3\c; G ^^*Desmocladus flexuosus, Caustis dioica, Mesomelaena tetragona*\sedge\1\c.

Vegetation Description (Muirs, 1977): *Nuytsia floribunda* Open Low Woodland B, over *Acacia Cyclops* and *Melaleuca cuticularis* Open Scrub, over *Taxandria spathulata* and *Baeckea latens* Heath A and B, over *Desmocladus flexuosus, Caustis dioica* and *Mesomelaena tetragona* Tall Sedges, over *Chamaescilla corymbosa, Stylidium rupestre* and *Levenhookia stipitata* Very Open Herbs.

Area: 0.14 ha.

Site description: Flat sandplain, with minor depression within the landscape. Orange to Brown sand present.

Condition: Very Good.

Represented in R1 (refer to Appendix D).

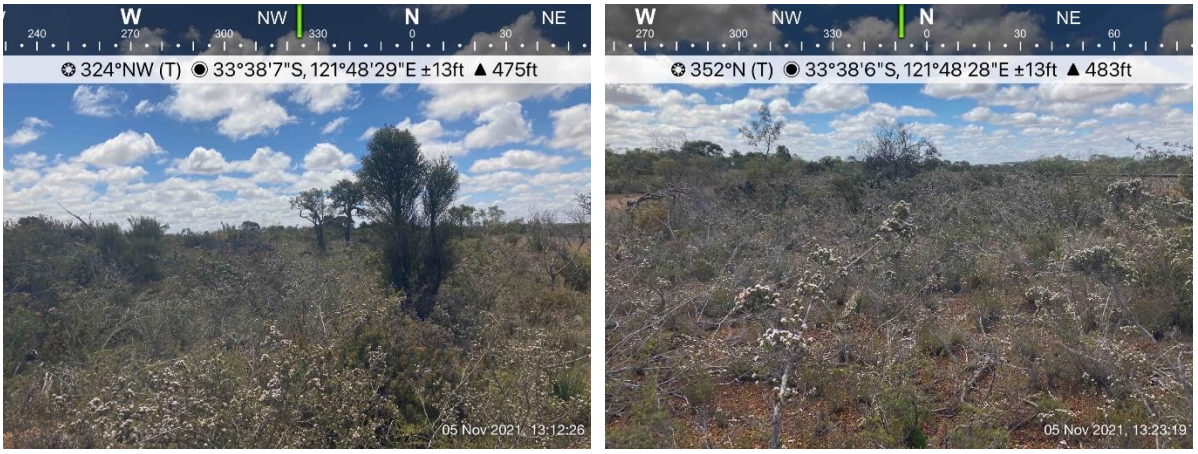


Figure 6: Vegetation Unit 2: *Taxandria spathulata* and *Baeckea latens* Shrubland present within the survey area.

3. Vegetation unit: *Melaleuca cuticularis* semi-ephemeral wetland (Melcut WL)

Vegetation Unit 3: Melcut WL is characterised by saline tolerant wetland species, bordering a small pocket of a semi-permanent open body of water. This forms a small hydrological feature within the survey area. The presence of the open water has evidently developed through large scale excavations historically for basic raw materials, and drainage surrounding the railway infrastructure, effectively causing a small dam. Regeneration has occurred to form an intact native community, dominated by *Melaleuca cuticularis* and *Melaleuca breviflora* shrubland, with scattered *Baeckea latens* and *Cyathostemon tenuifolius.* A dense sedgeland of *Gahnia trifida* is present in close proximity to the waters edge. Vegetation Unit 2: Melcut WL did not bear resemblance to any PEC / TEC's. Species present represent riparian vegetation. P3 *Comesperma calcicola* was detected within this vegetation unit.

Vegetation Description (NVIS; DoEE, 2017): U^ *Melaleuca cuticularis, Melaleuca brevifolia*, *+/-Acacia cyclops*\shrub\4\c ; M ^^*Baeckea latens*, *Acacia gonophylla, Cyathostemon tenuifolius*\shrub\3\r; G ^*Gahnia trifida*, *+/-Hypolaena humilis, Chorizandra enodis*\sedge\1\d.

Vegetation Description (Muirs, 1977): *Melaleuca cuticularis, Melaleuca brevifolia* and *Acacia cyclops* Thicket, over *Baeckea latens, Acacia gonophylla* and *Lambertia inermis* Low Scrub A and B, over *Gahnia trifida, Hypolaena humilis* and *Chorizandra enodis* Dense Tall Sedge, over *Microtis media* subsp. *media* very open herb.

Area: 0.30 ha.

Site description: Drainage depression with moderate slopes. Seasonally wet, with semi-permanent open body of water. orange-brain Sand-clay-loam present.

Condition: Good.

Represented in R2 (refer to Appendix D).

Figure 7: Vegetation Unit 3: *Melaleuca cuticularis* semi-ephemeral wetland present within the survey area.

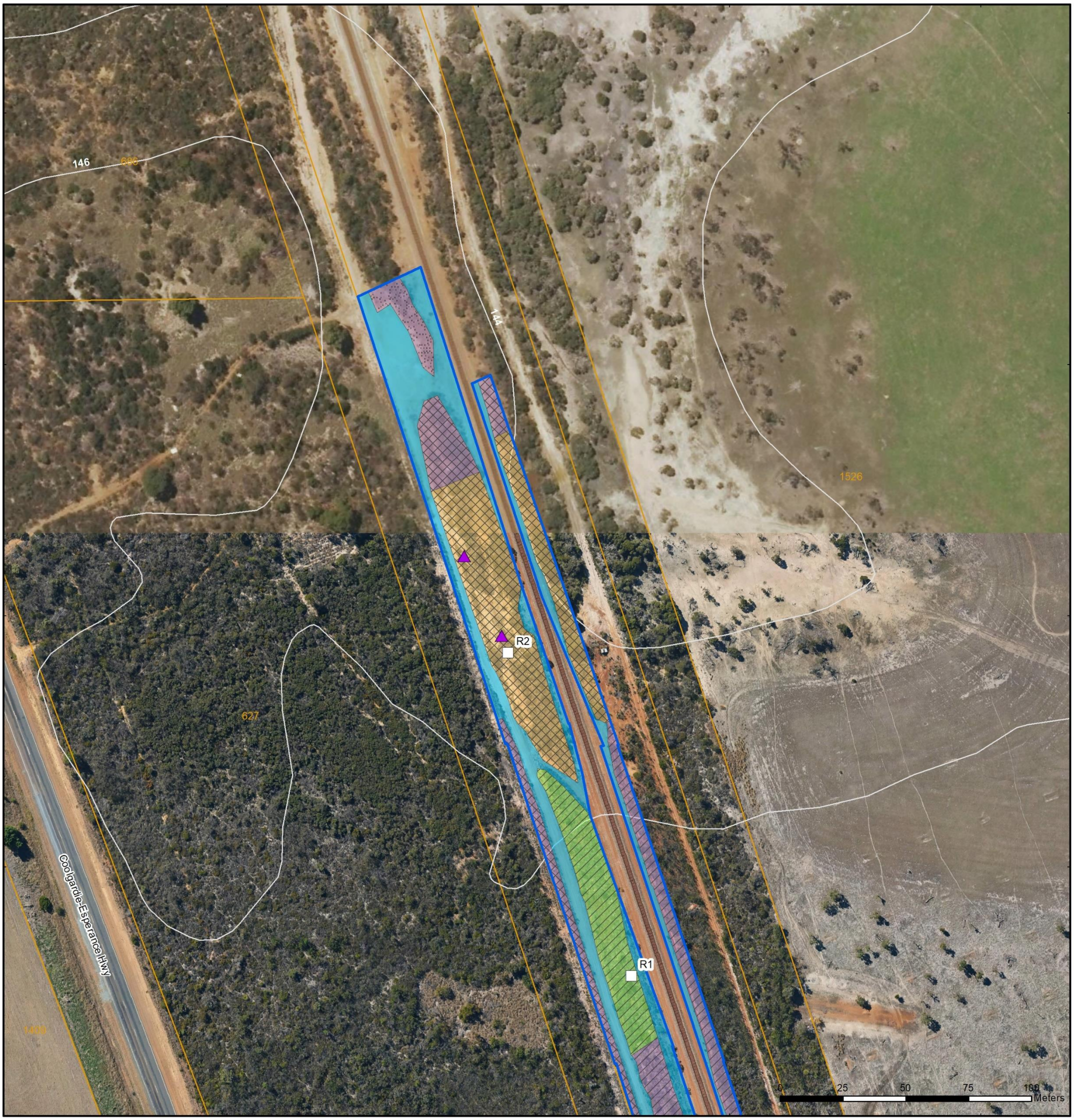
5.3. Vegetation Condition

The vegetation condition for the survey area (Table 7) has been mapped using the condition rating scale (adapted from Keighery 1994) outlined in *EPA Flora and Vegetation Survey Technical Guidance* (2016). Refer to Table 20, Appendix C.

The vegetation ranged from Degraded to Very Good condition throughout the survey area. These classification levels are related to degradation of structure and vegetation integrity by processes such as clearing, fire, weeds, grazing, plant pathogens (eg. Phytophthora Dieback) and vehicle tracks. Specifically, degradation was primarily caused by edge effects from the historical clearing and access tracks, introducing non-native species that have displaced native communities. Vegetation unit 1: Pro SL was the most intact and suffered the least amount of degradation, from Very Good to Degraded condition. Vegetation unit 2: Taxspa Baelat SL had evidence of historical disturbance through basic raw material extraction works resulting in a slightly lower profile than the surrounding area, consisting of vegetation in Very Good condition. Vegetation unit 3: Melcut WL similarly demonstrated evidence of historical extraction, with the semi-ephemeral wetland present evidently caused by drainage and an embankment of the adjacent railway line.

Table 7: Vegetation condition rating.

Vegetation unit	Condition rating	Area (ha)
1: Proteaceae Shrubland	Very Good	0.70
	Good	0.17
	Degraded	0.03
2: *Taxandria spathulata* and *Baeckea latens* Shrubland	Very Good	0.14
3: *Melaleuca cuticularis* semi-ephemeral Wetland	Good	0.32
Cleared	N/A	0.81
	Total	**2.17 ha**



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BIO DIVERSE SOLUTIONS

Scale
1:1,500 @ A3
GDA MGA 94 Zone 51

CLIENT
Arc Infrastructure
Line 51 (354.239 to 354.923KM)
Site 8 – North of Gibson Townsite
Gibson, WA 6448

Figure 8A: Vegetation Units & Condition.

	QA Check	Drawn by
	KAW	BMT
STATUS	FILE	DATE
FINAL	AI005-010	2/09/2022

Legend

- Survey Area
- Cadastre
- 2m Contours

Sample Sites

- Releve
- Quadrat

Vegetation Units

- 1: Proteaceae Shrubland (ProSL)
- 2: *Taxandria spathulata and Baeckea latens* Shrubland (Taxspa Baelat SL)
- 3: *Melaleuca cuticularis* semi-ephemeral wetland (Melcut WL)
- Cleared

Vegetation Condition

- Very Good
- Good
- Degraded

Priority Flora

- *Comesperma calicola*, P3
- *Persoonia scabra*, P3

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
1:1,500 @ A3
GDA MGA 94 Zone 51

CLIENT
Arc Infrastructure
Line 51 (354.239 to 354.923KM)
Site 8 – North of Gibson Townsite
Gibson, WA 6448

Figure 8B: Vegetation Units & Condition.

	QA Check	Drawn by
	KAW	BMT
STATUS	FILE	DATE
FINAL	AI005-010	2/09/2022

Legend

- Survey Area
- Cadastre
- 2m Contours

Sample Sites

- Releve
- Quadrat

Vegetation Units

- 1: Proteaceae Shrubland (ProSL)
- 2: *Taxandria spathulata and Baeckea latens* Shrubland (Taxspa Baelat SL)
- 3: *Melaleuca cuticularis* semi-ephemeral wetland (Melcut WL)
- Cleared

Vegetation Condition

- Very Good
- Good

Priority Flora

- *Comesperma calicola*, P3
- *Persoonia scabra*, P3

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

5.4. Weeds and Disturbance

Of the 162 flora species recorded within the survey area, 18 species are introduced. The full suite of weed species recorded is listed below in Table 8, with their corresponding ratings under the Australian Weed Strategy (IPAC, 2017), 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) Victorian Tea Tree and African Lovegrass are listed as 'High', while Jersey Cudweed, Common Sowthistle, Ursinia, Pine Tree, Blowfly Grass, Shivery Grass and Wild Oat are rated as 'Moderate'. The remaining species are either rated 'Low' or are not listed (Table 8).

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 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 Weeds Strategy (IPAC, 2017)
Asteraceae	*Gazania linearis*	Treasure Flower	Low	Permitted - s11	
Asteraceae	*Hypochaeris radiata*	Flatweed		Permitted - s11	
Asteraceae	*Pseudognaphalium luteoalbum*	Jersey Cudweed	Moderate	Permitted - s11	
Asteraceae	*Sonchus oleaceous*	Common Sowthistle	Moderate		
Asteraceae	*Ursinia anthemoides*	Ursinia	Moderate	Permitted - s11	
Caryophyllaceae	*Silene gallica*	French Catfly	Low	Permitted - s11	
Fabaceae	*Trifolium fragiferum*	Strawberry Clover	Low	Permitted - s11	
Myrtaceae	*Leptospermum laevigatum*	Victorian Tea Tree	High	Permitted - s11	
Orchidaceae	*Disa bracteata*	South African Orchid			
Pinaceae	*Pinus radiata*	Pine Tree	Moderate	Permitted - s11	
Poaceae	*Briza maxima*	Blowfly Grass	Moderate	Permitted - s11	
Poaceae	*Briza minor*	Shivery Grass	Moderate	Permitted - s11	
Poaceae	*Avena fatua*	Wild Oat	Moderate	Permitted - s11	
Poaceae	*Eragrostis curvula*	African Lovegrass	High	Permitted - s11	
Poaceae	*Lolium perenne*	Annual Rye Grass	Low	Permitted - s11	
Poaceae	*Neurachne alopecuroidea*	Mulga Foxtail Grass		Permitted - s11	
Poaceae	*Vulpia muralis*	Fox Grass	Low	Permitted - s11	
Primulaceae	*Lysimachia arvensis*	Pimpernel		Permitted - s11	

5.5. Presence of Conservation Significant Flora

In total, two species of Priority conservation status were identified within the survey area directly and considered to be new populations with no previous records within the immediate vicinity, namely P3 *Persoonia scabra* and P3 *Comesperma calcicola*. A specimen was collected for each species under Katie White's Regulation 60 FTB2000327 Flora Taking licence,

and submitted to the WA Herbarium for verification (Accession 9281; KW182 for *P. scabra* and KW183 for *C. calcicola*; specimens retained for *C. calcicola*). A Threatened and Priority Report Form (TPFL) was submitted to DBCA Species district Flora Conservation Office (Emma Adams) and Species and Communities Branch for all Priority species observed in the survey area on the 05/01/2022 (Appendix E). Further details on presence of conservation significant flora is displayed in Table 9 and in species-specific sections below.

An estimated 5-8 species could not be identified due to lacking suitable taxonomic information, with all analysed to confirm that it did not bear similarities to any Threatened or Priority flora identified on the desktop assessment. Additionally, numerous non-Threatened species were identified with close similarities to conservation listed species that were identified in the desktop assessment. Key rationale behind identification as non-Threatened are listed below, and are further discussed in Table 12 of Appendix B:

- *Thysanotus sparteus* – bears similarities to P2 *Thysanotus brachiatus,* identified as 'Possible' to occur in the LOO. Submitted to WA Herbarium for verification (KW184, Accession 9281, specimen not retained) and confirmed as non-threatened *T. sparteus.*
- *Styphelia breviflora* – bears similarities to numerous Ericaceae species identified as 'Possible' to occur in the LOO. Submitted to WA Herbarium for verification (KW181, Accession 9281, specimen retained) and confirmed as non-threatened *S. breviflora.*
- *Leucopogon carinatus* – bears similarities to numerous Ericaceae species identified as 'Possible' to occur in the LOO. Submitted to WA Herbarium for verification (KW180, Accession 9281, specimen not retained) and confirmed as non-threatened *L. carinatus.*
- *Cyathostemon tenuifolius* – bears similarities to P1 *Cyathostemon* sp. Esperance (A. Fairall 2431), identified as 'Possible' to occur in the LOO. It is noted that this is an informal, undescribed species and limited information is present. Therefore, precautionary principles were applied. All characteristics indicate that specimen is *C. tenuifolius.*
- *Micromyrtus elobata* subsp. *elobata* – bears similarities to P2 *M. elobata* subsp. *scopula*. Was determined as being the non-Threatened subspecies as the leaves were too thin and not circular enough to be considered the P2 subspecies.
- *Calectasia valida* – bears similarities to P2 *Calectasia jubilaea,* which was recently been described and formally named within the Esperance region. Specimen had finished flowering, but based on current known distribution, length of leaf and other leaf characteristics, determined as non-threatened *C. valida.* Some limitation may be present with this identification.

Table 9: Conservation significant flora identified within the survey area.

Family	Species	Cons Code	Population status	Vegetation Units Present	Abundance	KM
Proteaceae	*Persoonia scabra*	P3	New	1: Proteaceous Shrubland	2	354.683
Polygalaceae	*Comesperma calcicola*	P3	New	3: *Melaleuca cuticularis* semi-ephemeral wetland	Estimate - 225	354.377

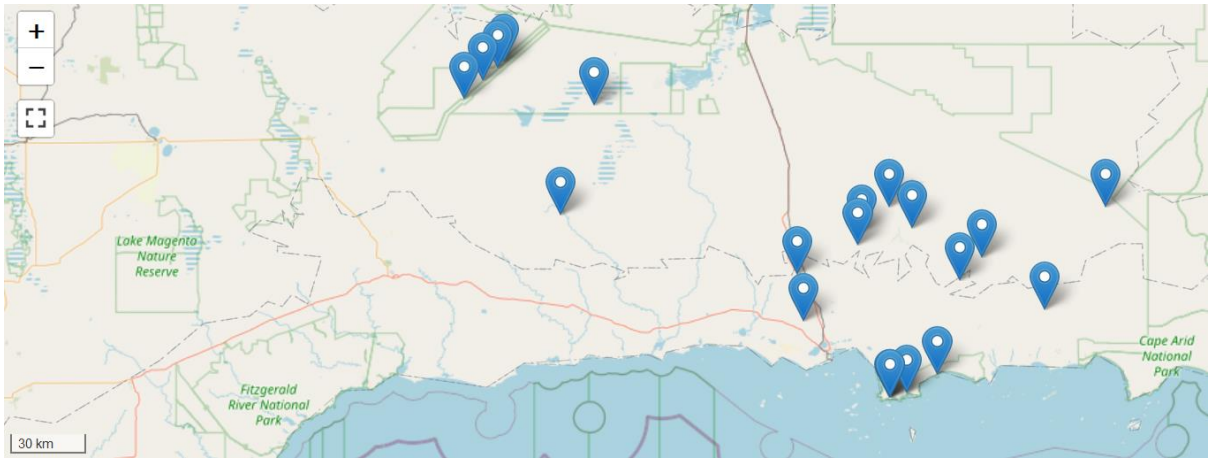
***Persoonia scabra*, P3 (new)**

A new population of *Persoonia scabra* (P3) was detected within the survey area, after being identified as 'Possible' to occur in the desktop assessment LOO, due to the distribution in the general area and suitable habitat identified within the survey area (Figure 7B; Figure 9; Table 12 Appendix B). The population of *P. scabra* was detected on the eastern railway reserve corridor, at specifically 354.683 km. Generally, this is located 1.46 km north of the Eastern Loop Road railway crossing. Two plants were found, in direct proximity to each other. This was within Vegetation Unit 1: Pro SL, which is consistent with known suitable habitat for the species.

The plants of *P. scabra* counted represent a partial or edge survey, with only plants directly located within the survey area counted. It is likely that the population extends more broadly into the surrounding suitable habitat of the adjacent vegetation corridors, and the total population number is much higher. Further surveys may be required to quantify impact of proposed clearing identified in the survey area, within the context of the total population.

The known distribution and records of *P. cymbifolia* within the Australasian Virtual Herbarium (AVH, n.d.) and Florabase (WAH, 1998 -) indicate that *P. cymbifolia* a total of 21 records, and is largely located in a 250km east-west and 150km north-south distribution around the Esperance townsite. There is also a single outlier record north of Kalgoorlie. It has been recorded within the Local Government Areas of Esperance, Kalgoorlie-Boulder, Lake Grace and Ravensthorpe, and IBRA regions of Esperance Plains, Mallee and Murchison. See Figure 10.

Figure 9: Scan of specimen collected of *Persoonia scabra* within the survey area.



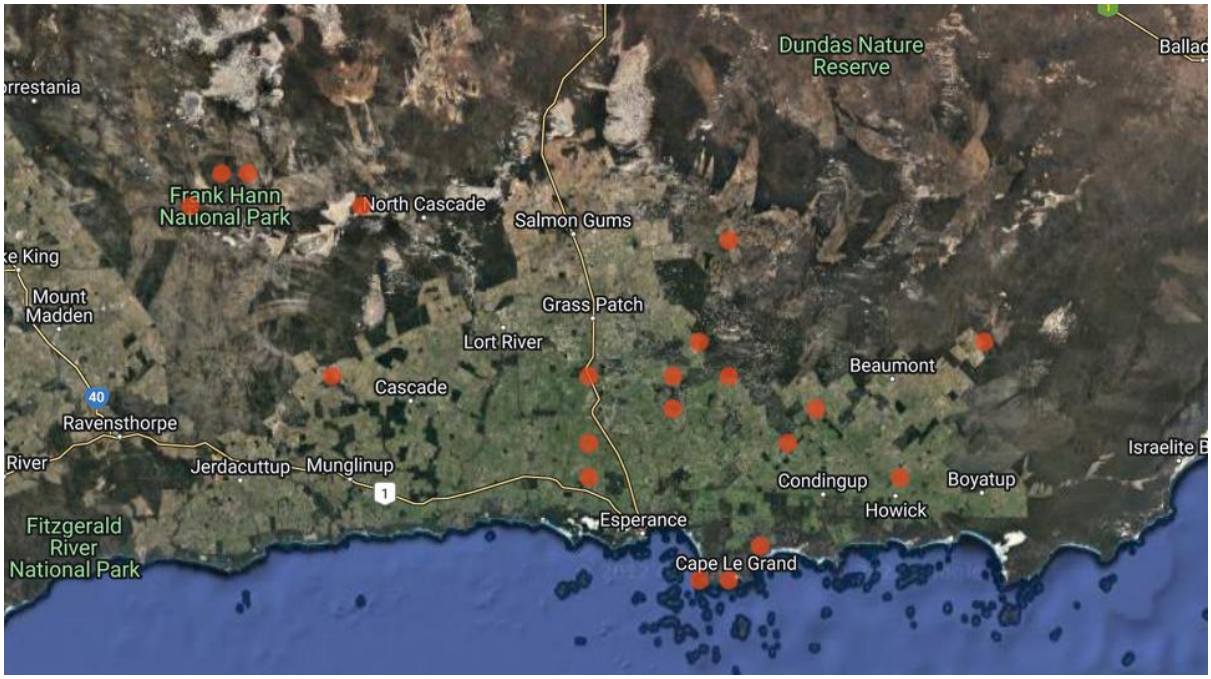


Figure 10: Regional distribution of *Persoonia scabra* (WAH, 1998 - ; AVH, n.d.)

***Comesperma calcicola*, P3 (new)**

A new population of *Comesperma calcicola* (P3) was detected within the survey area, after being identified as 'Possible' to occur in the desktop assessment LOO, due to the distribution in the general area and suitable habitat identified within the survey area (Figure 7A; Figure 11; Figure 12; Table 12 Appendix B). The population of *C. calcicola* was detected on the eastern railway reserve corridor, at specifically 354.377 km. Generally, this is located 1.78 km north of the Eastern Loop Road railway crossing. Approximately 225 plants were found, all within the same area. An estimate was applied to the larger number, small nature and numerous germinant still emerging. All plants were found within Vegetation Unit 3: Melcut WL, specifically within an open area that had recently been cleared or graded and had formed an inadvertent drainage line into the open body of water.

The plants of *C. calcicola* counted represent a partial or edge survey, with only plants directly located within the survey area counted. It is likely that the population extends more broadly into the surrounding suitable habitat of the adjacent vegetation corridors, and the total population number is much higher. Further surveys may be required to quantify impact of proposed clearing identified in the survey area, within the context of the total population.

The known distribution and records of *P. cymbifolia* within the Australasian Virtual Herbarium (AVH, n.d.) and Florabase (WAH, 1998 -) indicate that *P. cymbifolia* a total of 17 collections, and is largely located in a 350 km east-west and 200 km north-

south distribution within the Esperance district, extending from Lake Hope east of Hyden to Cape Arid. It has been recorded within the Local Government Areas of Esperance and Kondinin, and IBRA regions of Esperance Plains, Coolgardie and Mallee. See Figure 12.

Figure 11: Scan of specimen collected and photos of *Comesperma calcicola* within the survey area.

a) *C. calcicola* plants present on the ground; b) Plants and relative size with hands; c) Scanned specimens submitted to the WA Herbarium; d) Open bare area where *C. calcicola* plants were growing.

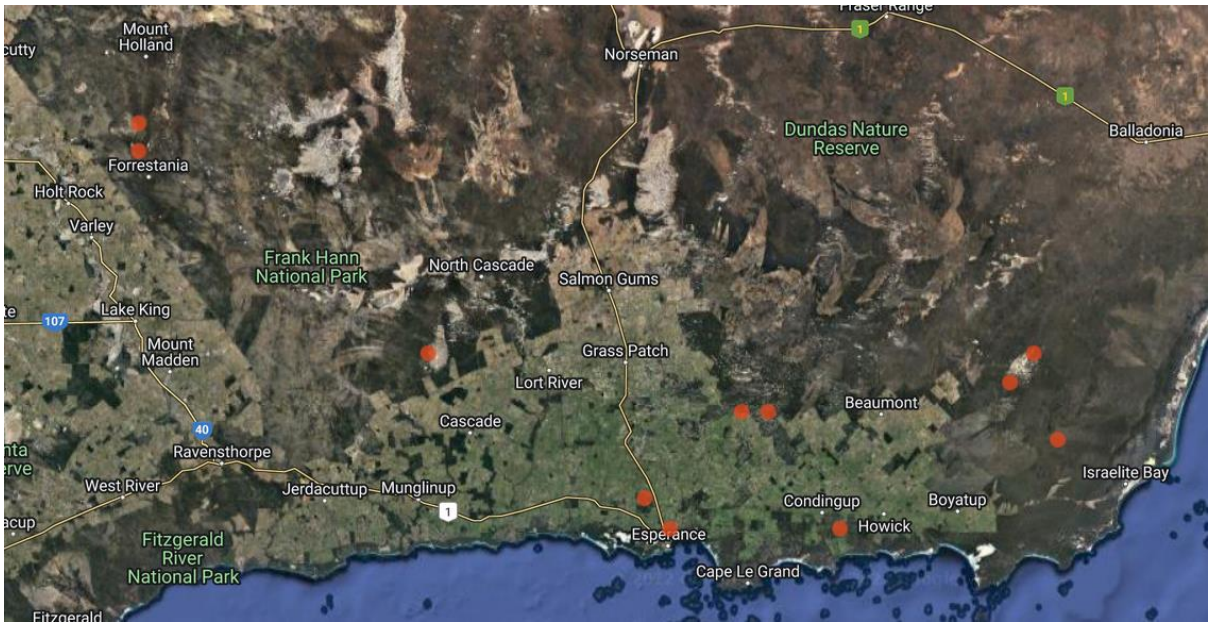


Figure 12: Regional distribution of *Comesperma calcicola* (WAH, 1998 - ; AVH, n.d.).

5.6. Threatened and Priority Ecological Communities

Two Threatened (TEC) and Priority (PEC) ecological communities were identified in the 30 km desktop analysis, 'Subtropical and Temperate Coastal Saltmarsh (CSM)' and the 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongkan)' (Section 4.2; Table 14, Appendix B). Analysis of vegetation units identified within the survey area and comparison to TEC / PEC Kwongkan criteria is discussed in further detail below, and is consistent with a targeted vegetation assessment.

CSM was assessed as 'Unlikely' to occur due to it being evident no coastal interaction would occur 15 km north of the coastline. This was confirmed during the field survey and the TEC / PEC was not detected within the survey area.

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

Kwongkan is listed as an Endangered TEC under the federal *EPBC Act 1999*. Multiple more specific and define communities are applicable under the state legislation *BC Act 2016,* meeting 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 during the 5th November 2021 field survey that Vegetation Unit 1: Pro SL was likely to meet criteria for Kwonkgan TEC / PEC. Therefore, more intensive and targeted sampling methodology using quadrat analysis occurred was conducted within this vegetation unit. Specific analysis of quadrat results are presented below. In summary, 0.91 ha Vegetation Unit 1: Pro SL met the criteria and was considered as Kwongkan TEC / PEC (Table 10).

Table 10: 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	1: Pro SL	Very Good	0.70	Yes	Yes
		Good	0.17		
		Degraded	0.03		

Vegetation unit 1: Proteaceae Shrubland – Kwongkan TEC Analysis

Two quadrats were sampled within Vegetation Unit 1: Pro SL to systematically determine whether it met Kwongkan TEC / PEC criteria (Appendix D). They were located strategically across the survey area to capture the diversity and change within the vegetation unit present. Comparison of the ecological criteria outlined in Section 4.2 of Kwongkan TEC / PEC occurred, and are presented in Table 11. All floristic structure, composition and analysis indicated that Vegetation Unit 1: Pro SL met Kwongkan TEC / PEC criteria. Additionally, the location of vegetation unit 1: Pro SL consisted of a larger 'Patch' of vegetation, due to the surrounding reserves and road reserve of intact vegetation. Therefore, patch criteria thresholds were also met.

Table 11: Quadrat analysis of vegetation unit 1: Nuyflo and Lamine SL 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 *Lambertia inermis* var *inermis* at >70% cover, *Adenanthos cuneatus* at <10% cover and *Hakea trifurcata* at <10% cover. Additionally, one other Proteaceae species was present at <5% cover. Quadrat two consisted of *Hakea denticulata* at <10% cover, *Hakea lissocarpha* at <10% cover and *Banksia armata* at <10% cover. Additionally, three other Proteaceous species were present below 5% cover. Additionally, one other Proteaceae species was present at <5% 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 two species identified in the NVIS Level V (2017) description and three species identified in the Muirs (1977) description. These specifically include *L. inermis* var *inermis, H. trifurcata* and *A. cuneatus.* Overall, 20 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 (2017) description. The quadrat analysis indicates that 53% and 43% of plant species present within quadrat one and two were shrubs, respectively. The mallee species *Eucalyptus densa* subsp. *densa* was detected within Quadrat one. Quadrat one and two were both highly diverse, with 32 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, 131 species were recorded.	Yes

Table 11 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, nine species were identified as key diagnostic species within the Approved Conservation Guidelines (DoE, 2015b) for the 'Esperance (east)' area. These included *A. cuneatus, B. armata, Banksia nivea, Banksia obovata, Hakea cinerea, Hakea corymbosa, Isopogon polycephalus, Isopogon trilobus* and *Lambertia inermis* var *inermis.*	Yes
Qualitative	Condition category for minimum patch size – refer to Table 5, Section 4.2 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. Vegetation Unit 1: Pro SL within the survey area was located within a wider "patch" of the surrounding reserves and road reserves. A buffer of surrounding the railway corridor was present resulting in a much larger area of vegetation present considered to be the patch. Incidentally it was observed to consist of vegetation with similar floristic composition and structure. Therefore, it is likely that Ecological Community described in vegetation unit 1: Pro SL extends further and meets the minimum patch size (Table 5, Section 4.2, within this report) to be considered Kwongkan PEC / TEC.	Yes

6. Fauna Survey Results

6.1. Basic Fauna Survey

A description of the six vegetation units identified during the survey is given in Section 5.2, which correlate with fauna habitat types (Figure 15A and 15B). 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 15 taxa were recorded, including eight birds, three invertebrates, three mammals and one reptile. Refer to full fauna species list in Table 22 in Appendix D. No Threatened or Priority listed species were observed, however potentially suitable habitat was identified for seven species. This includes the fork-tailed swift (*Apus pacificus*, MI), Carnaby's Cockatoo (*Calyptorhynchus latirostris*, EN), letter winged kite (*Elanus scriptus*, P4), quenda (*Isoodon fusciventer*, P4), western mouse (*Pseudomys occidentalis*, P4) heath mouse (*Pseudomys shortridgei*, VU), western brush wallaby (*Notamacropus irma*, P4) which are all considered as 'Possible' to occur (see Table 15, Appendix B for full details).

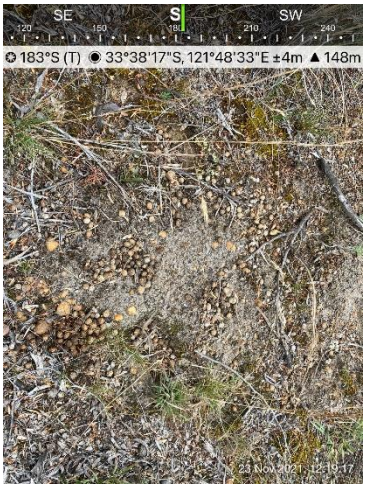
Vegetation units: 1 Proteaceae Shrubland (ProSL), 2: *Taxandria spathulata* and *Baeckea latens* Shrubland (Taxspa Baelat SL) and 3: *Melaleuca cuticularis* semi-ephemeral wetland (Melcut WL) provide suitable habitat for quenda. (Figures 13, 14 and 15A and 15B). However, no indicators of species presence where observed. Two runnels were observed within vegetation unit 1 'Melcut WL', however given no other signs of presence of this species were observed, these could be from rabbits (*Oryctolagus cuniculus*) which were observed within the south of the survey area. There is suitable habitat outside of the survey area, in the form of remnant vegetation in reserves, and unallocated crown land that forms a linear corridor connecting to other larger areas of vegetation. These larger areas outside of the immediate linear survey area are likely to hold more habitat value to quenda. Vegetation unit 1: Proteaceae Shrubland (ProSL) and 2: *Taxandria spathulata* and *Baeckea latens* Shrubland (Taxspa Baelat SL) also provides marginal habitat for western mouse (P4) and heath mouse (VU). No indicators of species presence for either species was observed during the survey period. Refer to Figure 14 for images of suitable habitat for these species.

The survey area contains low quality foraging habitat for Carnaby's Cockatoo within vegetation unit 1: Proteaceae Shrubland (ProSL), with this vegetation unit containing the highest occurrence of known food plant species. Known food plant species were not observed in significantly high quantities, and scattered food plant species were present within the remaining two vegetation units. No evidence of foraging was observed within the survey area. Refer to section 6.2 for detailed foraging habitat assessment.

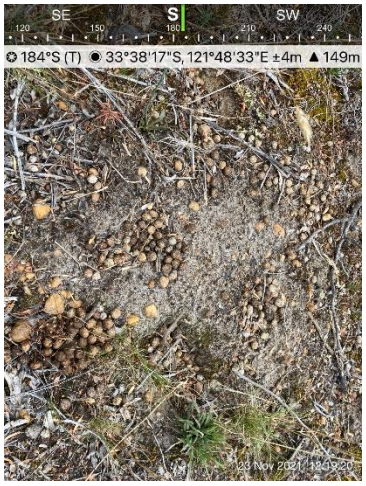
Marginally suitable habitat is present for western brush wallaby in vegetation units: 1 Proteaceae Shrubland (ProSL), 2: *Taxandria spathulata* and *Baeckea latens* Shrubland (Taxspa Baelat SL) and 3: *Melaleuca cuticularis* semi-ephemeral wetland (Melcut WL). No evidence of species presence (scats or tracks) were observed within the survey period. Similar vegetation types are present adjacent to the survey area, which is likely to provide potentially more suitable areas of habitat for the species. The relatively small area of vegetation contained within the linear survey, although suitable for the species is unlikely to provide significant habitat, due to its narrow nature. If the species is present (noting no indicators were observed during the survey period) their use of the narrow linear corridor is likely to be transient.

Marginally suitable habitat was also detected for two conservation significant bird taxa including: the fork-tailed swift and letter-winged kite. Habitat for these species occurs throughout the entire survey area, with areas of native vegetation providing daytime refuge and hunting habitat.

Fauna activity and presence observed across the survey area was very low (just 15 species observed). The species with the highest occurrences was from the introduced rabbit, and was observed through diggings / scrapes, scats and tracks predominantly observed within the southern portion of the survey area. The activity observed from the introduced fox (*Vulpes vulpes*) was low with the species identified from two scats. Given the survey area contains vegetation that in general is in very good condition and the seemingly relatively low indicators of introduced species (and therefore an reduced amount of competition and predation for native fauna) it is reasonable to expect that a higher diversity of native fauna taxa would be utilising the survey area than what was captured during the survey period. The lack of overall number and diversity fauna taxa observed during this survey does not necessarily reflect the potential / expected value of the habitat available.



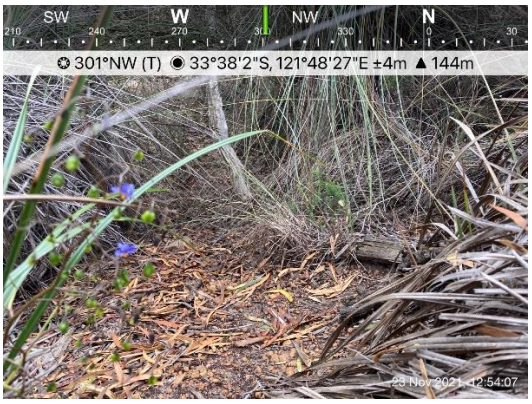
a)



b)

c)

d)



e)

f)

g)

Figure 13: Photographs of evidence of fauna presence within the survey area.
a) and b) rabbit scat / droppings; c) fox scat; d) reptile burrow e) and f) runnels; g) bobtail.

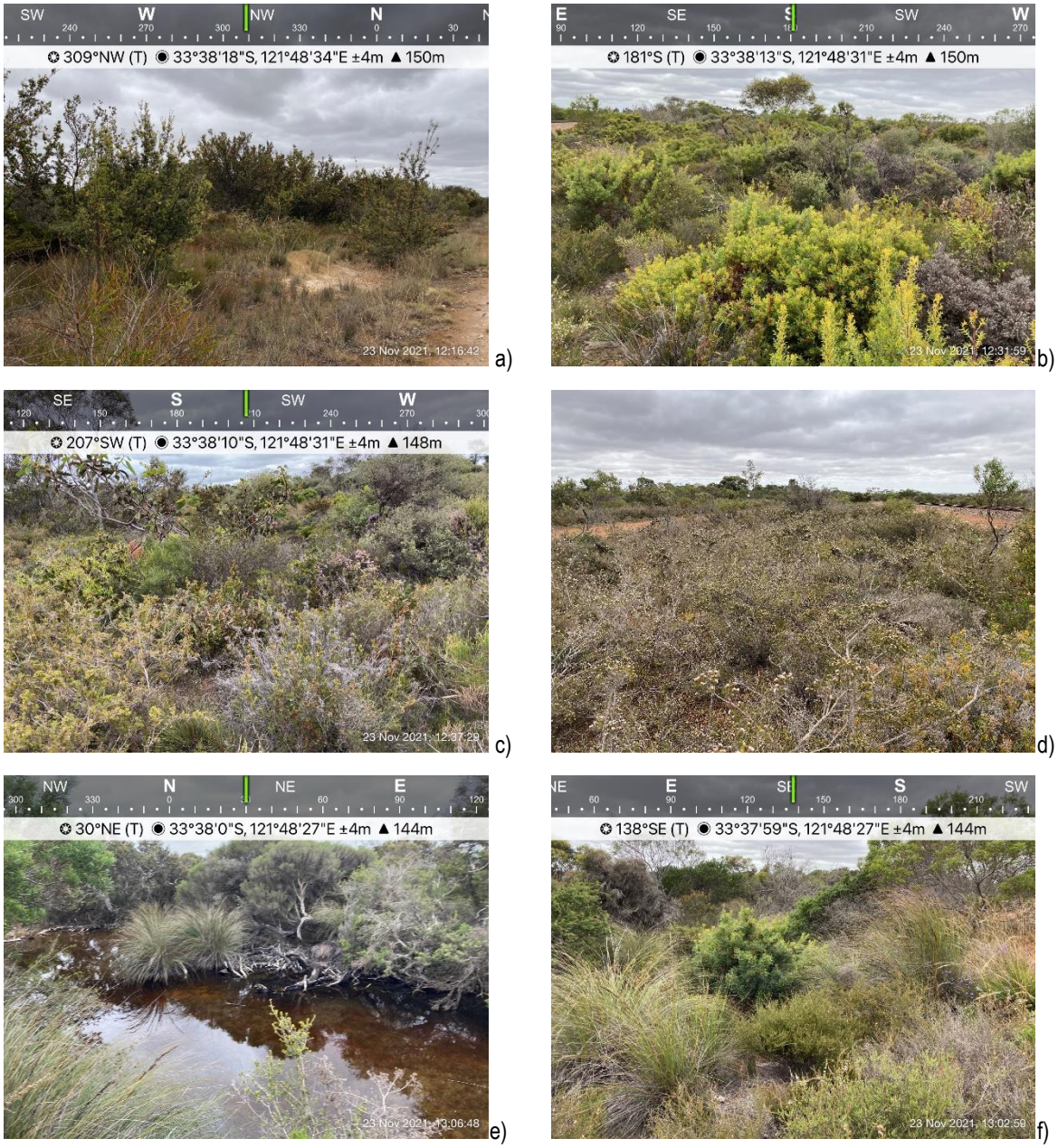


Figure 14: Photographs of suitable habitat for fauna within the survey area.
a) to c) Vegetation unit 1 Proteaceae Shrubland (ProSL) providing habitat for Carnaby's Cockatoo, quenda, western mouse, heath mouse and western brush wallaby; d) vegetation unit 2 *Taxandria spathulata* and *Baeckea latens* Shrubland (Taxspa Baelat SL) providing habitat for quenda, western mouse, heath mouse and western brush wallaby; d) to f) vegetation unit 3 *Melaleuca cuticularis* semi-ephemeral wetland (Melcut WL) providing habitat for quenda, western mouse, heath mouse and western brush wallaby. All vegetation units provide varying levels of daytime refuge and hunting habitat for the fork-wailed swift and letter-winged kite.

6.2. Targeted Black Cockatoo Assessment

6.2.1. Breeding Habitat

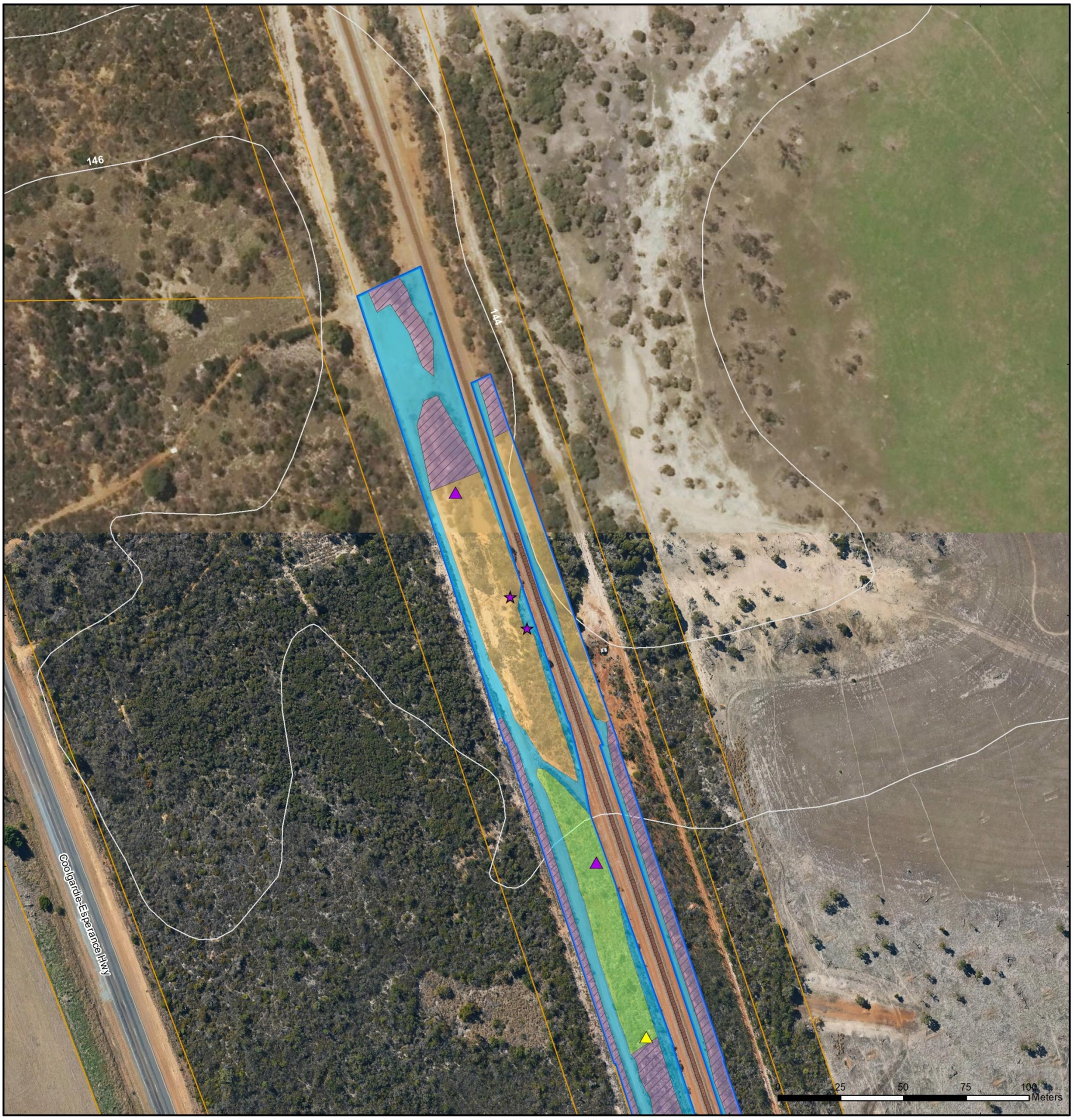
No significant trees suitable for Carnaby Cockatoo breeding habitat were observed within the survey area.

6.2.2. Foraging and Roosting Habitat

No foraging evidence was observed within the survey area. 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; DAWE, 2022). The DAWE (2022) scoring framework is to be applied in instances where the site is greater than or equal to 1 ha in size. Given the available habitat within the survey area is <1 ha it has not been applied in this instance. There is low-quality foraging habitat present within vegetation unit 1: Proteaceae Shrubland (ProSL), with scattered food plant species observed within vegetation units 2 *Taxandria spathulata* and *Baeckea latens* Shrubland (Taxspa Baelat SL) and 3: *Melaleuca cuticularis* semi-ephemeral wetland (Melcut WL). The vegetation present within the survey area has been assessed as being low-quality due to low diversity and density of known food plant species. No signs of foraging were observed suggesting the survey area indicating it is not a frequently visited / favoured feeding area. The potential foraging habitat available for Carnaby's Cockatoos equates to approximately 0.911 ha which is 67.32% of all mapped vegetation identified within the survey area.

No signs of roosting (accumulated scats or feathers) were observed within the survey area. Excepting the occasional pine tree, larger mallees or eucalypt tree species the survey area does not contain suitable roosting habitat for the species.



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BIO DIVERSE SOLUTIONS

Scale
1:1,500 @ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- Cadastre
- 2m Contours

Fauna Habitat

- Runnel
- Carnaby's Cockatoo Foraging Habitat - Marginal / Low Quality

Fauna Observed

- *Macropus fuliginosus*
- *Tiliqua rugosa*

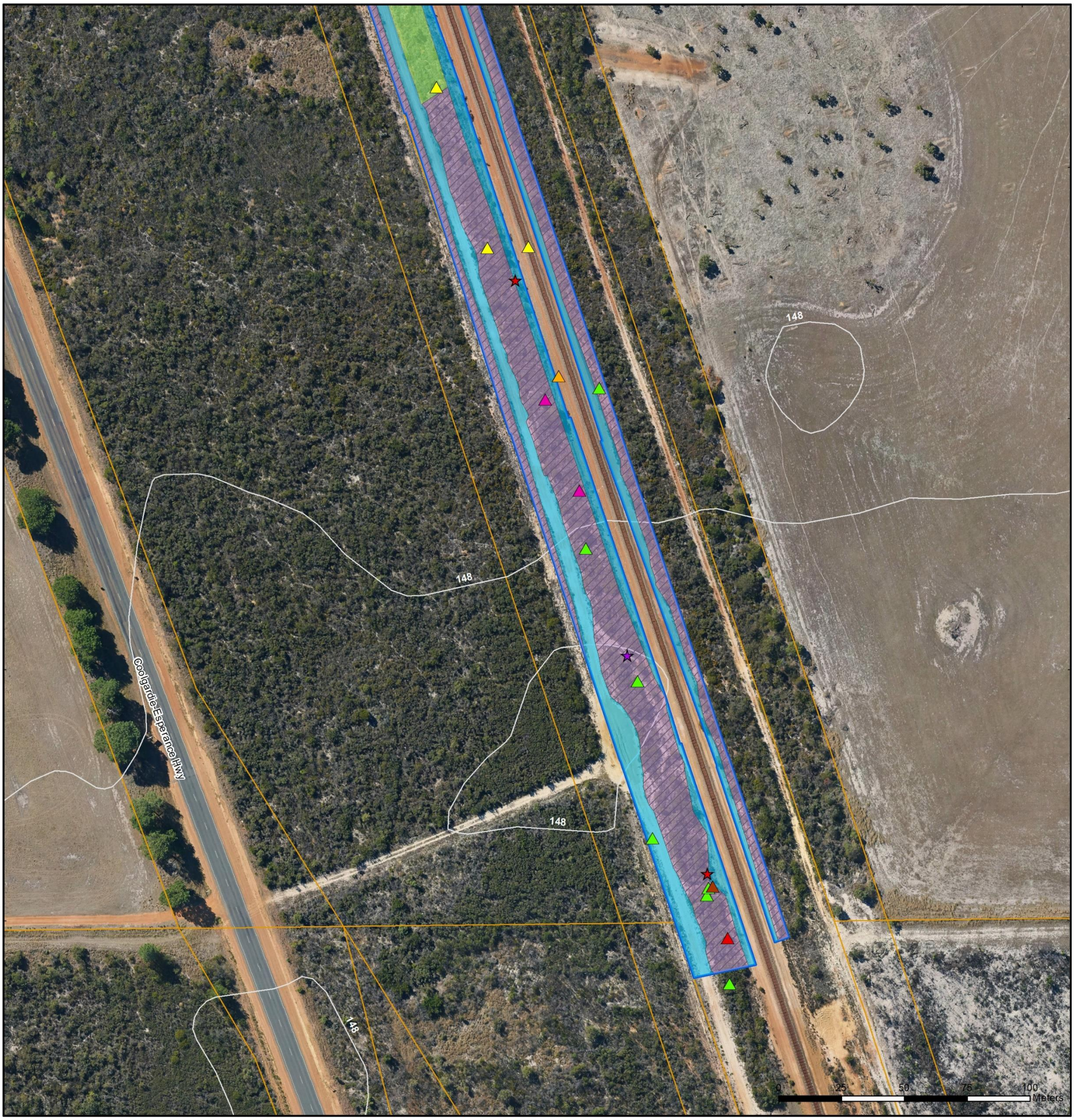
Overview Map Scale 1:100,000

CLIENT Arc Infrastructure
Line 51 (354.239 to 354.923KM)
Site 8 – North of Gibson Townsite
Gibson, WA 6448

Figure 15A: Fauna & Fauna Habitat Observed

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-010	2/09/2022

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



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Scale
1:1,500 @ A3
GDA MGA 94 Zone 51

CLIENT Arc Infrastructure
Line 51 (354.239 to 354.923KM)
Site 8 – North of Gibson Townsite
Gibson, WA 6448

Figure 15B: Fauna & Fauna Habitat Observed

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-010	2/09/2022

Legend

- Survey Area
- Cadastre
- 2m Contours

Fauna Habitat

- Reptile burrow
- Runnel
- Carnaby's Cockatoo Foraging Habitat - Marginal / Low Quality

Fauna Observed

- *Anthochaera carunculata*
- *Cracticus torquatus*
- *Macropus fuliginosus*
- *Oryctolagus cuniculus*
- *Phylidonyris novaehollandiae*
- *Vulpes vulpes*

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

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 subject site, as well as Threatened / Priority ecological communities, and to provide an assessment on vegetation types and their general condition. The survey was undertaken at the end of the spring period, in early November. A significant limitation was present for the detection two priority species identified as 'Possible' to occur within the survey area that was not flowering at the time of the survey, P2 *Hibbertia turleyana* and P3 *Pterostylis faceta.* Numerous other minor limitations were present for the detection of species identified in the LOO assessment, relating to species that were small, obscure / cryptic shrubs not flowering at the time of survey, fire ephemeral species undetectable in the long unburnt survey area, flowering on the periphery of the survey period or are poorly understood and studied.

Three vegetation units were recorded during the survey, namely vegetation unit 1: Proteaceae Shrubland (Pro SL), vegetation unit 2: *Taxandria spathulata* and *Baeckea latens* Shrubland (Taxspa Baelat SL), and vegetation unit 3: *Melaleuca cuticularis* semi-ephemeral wetland (Melcut WL). These vegetation units broadly align with different habitat types, and are associated at a landscape level with changes in hydrology and soil type. Vegetation Unit 3: Melcut WL is associated with a drainage depression, likely formed by historical construction of the railway and altered drainage. The vegetation present within vegetation unit 3: Melcut WL is considered to be riparian vegetation and forms a minor hydrological feature. The condition of the vegetation units ranged from 'Degraded' through to 'Very Good'. A portion of the survey area had been historically cleared and consisted primarily of access tracks and the rail-line. A higher level of degradation was observed closer to the railway and access tracks, observed through historical clearing and extensive weed invasion, forming a notable edge effect on the adjacent intact native vegetation within the railway corridor and extended reserve. It is recommended that rigorous biosecurity hygiene principles are applied during proposed operational works to ensure weeds and diseases are not spread within and external to the survey area.

A total of 162 flora species were recorded, comprising of 144 native species and 18 introduced / non-native species. No Weeds of National Significance (IPAC, 2017) or Declared Pests (BAM Act 2007) were present. Two species of Priority conservation status were identified within the survey area, namely P3 *Persoonia scabra* and P3 *Comesperma calcicola*. Both *P. scabra* and *C. calcicola* form new populations, and were located within Vegetation Unit 1: Pro SL and Vegetation Unit 3: Melcut WL respectively. 2 plants of *P. scabra* were present and an estimate of 225 plants of *C. calcicola,* all of which were located within the impact area. It is noted that a full survey was not completed of the population, and surrounding suitable habitat is present that the population may extend into. Further population analysis to determine extent and entire distribution may be required.

'Proteaceae Dominated Kwongkan Shrublands of the South-east Coastal Botanical Province of Western Australia' (Kwongkan) was the only Threatened (TEC) / Priority (PEC) Ecological Community identified as 'Likely' to occur within the survey area. Kwongkan is listed as a TEC under the federal EPBC Act 1999 and a PEC under the state BC Act 2016. Vegetation unit 1: Pro SL was analysed and determined to meet Kwongkan criteria, with a total of 0.91 ha present ranging in Degraded to Very Good condition. Analysis of Kwongkan criteria (DoEE, 2015a) was undertaken, focusing on distribution, diagnostic species, floristic diversity, structure of community 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. The vegetation present within the survey area runs parallel to the railway line, and thus provides an ecological linkage within the broader landscape. However, the relatively small areas that are proposed to be cleared as part of this proposal would not significantly impact the ability for fauna to disperse between existing vegetated areas.

During the survey, a relatively low level of fauna diversity was detected a total of 15 taxa were recorded, including eight birds, three invertebrates, three mammals and one reptile. The vegetation present within the survey area is generally is in very good condition, and would be expected to hold relatively high habitat value for a range of fauna species. The lack of overall number and diversity fauna taxa observed during this survey does not necessarily reflect the potential / expected value of the habitat

available. No Threatened or Priority listed species were observed, however potentially suitable habitat was identified for seven species. This includes the fork-tailed swift (*Apus pacificus*, MI), Carnaby's Cockatoo (*Calyptorhynchus latirostris*, EN), letter winged kite (*Elanus scriptus*, P4), quenda (*Isoodon fusciventer*, P4), western mouse (*Pseudomys occidentalis*, P4) heath mouse (*Pseudomys shortridgei*, VU), western brush wallaby (*Notamacropus irma*, P4) which are all considered as 'Possible' to occur.

The quenda prefers areas of dense heath and coastal scrub vegetation that is often swampy, and that provides cover of up to 1m high. Suitable vegetation and habitat was identified within vegetation units 1: Proteaceae Shrubland (Pro SL), 2: *Taxandria spathulata* and *Baeckea latens* Shrubland (Taxspa Baelat SL), and 3: *Melaleuca cuticularis* semi-ephemeral wetland (Melcut WL). Vegetation across the survey area was generally dense in nature, with some areas of more open vegetation present. No indicators of quenda presence were observed, with the runnels identified likely to be due to the presence of rabbits within the area. Given the overall lack of signs of quenda presence and the occurrence of 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.

There is marginally suitable habitat present for the western mouse and heath mouse within vegetation units 1: Proteaceae Shrubland (ProSL) and 2: *Taxandria spathulata* and *Baeckea latens* Shrubland (Taxspa Baelat 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 they are 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. The presence of rabbit and fox will be limiting factors for these two species due to competition and predation.

Marginally suitable habitat is present for western brush wallaby in vegetation units 1: Proteaceae Shrubland (Pro SL), 2: *Taxandria spathulata* and *Baeckea latens* Shrubland (Taxspa Baelat SL), and 3: *Melaleuca cuticularis* semi-ephemeral wetland (Melcut WL). No indicators of species presence were observed, and if present it is likely animals are transient through the survey area. The vegetation immediately adjacent to the survey area is of varying quality and composition, but does provide a larger intact area of remnant vegetation than the relatively thin and small areas of vegetation within the survey area. The removal of the vegetation within the survey area is therefore unlikely to significantly impact the ability of the quenda, western mouse, heath mouse and western brush wallaby to move throughout the immediate landscape if present.

No evidence of Carnaby's Cockatoo presence was observed during the survey period. There is low quality / marginal foraging habitat present within vegetation unit 1: Proteaceae Shrubland (ProSL). 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 known food plants (DSEWPaC, 2012). Given the reduced diversity and overall low quantity of known food plant species available in the survey area the habitat is considered to be low-quality and is unlikely to provide significant foraging opportunities for the species. In additional, the lack of any foraging evidence (new or old) indicates the area is not a favoured feeding site and is most likely to offer opportunistic foraging opportunities to transient individuals. The vegetation within the survey area does not provide roosting habitat for the species.

The new referral guidelines (DAWE, 2022) for the three Threatened black cockatoo species stipulates that a proposal should be referred for assessment if:

- Any loss of / impact upon known, suitable or potential nesting trees, and the habitat around these trees;
- More than 1 ha of high-quality habitat is to be removed; or
- >10 ha of low quality foraging habitat.

Approximately 0.91 ha of potential foraging habitat is present within the survey area, but 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 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 potential daytime refuge and hunting habitat. The proposed clearing of the relatively small areas within the survey area are unlikely to detrimentally impact these species due to adjacent vegetation also providing potential habitat.

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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 – Threatened and Priority Flora Reporting Forms

Appendix F - 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

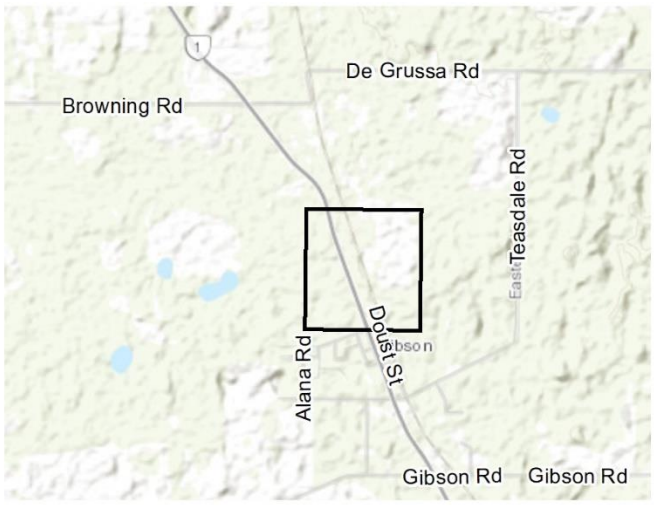
Scale
1:4,500 @ A3
GDA MGA 94 Zone 51

Legend

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

Pre European Vegetation (DPIRD_006)

- ESPERANCE_6048



Overview Map Scale 1:100,000

CLIENT Arc Infrastructure
Line 51 (353.155 to 355.007KM)
Site 8 – North of Gibson Townsite
Gibson, WA 6448

Figure 16: Desktop Historical Vegetation

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS **FINAL**	*FILE* **AI005-010**	*DATE* **23/06/2022**

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

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

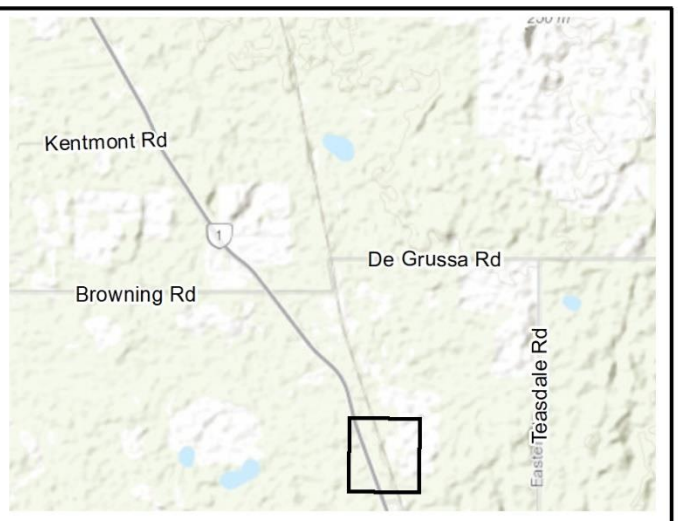
Scale
1:2,750 @ A3
GDA MGA 94 Zone 51

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

CLIENT Arc Infrastructure
Line 51 (353.155 to 355.007KM)
Site 8 – North of Gibson Townsite
Gibson, WA 6448

Figure 17: Environmental Risk Assessment Map

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS **FINAL**	*FILE* **AI005-010**	*DATE* **23/06/2022**

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
1:2,750 @ A3
GDA MGA 94 Zone 51

CLIENT Arc Infrastructure
Line 51 (353.155 to 355.007KM)
Site 8 – North of Gibson Townsite
Gibson, WA 6448

Figure 18: Survey Effort

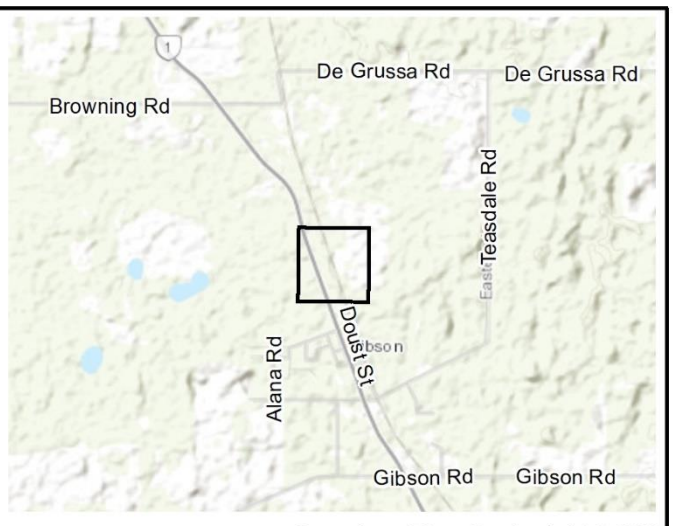
	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-010	23/06/2022

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 12: Criteria for assessing the likelihood of occurrence of Threatened or Priority flora and fauna within a 10km 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 13: 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)	NatureMap	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Likelihood Analysis - pre-survey assessment	Likelihood Analysis - Post survey outcomes
Polygalaceae	*Comesperma calcicola*		3	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	Detected - new population identified as present.
Proteaceae	*Persoonia scabra*		3	x		x	Clumped, spreading shrub. Fl. Yellow.	Gravelly loam, sandy soils. Slopes. Mixed soil types. Eucalyptus, Allocasuarina or Agonis woodlands.	Sep to Nov.	Possible	Detected – new population identified as present.
Dilleniaceae	*Hibbertia turleyana*		2	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	Possible - reduced detectability without flowering, survey conducted outside of flowering period. Confirmed suitable habitat present across survey area.
Orchidaceae	*Pterostylis faceta*	Bird Orchid	3			x	Annual herb. Fl. Green.	Mallee dominated shrubland, dense low heath. Mixed soil types.	Aug to Sept	Possible	Possible - survey occurred outside of flowering season, significant limitation in detectability of annual herbaceous species.
Loganiaceae	*Adelphacme minima*		3	x		x	Annual.	Small post fire.	Sept -Oct; Nov-Jan	Possible	Possible - limited ability to detect until fire occurs.
Fabroniaceae	*Fabronia hampeana*		2	x		X	Moss species. Silver green species.	Often growing on Macrozamia species. Mixed woodlands.		Outside of Expertise of surveyors	Unlikely - no Macrozamia species detected within survey area.
Ericaceae	*Leucopogon* sp. Lake Magenta (K.R. Newbey 3387)		1	x		x		Uplands; sand or sand over laterite.	Nov	Possible	Unlikely - not detected. Numerous Ericaceae species not identifiable were submitted to the WA Herbarium for verification and confirmed as non-threatened species.
Ericaceae	*Styphelia coelophylla*		1	x		x	Erect shrub, 0.3-0.6 m high. Fl. Pink/white.	Gravelly sandy soils.	Sep to Nov.	Possible	Unlikely - not detected. Numerous Ericaceae species not identifiable were submitted to the WA Herbarium for verification and confirmed as non-threatened species.
Goodeniaceae	*Goodenia turleyae*		1	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.	Sept	Possible	Unlikely - not detected.
Thymelaeaceae	*Pimelea pelinos*		1	x		X	Erect, scraggly shrub, 0.3-0.6 m high. Fl. Cream.	Sandy clay, salt lakes.	Jun to Jul	Possible	Unlikely - not detected, suitable habitat determined as not present. Limited detectability without flowering due to being a small, insignificant shrub similar to many other non-threatened species.
Cyperaceae	*Schoenus sp.* Grey Rhizome (K.L. Wilson 2922)		1	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. Precautionary principles applied when identifying Schoenus species present.
Myrtaceae	*Baeckea* sp. *Gibson* (K.R. Newbey 11084)		1	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 - limited information present	Unlikely - not detected. Precautionary principles applied when identifying Baeckea species present.
Myrtaceae	*Cyathostemon* sp. Esperance (A. Fairall 2431)		1	x		x	Shrub, 2-4 m tall. Leaves pointed. Flowers white; free part of stamens longer than fused part.	Shrubland. Salt Lake Margin. Sandy gravel.	Sept - Oct	Possible - limited information present	Unlikely - not detected. Precautionary principles applied when identifying Cyathostemon species present.
Araliaceae	*Hydrocotyle tuberculata*	Bumpy fruited Pennywort	2	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	Possible	Unlikely - not detected.
Polygalaceae	*Comesperma griffinii*		2	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.
Goodeniaceae	*Goodenia exigua*		2			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.	Oct to Nov	Possible	Unlikely - not detected.

Table 13 continued.

Family	*Species*	Vernacular	Status (WA)	NatureMap	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Likelihood Analysis - pre-survey assessment	Likelihood Analysis - Post survey outcomes
Orchidaceae	*Paracaleana parvula*	Esperance Duck Orchid	2	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.
Ericaceae	*Leucopogon corymbiformis*		2	x		x	Open or erect low shrub with white flowers. <0.5 m high.	Associated with Banksia speciosa woodland and deep white sands.	Aug-Sept	Possible	Unlikely - not detected. Numerous Ericaceae species not identifiable were submitted to the WA Herbarium for verification and confirmed as non-threatened species.
Asparagaceae	*Thysanotus brachiatus*		2	x		x	Rhizomatous, leafless perennial, herb, to 0.3 m high. Fl. Purple	Grey sand.	Nov - Dec	Possible	Unlikely - single species of Thysanotus present bearing similarities, submitted to WA Herbarium for verification and confirmed as non-threatened *Thysanotus sparteus.*
Ericaceae	*Styphelia rotundifolia*		3	x		x	Erect, compact shrub to 1.5 m high x 1.5 m wide. Flowers cream and erect.	Mixed heath and shrublands. Mostly recorded in coastal areas.	April	Possible	Unlikely - not detected. Numerous Ericaceae species not identifiable were submitted to the WA Herbarium for verification and confirmed as non-threatened species.
Goodeniaceae	*Dampiera sericantha*		3	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.
Myrtaceae	*Eucalyptus foliosa*		3	x		x	Mallee to 4 m high, bark smooth.	Grey/white sandy clay. Flats adjacent to Salt Lake. Distribution between Grass Patch and Gibson.		Likely	Unlikely – not detected. All Eucalyptus species present readily identifiable and determined as non-threatened.
Fabaceae	*Daviesia pauciflora*		3	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	Possible	Unlikely - not detected.
Myrtaceae	*Astartea reticulata*		3	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	Possible	Unlikely - not detected. Single Astartea species present readily identifiable as non-threatened *Astartea astarteoides.*
Goodeniaceae	*Dampiera triloba*		3	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	Possible	Unlikely - not detected.
Malvaceae	*Commersonia rotundifolia*		3	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	Unlikely - not detected.
Restionaceae	*Desmocladus biformis*		3	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	Unlikely - not detected.
Brassicaceae	*Lepidium fasciculatum*	Bundled Peppercress	3	x		x	Erect annual, herb, (0.1-)0.3-0.6 m high.	Widespread but scattered. Across southern Australia (Vic Flora ref).	Spring	Possible	Unlikely – not detected.
Myrtaceae	*Eucalyptus semiglobosa*		3	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. Eucalyptus species present within survey area bore no resemblance.
Proteaceae	*Grevillea baxteri*	Cape Arid Grevillea	4	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	Possible	Unlikely - not detected.
Euphorbiaceae	*Stachystemon vinosus*		4	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	Possible	Unlikely - not detected.
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 – lack of suitable habitat.

Table 13 continued.

Family	*Species*	Vernacular	Status (WA)	NatureMap	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Likelihood Analysis - pre-survey assessment	Likelihood Analysis - Post survey outcomes
Haemodoraceae	*Conostylis lepidospermoides*	Sedge Conostylis	T - En	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 – lack of suitable habitat.
Euphorbiaceae	*Beyeria physaphylla*		1	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 – lack of suitable habitat.
Myrtaceae	*Darwinia sp.* Gibson (R.D. Royce 3569)		1	x		X	Compact shrub to 0.4 m high. Fl. 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	Unlikely	Unlikely – lack of suitable habitat.
Myrtaceae	*Eucalyptus misella*		1	x		X	Mallee, 1-3 m high. Bark smooth. Fl. Cream.	White, yellow or grey sand. Low lying sandplain.	Nov	Unlikely	Unlikely – lack of suitable habitat.
Ericaceae	*Leucopogon remotus*		1	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	Unlikely	Unlikely – lack of suitable habitat.
Ericaceae	*Astroloma* sp. Grass Patch (A.J.G. Wilson 110)		2	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	Unlikely – lack of suitable habitat.
Araliaceae	*Hydrocotyle asterocarpa*	Starry Pennywort	2	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 – lack of suitable habitat.
Rhamnaceae	*Spyridium mucronatum* subsp. *multiflorum*		2	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	Unlikely	Unlikely – lack of suitable habitat.
Chenopodiaceae	*Tecticornia indefessa*		2	x		x	Prostrate, perennial shrub, 0.05-0.15 m high.	White to brown-grey sand. Near the edges of salt lakes.		Unlikely	Unlikely – lack of suitable habitat.
Fabaceae	*Acacia bartlei*		3	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 to Mid Oct	Unlikely	Unlikely – lack of suitable habitat.
Fabaceae	*Acacia euthyphylla*		3	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	Unlikely	Unlikely – lack of suitable habitat.
Scrophulariaceae	*Eremophila chamaephila*	Earth Loving Eremophila	3	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 – lack of suitable habitat.
Fabaceae	*Acacia glaucissima*		3	x		x	Dense, bushy shrub, 0.3-1.5 m high. Fl. Yellow.	Sand or clay. Flats, low-lying areas.		Unlikely	Unlikely – lack of suitable habitat.
Fabaceae	*Bossiaea flexuosa*		3	x		x	Compact shrub to 0.6 m high. Fl. Yellow-orange-red-brown.	Deep sandy soil.	Sept to Nov	Unlikely	Unlikely – lack of suitable habitat.
Ericaceae	*Conostephium marchantiorum*		3			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, creeklines. Open Mallee and scrub heath communities.	Mar or Jul or Nov	Unlikely	Unlikely – lack of suitable habitat.

Table 13 continued.

Family	*Species*	Vernacular	Status (WA)	NatureMap	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Likelihood Analysis - pre-survey assessment	Likelihood Analysis - Post survey outcomes
Haloragaceae	*Gonocarpus pycnostachyus*		3 - Vu (EPBC Act 1999)	x		X	Erect annual herb, 0.1-0.15 m high. Fl. Green-red.	Sand or clay soils. Wet depressions, granite rock.		Unlikely	Unlikely – lack of suitable habitat
Proteaceae	*Isopogon alcicornis*	Elkhorn Coneflower	3	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	Unlikely	Unlikely – lack of suitable habitat
Myrtaceae	*Kunzea salina*		3	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	Unlikely	Unlikely – lack of suitable habitat
Proteaceae	*Persoonia cymbifolia*		3	x		X	Erect, spreading shrub, 0.20.6 (1) m high. Fl. Yellow.	Sandy soils. On flats or in rock crevices.	Dec or Jan	Unlikely	Unlikely – lack of suitable habitat
Lamiaceae	*Pityrodia chrysocalyx*		3	x		x	Erect, branched shrub, 0.3-0.75(-1) m high. Fl. White.	Sandy soils.	Aug to Oct	Unlikely	Unlikely – lack of suitable habitat
Myrtaceae	*Darwinia polycephala*		4	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 – lack of suitable habitat
Myrtaceae	*Eucalyptus dolichorhyncha*	Fuchsia Mallee	4	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	Unlikely	Unlikely – lack of suitable habitat
Frankeniaceae	*Frankenia glomerata*		4			x	Prostrate shrub. Fl. Pink-white	White sand.	Nov	Unlikely	Unlikely – lack of suitable habitat
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 – lack of suitable habitat
Euphorbiaceae	*Ricinocarpos trichophorus*	Barrens Wedding Bush	T - En		x	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	Unlikely – lack of suitable habitat
Myrtaceae	*Eucalyptus merrickiae*	Goblet mallee	T - vu	x	x	X	Mallee, 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 – lack of suitable habitat
Haloragaceae	*Myriophyllum muelleri*	Hooded Water Milfoil	1	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 – 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 – lack of suitable habitat
Ericaceae	*Brachyloma mogin*		3	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	Unlikely	Unlikely – lack of suitable habitat
Goodeniaceae	*Goodenia laevis* subsp. *laevis*		3	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 leptocantha, Eucalyptus dissimulata* and *Grevillea huegelii.*	Aug-Dec	Unlikely	Unlikely – lack of suitable habitat

Table 13 continued.

Family	*Species*	Vernacular	Status (WA)	NatureMap	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Likelihood Analysis - pre-survey assessment	Likelihood Analysis - Post survey outcomes
Anarthriaceae	*Hopkinsia adscendens*		3	x		x	Rhizomatous, perennial, herb to 0.4 m high.	Sand. Dry or seasonally damp habitats along streams.	Oct	Unlikely	Unlikely – lack of suitable habitat.
Myrtaceae	*Melaleuca dempta*		3	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	Unlikely	Unlikely – lack of suitable habitat.
Araliaceae	*Trachymene anisocarpa* var. *trichocarpa*		3	x		x	Upright, spreading annual, herb, 0.3-1.5 m high. Peduncles up to 140 mm long. Distinguished by hairlike bristles on the fruits. Flowers 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.		Unlikely	Unlikely – lack of suitable habitat.
Myrtaceae	*Melaleuca fissurata*		4	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 – lack of suitable habitat.
Myrtaceae	*Eucalyptus sweedmaniana*		2	x		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.	Unlikely – 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. Flower 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 Grande.	Unlikely – lack of suitable habitat.
Fabaceae	*Kennedia beckxiana*	Cape Arid Kennedia	4	x		X	Prostrate or twining shrub or climber. Fl. Red.	Sand, loam. Granite hills & outcrops.	Sep to Dec.	Unlikely - restricted to Cape Arid.	Unlikely – lack of suitable habitat.
Poaceae	*Austrostipa mundula*		3	x		x	Perennial caespitose grass to 0.5 m.	Sandy to clay loams and limestone in grassland, heathland, shrubland and mallee.		Unlikely - site not directly on the coast.	Unlikely – lack of suitable habitat.
Proteaceae	*Banksia prolata* subsp. *calcicola*		4	x		X	Non-lignotuberous shrub, 0.4-1 m high. Fl. Yellow	White sand over limestone. Coastal areas.	Jul to Sep	Unlikely - site not directly on the coast.	Unlikely – lack of suitable habitat.
Myrtaceae	*Eucalyptus preissiana* subsp. *lobata*		4	x		x	Mallee to 2.5 m high. Bark smooth. Fl. Yellow.	Sand. Coastal limestone rises and sand dunes.	Nov	Unlikely - site not directly on the coast.	Unlikely – lack of suitable habitat.
Myrtaceae	*Eucalyptus x missilis*		4	x		x	Mallee to 3 m high. Bark smooth. Fl. Yellow / cream-white.	Sand over limestone or granite. Coastal sites.	Jan-Apr	Unlikely - site not directly on the coast.	Unlikely – lack of suitable habitat.
Proteaceae	*Conospermum quadripetalum*		2	x		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 based in Albany.	Unlikely – lack of suitable habitat.
Fabaceae	*Kennedia glabrata*	Northcliffe Kennedia	T - Vu		x	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 - restricted to Northcliffe area.	Unlikely – lack of suitable habitat.

Table 14: Conservation Code definitions for Threatened and Priority Ecological Communities located within 30 km of the survey area.

Community Name	Status – EPBC Act 1999	Status – BC Act 2016	Description	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence and Survey Outcome
Subtropical and Temperate Coastal Saltmarsh	TEC – Vu	P3	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°S latitude). The habitat is coastal areas under tidal influence. In southern latitudes saltmarsh are the dominant habitat in the intertidal zone and often occur in association with estuaries. It is typically restricted to the upper intertidal environment, generally between the elevation of the mean high tide, and the mean spring tide. The community consists mainly of salt-tolerant vegetation (Halophytes) including: Grasses, Herbs, Reeds, Sedges and Shrubs. Succulent herbs and grasses generally dominate and vegetation is generally <0.5m tall with the exception of some reeds and sedges. Many species of non-vascular plants are also found in saltmarsh, including epiphytic algae, diatoms and cyanobacterial mats. Saltmarsh consists of many vascular plant species but is dominated by relatively few families. There is also typically a high degree of endemism at the species level. The two most widely represented coastal saltmarsh plant families are the Chenopodiaceae and Poaceae. Four structural saltmarsh forms are currently recognised based on dominance of a particular vegetation unit: • dominance by succulent shrubs (e.g. Tecticornia). • dominance by grasses (e.g. *Sporobolus virginicus*). • dominance by sedges and grasses (e.g. *Juncus kraussii, Gahnia trifida*). • dominance by herbs (e.g. low-growing creeping plants such as *Wilsonia backhousei, Samolus repens, Schoenus nitens*).	Unlikely	Unlikely – not detected
Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia	TEC - En	P3	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 (DBCA, 2017a).	Likely	Detected

Table 15: 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
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	Yes	HIGH	N	Marginal daytime refuge and hunting habitat across entire survey area.
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	Possible	Yes	HIGH	N	Low-Moderate quality foraging habitat present within vegetation unit 1: Proteaceae Shrubland (ProSL), scattered foraging species are present within vegetation unit and 2: Taxandria spathulata and Baeckea latens Shrubland (Taxspa Baelat SL).
Cacatuidae	*Calyptorhynchus* sp.	White-tailed Black Cockatoo	EN / EN		Possible	Possible	Yes	HIGH	N	Same as above.
Accipitridae	*Elanus scriptus*	letter-winged kite	P4 / -	Semi-desert and desert along tree-lined creeks; hunts over grasslands and other low vegetation.	Possible	Possible	Yes	HIGH	N	Marginal daytime refuge and hunting habitat across entire survey area.
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	Possible	Yes	HIGH	N	Suitable habitat within all vegetation units.
Macropodidae	*Notamacropus irma*	Western Brush Wallaby	P4 / -	Preferred habitat includes open forest or woodland, particularly open, seasonally-wet flats with low grasses and open scrubby thickets.	Possible	Possible	Yes	HIGH	N	Marginal habitat present across all vegetation units.
Muridae	*Pseudomys occidentalis*	Western Mouse	P4 / -	Historical distribution. Preference for long unburnt habitat (between 30 and 50 years) 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	Yes	LOW	N	Marginal habitat present across all vegetation unit 1: Proteaceae Shrubland (ProSL) and 2: Taxandria spathulata and Baeckea latens Shrubland (Taxspa Baelat SL).
Muridae	*Pseudomys shortridgei*	Heath mouse, Dayang	VU/EN	Historical distribution. Closest recent record Ravensthorpe. Floristically-rich, dry heathland in long unburnt vegetation.	Possible	Possible	Yes	LOW	N	Marginal habitat present across all vegetation unit 1: Proteaceae Shrubland (ProSL) and 2: Taxandria spathulata and Baeckea latens Shrubland (Taxspa Baelat SL).
Elapidae	*Acanthophis antarcticus*	Southern Death Adder	P3 / -	Mallee and coastal vegetation. Prefers sites with deep fixed leaf litter.	Possible	Unlikely	No	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	No	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	No	HIGH	N	
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	No	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	No	LOW	N	

Table 15 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 grandis*	Le Grand atelomastix millipede	VU/-	Currently known from Le Grand National Park under rocks or in soil on granite outcrops and within Agonis heath.	Unlikely	Unlikely	No	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	No	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	No	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	No	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	No	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	No	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	No	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	No	HIGH	N	
Scolopacidae	*Calidris melanotos*	Pectoral Sandpiper	MI / MI	Shallow fresh to saline wetlands.	Unlikely	Unlikely	No	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	No	HIGH	N	
Scolopacidae	*Calidris tenuirostris*	Great Knot	CR / CR & MI	Intertidal mudflats and sandflats in sheltered coasts, including bays harbours and estuaries.	Unlikely	Unlikely	No	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	No	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	No	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	No	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	No	HIGH	N	
Falconidae	*Falco hypoleucos*	Grey Falcon	VU / -	Usually in lightly timbered country, especially stony plains and lightly timbered acacia shrublands.	Possible	Unlikely	No	HIGH	N	
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	No	HIGH	N	
Scolopacidae	*Gallinago megala*	Swinhoe's Snipe	MI / MI	Dense clumps of grass and rushes round the edges of fresh and brackish wetlands. This includes swamps, billabongs, river pools, small streams and sewage ponds. They are also found in drying claypans and inundated plains pitted with crab holes.	Unlikely	Unlikely	No	HIGH	N	

Table 15 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	*Gallinago stenura*	Pin-tailed Snipe	MI / MI	Occurs most often in or at the edges of shallow freshwater swamps, ponds and lakes with emergent, sparse to dense cover of grass/sedge or other vegetation.	Unlikely	Unlikely	No	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	No	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	No	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	No	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	No	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	No	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	No	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	No	HIGH	N	
Scolopacidae	*Numenius minutus*	Little Curlew	MI / MI	Pools, river beds and water-filled tidal channels, and shallow water at edges of billabongs. The species prefers pools with bare dry mud (including mudbanks in shallow water) and they do not use pools if they are totally dry, flooded or heavily vegetatedFeed in short, dry grassland and sedgeland, including dry floodplains and blacksoil plains, which have scattered, shallow freshwater pools or areas seasonally inundated. Open woodlands with a grassy or burnt understorey, dry saltmarshes, coastal swamps, mudflats or sandflats of estuaries or beaches on sheltered coasts, mown lawns, gardens, recreational areas, ovals, racecourses and verges of roads and airstrips are also used.	Unlikely	Unlikely	No	HIGH	N	
Laridae	*Onychoprion anaethetus*	Bridled Tern	MI / MI	Occupy tropical and subtropical seas, breeding on islands, including vegetated coral cays, rocky continental islands and rock stacks. Bridled Terns are only rarely found in inshore continental waters and along mainland coastlines, though the species is reported to breed on the mainland of far southern Western Australia (Higgins & Davies 1996; Johnstone & Storr 1998).	Unlikely	Unlikely	No	HIGH	N	
Anatidae	*Oxyura australis*	Blue-billed Duck	P4 / -	Prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation.	Unlikely	Unlikely	No	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	No	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	No	LOW	N	
Psittacidae	*Pezoporus flaviventris*	Western Ground Parrot	CR / CR	Preferred habitat includes low coastal and near coastal heathlands, unburnt for at least five years.	Unlikely	Unlikely	No	HIGH	N	

Table 15 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
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	No	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	No	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	No	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	No	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	No	HIGH	N	
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	No	HIGH	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	No	LOW	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	No	HIGH	N	
Procellariidae	*Ardenna grisea*	Sooty Shearwater	MI / MI	Marine species. Occurs in pelagic (open ocean) sub-tropical, sub-Antarctic and Antarctic waters.	Highly Unlikely	Highly Unlikely	No	HIGH	N	
Procellariidae	*Ardenna tenuirostris*	Short-tailed Shearwater	MI / MI	Found in coastal waters.	Highly Unlikely	Highly Unlikely	No	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	No	HIGH	N	
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.	Highly Unlikely	Highly Unlikely	No	HIGH	N	
Diomedeidae	*Diomedea antipodensis*	Antipodean Albatross	EN / VU & MI	Marine, pelagic and aerial species. Nests in open patchy vegetation, such as among tussock grassland or shrubs on ridges, slopes and plateaus.	Highly Unlikely	Highly Unlikely	No	HIGH	N	
Diomedeidae	*Diomedea dabbenena*	Tristan Albatross	CR/ EN & MI	Marine, pelagic seabird that sleeps and rests on ocean waters when not breeding.	Highly Unlikely	Highly Unlikely	No	HIGH	N	
Diomedeidae	*Diomedea epomophora*	Southern Royal Albatross	VU / VU & MI	Marine, pelagic seabird that sleeps and rests on ocean waters when not breeding.	Highly Unlikely	Highly Unlikely	No	HIGH	N	
Diomedeidae	*Diomedea exulans*	Wandering Albatross	VU / VU & MI	Marine, pelagic seabird that sleeps and rests on ocean waters when not breeding.	Highly Unlikely	Highly Unlikely	No	HIGH	N	
Diomedeidae	*Diomedea sanfordi*	Northern Royal Albatross	EN / EN & MI	Marine, pelagic and aerial. Habitat includes subantarctic, subtropical, and occasionally Antarctic waters.	Highly Unlikely	Highly Unlikely	No	HIGH	N	
Geotriidae	*Geotria australis*	Pouched Lamprey	P3 / -	Species is anadromous and requires estuaries and coastal waters connected to freshwater rivers and streams with slow flowing, fine sediment microhabitats where spawning and development of ammocoetes occurs.	Highly Unlikely	Highly Unlikely	No	MODERATE	N	
Procellariidae	*Halobaena caerulea*	Blue Petrel	- / VU	Pelagic, occasionally over shallow waters.	Highly Unlikely	Highly Unlikely	No	HIGH	N	
Procellariidae	*Macronectes giganteus*	Southern Giant-Petrel	MI / VU & MI	Marine; Antarctic to subtropical waters.	Highly Unlikely	Highly Unlikely	No	HIGH	N	

Table 15 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
Procellariidae	*Macronectes halli*	Northern Giant Petrel	MI / EN & MI	Marine, oceanic; mainly in subantarctic waters.	Highly Unlikely	Highly Unlikely	No	HIGH	N	
Procellariidae	*Pachyptila turtur subantarctica*	Fairy Prion (southern)	- / VU	Sub-Antarctic seas and islands while breeding. Subtropical seas non breeding time; rarely inshore expect when sheltering from storms.	Highly Unlikely	Highly Unlikely	No	HIGH	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	No	LOW	N	
Procellariidae	*Pterodroma mollis*	Soft-plumaged Petrel	- / VU	Marine, oceanic species.	Highly Unlikely	Highly Unlikely	No	HIGH	N	
Stercorariidae	*Stercorarius antarcticus lonnbergi*	Brown Skua	P4 -	Marine, oceanic species.	Highly Unlikely	Highly Unlikely	No	HIGH	N	
Laridae	*Sternula 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	No	HIGH	N	
Diomedeidae	*Thalassarche carteri*	Indian Yellow-nosed Albatross	EN / VU & MI	Marine bird, located in subtropical and warmer subantarctic waters (Marchant & Higgins 1990).	Highly Unlikely	Highly Unlikely	No	HIGH	N	
Diomedeidae	*Thalassarche cauta*	Shy Albatross	VU / VU & MI	Marine species. Breeds on rock islands.	Highly Unlikely	Highly Unlikely	No	HIGH	N	
Diomedeidae	*Thalassarche cauta steadi*	White-capped Albatross	VU / VU & MI	Shelf-waters around breeding islands and over adjacent rises. During the non-breeding season, birds have been observed over continental shelves around continents. The species occurs both inshore and offshore and enters harbours and bays. The species is scarce in pelagic waters. Birds gather to scavenge at commercial fishing grounds.	Highly Unlikely	Highly Unlikely	No	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	No	HIGH	N	
Diomedeidae	*Thalassarche impavida*	Campbell Albatross	VU / VU & MI	Marine sea bird inhabiting sub-Antarctic and subtropical waters from pelagic to shelf-break water habitats.	Highly Unlikely	Highly Unlikely	No	HIGH	N	
Diomedeidae	*Thalassarche melanophris*	Black-browed Albatross	EN / VU & MI	Marine species that inhabits Antarctic, subantarctic and temperate waters and occasionally enters the tropics.	Highly Unlikely	Highly Unlikely	No	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	No	HIGH	N	
Charadriidae	*Thinornis rubricollis*	Hooded Plover, Hooded Dotterel	P4 / -	Ocean sandy beaches and coastal lakes.	Highly Unlikely	Highly Unlikely	No	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	No	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	No	MODERATE	N	

Appendix C

Conservation Status Definitions and Condition Scale

Table 16: 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 17: 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 18: 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 19: 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 20: 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 21: Flora Species List recorded within survey area.

Family	Genus	Species	Subspecies	Common Name	Invasive	Cons code	1	2	3
Anarthriaceae	*Anarthria*	*laevis*					X		
Apiaceae	*Xanthosia*	*huegelii*					X		
Asparagaceae	*Laxmannia*	sp.					X		
Asparagaceae	*Lomandra*	*mucronata*					X		
Asparagaceae	*Thysanotus*	*sparteus*							
Asparagaceae	*Thysanotus*	*triandrus*		Fringe Lilly					
Asteraceae	*Gazania*	*linearis*		Treasure Flower	X		X		
Asteraceae	*Hypochaeris*	*radiata*		Flatweed	X		X	X	X
Asteraceae	*Pseudognaphalium*	*luteoalbum*		Jersey Cudweed	X				X
Asteraceae	*Sonchus*	*oleaceous*		Common Sowthistle	X				X
Asteraceae	*Rhodanthe*	*citrina*					X		
Asteraceae	*Pterochaeta*	*paniculata*		Wooly Waitzia			X		
Asteraceae	*Ursinia*	*anthemoides*		Ursinia	X		X		
Campanulaceae	*Wahlenbergia*	*gracilenta*		Annual Bluebell				X	
Caryophyllaceae	*Silene*	*gallica*		French Catfly	X		X		
Casuarinaceae	*Allocasuarina*	*humilis*		Dwarf Sheoak			X	X	
Casuarinaceae	*Allocasuarina*	*thyoides*		Horned Sheoak			X		
Chenopodiaceae	*Tecticornia*	*sp*							X
Convolvulaceae	*Wilsonia*	*rotundifolia*		Round-leaf Wilsonia					X
Cyperaceae	*Caustis*	*dioica*		Puzzle Grass			X	X	
Cyperaceae	*Gahnia*	*trifida*		Saw Sedge				X	X
Cyperaceae	*Lepidosperma*	*squamatum*					X		
Cyperaceae	*Machaerina*	*juncea*		Bare Twig Rush					X
Cyperaceae	*Mesomelaena*	*stygia*	subsp. *stygia*				X	X	
Cyperaceae	*Mesomelaena*	*tetragona*		Semaphore Sedge			X	X	

Table 21 continued

Family	Genus	Species	Subspecies	Common Name	Invasive	Cons code	1	2	3
Cyperaceae	*Schoenus*	*subflavus*		Yellow Bog Rush			X		
Cyperaceae	*Chorizandra*	*enodis*		Black Bristlebrush			X	X	X
Cyperaceae	*Leptocarpus*	*crebriculmis*					X		
Dasypogonaceae	*Calectasia*	*valida*		Robust Tinsel Lilly					
Dilleniaceae	*Hibbertia*	*gracilipes*		Australian Buttercup			X		
Dilleniaceae	*Hibbertia*	*racemosa*		Stalked Guinea Flower			X		
Droseraceae	*Drosera*	*leucoblasta*		Wheel Sundrew			X	X	X
Droseraceae	*Drosera*	*drummondii*					X		
Droseraceae	*Drosera*	*menziesii*		Pink rainbow			X		
Ericaceae	*Brachyloma*	*geissoloma*					X		
Ericaceae	*Leucopogon*	*carinatus*							
Ericaceae	*Leucopogon*	sp. Coujinup (M.A. Burgman 1085)					X		
Ericaceae	*Lysinema*	*pentapetalum*		Curry Flower			X		
Ericaceae	*Styphelia*	*brevifolia*					X		
Ericaceae	*Andersonia*	*parvifolia*					X		
Euphorbiaceae	*Monotaxis*	*paxii*					X		
Fabaceae	*Acacia*	*aemula*	subsp. *aemula*						X
Fabaceae	*Acacia*	*cyclops*		Coastal Wattle			X	X	X
Fabaceae	*Acacia*	*gonophylla*							X
Fabaceae	*Acacia*	*myrtifolia*					X		X
Fabaceae	*Acacia*	*saligna*		Orange Wattle			X	X	
Fabaceae	*Acacia*	*biflora*		Two Flowered Acacia			X	X	
Fabaceae	*Acacia*	*latipes*	var *latipes*				X		
Fabaceae	*Bossiaea*	*preissii*					X		
Fabaceae	*Chorizema*	*aciculare*		Needle Leaf Chorizema			X	X	

Table 21 continued

Family	Genus	Species	Subspecies	Common Name	Invasive	Cons code	1	2	3
Fabaceae	*Daviesia*	*teretifolia*					X		
Fabaceae	*Gastrolobium*	*spinosum*		Prickly Poison			X		
Fabaceae	*Gompholobium*	*baxteri*							
Fabaceae	*Gompholobium*	*venustum*							
Fabaceae	*Gompholobium*	*marginatum*							
Fabaceae	*Jacksonia*	*venosa*							
Fabaceae	*Hovea*	*trisperma*							
Fabaceae	*Pultenaea*	*indira*	subsp. *indira*						
Fabaceae	*Trifolium*	*fragiferum*							
Goodeniaceae	*Dampiera*	*lavandulacea*							
Goodeniaceae	*Goodenia*	*incana*							
Goodeniaceae	*Goodenia*	*pterigosperma*							
Goodeniaceae	*Lechenaultia*	*formosa*							
Haemodoraceae	*Calectasia*	*valida*							
Haemodoraceae	*Conostylis*	*bealiana*							
Haemodoraceae	*Conostylis*	*seorsiflora*	subsp. *seorsiflora*						
Haloragaceae	*Glischrocaryon*	sp							
Hemerocallidaceae	*Agrostocrinum*	*scabrum*	subsp. *scabrum*						
Hemerocallidaceae	*Chamaescilla*	*corymbosa*							
Hemerocallidaceae	*Dianella*	*brevicaulis*							
Hemerocallidaceae	*Tricoryne*	*elatior*							
Iridaceae	*Patersonia*	*juncea*							
Iridaceae	*Patersonia*	*lanata*							
Iridaceae	*Patersonia*	*occidentalis*							
Lauraceae	*Cassytha*	*flava*							
Lauraceae	*Cassytha*	*pomiformis*		Dodder Laurel					X
Euphorbiaceae	*Stachystemon*	*virgatus*					X		

Table 21 continued

Family	Genus	Species	Subspecies	Common Name	Invasive	Cons code	1	2	3
Loranthaceae	*Nuytsia*	*floribunda*		Munjar, Christmas Tree			X	X	
Malvaceae	*Thomasia*	*macrocalyx*					X		
Malvaceae	*Thomasia*	*angustifolia*		Narrow Leaved Thomasia			X		
Malvaceae	*Guichenotia*	*ledifolia*							X
Malvaceae	*Stenanthera*	*localis*					X		
Myrtaceae	*Astartea*	*asteroides*					X		
Myrtaceae	*Beaufortia*	*empetrifolia*		South Coast Beaufortia			X		
Myrtaceae	*Beaufortia*	*schaueri*		Pink Beaufortia				X	
Myrtaceae	*Calothamnus*	*gracilis*		One-sided Bottle Brush			X		
Myrtaceae	*Calothamnus*	*quadrifidus*		One-sided Bottle Brush			X		
Myrtaceae	*Calytrix*	*leschenaultii*		Purple Star Flower			X		
Myrtaceae	*Cyathostemon*	*tenuifolius*					X		X
Myrtaceae	*Eucalyptus*	*micranthera*		Alexander River Mallee			X		
Myrtaceae	*Eucalyptus*	*pleurocarpa*		Tallerack, Silver Mallee			X		
Myrtaceae	*Eucalyptus*	*micranthera*		Alexander River Mallee			X		
Myrtaceae	*Eucalyptus*	*x erythrandra*					X		
Myrtaceae	*Eucalyptus*	*densa*	subsp. *densa*						X
Myrtaceae	*Eucalyptus*	*tetraptera*		Four Winged Mallee			X		
Myrtaceae	*Leptospermum*	*laevigatum*		Victorian Tea Tree	X		X		
Myrtaceae	*Leptospermum*	*spinescens*		Spiny Tea Tree					X
Myrtaceae	*Melaleuca*	*calycina*					X		
Myrtaceae	*Melaleuca*	*cuticularis*		Saltwater Paperbark				X	X
Myrtaceae	*Melaleuca*	*pulchella*		Crab Claw Melaleuca			X		
Myrtaceae	*Melaleuca*	*tuberculata*	var *tuberculata*				X		
Myrtaceae	Melaleuca	societatis		Soccer Ball Melaleuca					X
Myrtaceae	Melaleuca	suberosa		Corky Honeymyrtle			X		

Table 21 continued

Family	Genus	Species	Subspecies	Common Name	Invasive	Cons code	1	2	3
Myrtaceae	*Micromyrtus*	*elobata*	subsp. *elobata*				X		
Myrtaceae	*Phymatocarpus*	*maxwellii*					X		X
Myrtaceae	*Baeckea*	*latens*					X	X	X
Myrtaceae	*Taxandria*	*spathulata*					X	X	
Myrtaceae	*Verticordia*	*inclusa*					X		
Orchidaceae	*Disa*	*bracteata*		South African Orchid	X		X	X	
Orchidaceae	*Diuris*	*laxiflora*		Bee Orchid			X		
Orchidaceae	*Microtis*	*media*					X	X	
Orchidaceae	*Pyrorchis*	*nigricans*		Red Beaks			X		
Pinaceae	*Pinus*	*radiata*		Pine Tree	X			X	
Pittosporaceae	*Billardiera*	*fusiformis*		Australian Blue Bell			X	X	X
Pittosporaceae	*Cheiranthera*	*filifolia*		Finger Flower					X
Poaceae	*Briza*	*maxima*		Blowfly Grass	X		X	X	
Poaceae	*Briza*	*minor*		Shivery Grass	X		X		X
Poaceae	*Avena*	*fatua*			X		X	X	
Poaceae	*Eragrostis*	*curvula*		African Lovegrass	X		X		
Poaceae	*Lagurus*	*ovatus*		Hare's Tail Grass	X				X
Poaceae	*Lolium*	*perenne*		Annual Rye Grass	X		X	X	X
Poaceae	*Neurachne*	*alopecuroidea*		Mulga Foxtail Grass			X	X	
Poaceae	*Austrostipa*	*semibarbata*					X		
Poaceae	*Vulpia*	*muralis*		Fox Grass	X			X	
Poaceae	*Austrostipa*	*drummondii*					X		
Polygalaceae	*Comesperma*	*ciliatum*		Twining Lovers					X
Polygalaceae	*Comesperma*	*calcicola*				P3 - KW183			X
Primulaceae	*Lysimachia*	*arvensis*		Pimpernel	X			X	
Proteaceae	*Adenanthos*	*cuneatus*		Jug Flower			X		

Table 21 continued

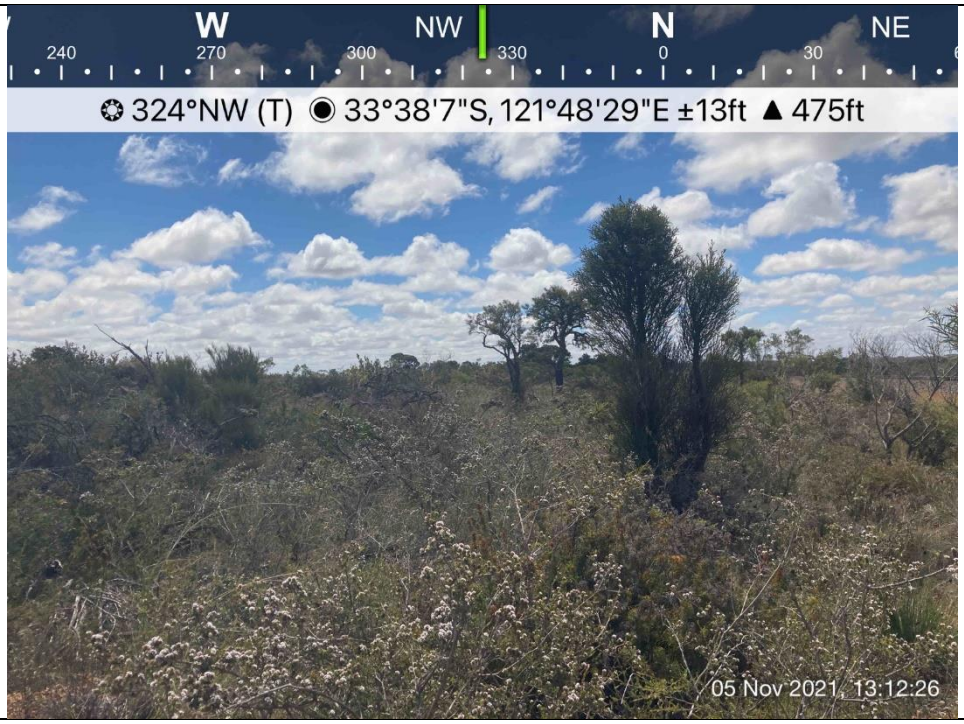
Family	Genus	Species	Subspecies	Common Name	Invasive	Cons code	1	2	3
Proteaceae	*Banksia*	*armata*		Prickly Dryandra			X		
Proteaceae	*Banksia*	*nivea*		Honeypot Dryandra			X		
Proteaceae	*Banksia*	*obovata*		Wedge Leaf Dryandra			X		
Proteaceae	*Banksia*	*repens*		Creeping Banksia			X		
Proteaceae	*Grevillea*	*pauciflora*					X		X
Proteaceae	*Hakea*	*cinerea*		Ashy Hakea			X		X
Proteaceae	*Hakea*	*corymbosa*		Cauliflower Hakea			X		
Proteaceae	*Hakea*	*denticulata*					X		
Proteaceae	*Hakea*	*lissocarpha*		Honey Hakea			X		
Proteaceae	*Hakea*	*varia*		Variable Leaved Hakea			X		
Proteaceae	*Hakea*	*trifurcata*		Two Leaved Hakea			X	X	
Proteaceae	*Isopogon*	*polycephalus*		Clustered Coneflower			X		
Proteaceae	*Isopogon*	*trilobus*		Barrell Coneflower			X		
Proteaceae	*Lambertia*	*inermis*	var *inermis*	Chiddick, Native Honeysuckle			X		
Proteaceae	*Persoonia*	*scabra*				P3 - KW182	X		
Proteaceae	*Petrophile*	*fastigiata*					X		
Proteaceae	*Petrophile*	*squamatum*					X		
Proteaceae	*Synaphea*	*petiolaris*	subsp. *petiolaris*				X		X
Restionaceae	*Desmocladus*	*flexuosus*					X	X	
Restionaceae	*Hypolaena*	*humilis*					X	X	X
Restionaceae	*Lepidobolus*	*chaetocephalus*		Bristle Headed Chaff Rush			X	X	
Rhamnaceae	*Cryptandra*	*myriantha*					X		
Rhamnaceae	*Cryptandra*	*pungens*					X		
Rhamnaceae	*Cryptandra*	sp					X		
Rubiaceae	*Opercularia*	*vaginata*		Dog Weed			X		
Rutaceae	*Boronia*	*spathulata*					X		

Table 21 continued

Family	Genus	Species	Subspecies	Common Name	Invasive	Cons code	1	2	3
Stylidiaceae	*Levenhookia*	*pusilla*		Midget Stylewort			X	X	
Stylidiaceae	*Levenhookia*	*stipitata*		Common Stylewort			X		
Stylidiaceae	*Stylidium*	*repens*		Creeping Stylidium			X		
Stylidiaceae	Stylidium	*rupestre*		Rock Stylidium			X		
Thymelaeaceae	*Pimelea*	*angustifolia*		Narrow Leaved Pimelea			X		
Xanthorrhoeaceae	*Xanthorrhoea*	*platyphylla*		Grass Tree			X		

Relevé	R1	**Veg Code**	2: Taxspa Baelat SL	**Date Surveyed**	5/11/2021
Location	Located within the western railway corridor, in the central area of the survey area. 354.553KM				
GPS (Lat, Long)	-33.6351655279, 121.8081284202				
Landform and Slope	Plain, Flat				
Soils	Sand, Orange/Brown				
Hydrology	Good Drainage				
Vegetation description	Vegetation Description (NVIS; DoEE, 2017): U ^*Nuytsia floribunda*, +/- *Acacia cyclops*, *Melaleuca cuticularis*\shrub\4\bc; M^ ^*Taxandria spathulata*, +/-*Baeckea latens*\shrub\3\c; G ^^*Desmocladus flexuosus, Caustis dioica, Mesomelaena tetragona*\sedge\1\c Vegetation Description (Muirs, 1977): *Nuytsia floribunda* Open Low Woodland B, over *Acacia Cyclops* and *Melaleuca cuticularis* Open Scrub, over *Taxandria spathulata* and *Baeckea latens* Heath A and B, over *Desmocladus flexuosus, Caustis dioica* and *Mesomelaena tetragona* Tall Sedges, over *Chamaescilla corymbosa, Stylidium rupestre* and *Levenhookia stipitata* Very Open Herbs				
Condition	Very good				
Comments	-				

Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m			
Trees 10-30m			
Shrub >2m	*Nuytsia floribunda*	*Acacia cyclops, Melaleuca cuticularis*	E <5%
Shrub 1-2m	*Taxandria spathulata*	*Baeckea latens*	M 30-70%
Shrub 0.5-1m			
Shrub <0.5m			
Sedge	*Desmocladus flexuosus, Caustis dioica*	*Mesomelaena tetragona, Patersonia occidentalis*	M 30-70%
Herb		*Chamaescilla corymbosa, Stylidium rupestre, Levenhookia stipitata*	E <5%
Grass		**Avena fatua*, **Briza maxima*	E <5%



Relevé	R2	**Veg Code**	3: Melcut SL	**Date Surveyed**	5/11/2021
Location	Located on the western railway corridor, in the northern area of the survey area. 354.396KM.				
GPS (Lat, Long)	-33.6340005281, 121.8076159202				
Landform and Slope	Drainage depression, Moderate				
Soils	Sand clay, Orange/Brown				
Hydrology	Seasonal Wet				
Vegetation description	Vegetation Description (NVIS; DoEE, 2017): U^ *Melaleuca cuticularis, Melaleuca brevifolia*, +/-*Acacia cyclops*\shrub\4\c ; M ^^*Baeckea latens*, *Acacia gonophylla, Cyathostemon tenuifolius*\shrub\3\r; G ^*Gahnia trifida*, +/-*Hypolaena humilis, Chorizandra enodis*\sedge\1\d Vegetation Description (Muirs, 1977): *Melaleuca cuticularis, Melaleuca brevifolia* and *Acacia cyclops* Thicket, over *Baeckea latens, Acacia gonophylla* and *Lambertia inermis* Low Scrub A and B, over *Gahnia trifida, Hypolaena humilis* and *Chorizandra enodis* Dense Tall Sedge, over *Microtis media* subsp. *media* very open herb				
Condition	Very Good				
Comments	-				

Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m			
Trees 10-30m			
Shrub >2m	*Melaleuca cuticularis, Melaleuca brevifolia*	*Acacia cyclops*	M 30-70%
Shrub 1-2m	*Baeckea latens*, *Acacia gonophylla*	*Lambertia inermis, Cyathostemon tenuifolius*	V 2-10%
Shrub 0.5-1m		*Dianella brevicaulis, Billardiera fusiformis*	E <5%
Shrub <0.5m			
Sedge	*Gahnia trifida*	*Hypolaena humilis, Chorizandra enodis*	D > 70%
Herb		*Microtis media* subsp. *media*	E <5%
Grass			

Quadrat	Q1	Veg Code	1: Pro SL	Date Surveyed	5/11/2021
Location	Located on the western railway corridor, in the southern area of the survey area. 354.884KM.				
GPS (Lat, Long)	-33.6382018380, 121.8091691360				
Landform and Slope	Plain, Flat				
Soils	Light Grey Sand				
Hydrology	Good drainage				
Vegetation description	Vegetation Description (NVIS; DoEE, 2017): U ^*Lambertia inermis* var *inermis*, +/-*Eucalyptus densa* subsp. *densa*, *Acacia cyclops*\shrub, mallee\4\c; M^ ^^*Phymatocarpus maxwelli*, *Hakea trifurcata, Micromyrtus elobata* subsp. *elobata*\shrub\2,3\c; G ^^*Chorizandra enodis, Hypolaena humilis, Chamaescilla corymbosa*\sedge, herb\1\c Vegetation Description (Muir, 1977s): *Eucalyptus densa* subsp. *densa* very open shrub Mallee, over *Lambertia inermis* var *inermis* and *Acacia cyclops* thicket, over *Phymatocarpus, Hakea trifurcata* and *Cyathostemon tenuifolius* Heath A and B, over *Micromyrtus elobata* subsp. *elobata* and *Adenanthos cuneatus* Dwarf Scrub C and D, over *Neurachne alopecuroidea* Open Low Grass, over *Caustis dioica* Tall Sedge, over *Chorizandra enodis, Hypolaena humilis* and *Desmocladus flexuosus* Low Sedge, over *Chamaescilla corymbosa* and *Opercularia vaginata* Open Herbs				
Condition	Very Good				
Comments	10x10m for mid and understorey, 20x20m for upperstorey.				

Species Name	Form	Height (m)	Cover (%)	Flowering/Fruiting
Laxmannia sp.	S-shrub	0.1	Bi 0%	Flowering
Chorizandra enodis	V-sedge	0.1	r <10%	Flowering
Chamaescilla corymbosa	H-herb		r <10%	Fruiting
Hypolaena humilis	V-sedge	0.2	r <10%	Flowering
Baeckea latens	S-shrub	0.5	r <10%	
Lambertia inermis var *inermis*	S-shrub	2.5	d > 70%	Flowering
Acacia saligna	S-shrub	0.5	Bi 0%	
Austrostipa semibarbata	G-grass	0.5	r <10%	Flowering
Billardiera fusiformis			Bi 0%	Flowering
Phymatocarpus maxwellii	S-shrub	2	c 30-70%	Fruiting
Adenanthos cuneatus	S-shrub	0.2	r <10%	
Desmocladus flexuosus	V-sedge	0.2	r <10%	
Hibbertia gracilipes	S-shrub	0.1	Bi 0%	Flowering
Pterochaeta paniculata	H-herb		Bi 0%	Flowering
Hakea trifurcata	S-shrub	1.3	r <10%	
**Ursinia anthemoides*	H-herb		Bi 0%	Fruiting
Andersonia parvifolia	S-shrub	0.1	Bi 0%	Flowering
**Briza maxima*	G-grass		Bi 0%	Fruiting
Caustis dioica	V-sedge	0.3	Bi 0%	
Micromyrtus elobata subsp. *elobata*	S-shrub	0.2	r <10%	Flowering
Stylidium repens	H-herb		Bi 0%	Flowering
Xanthosia huegelii	H-herb		Bi 0%	Flowering
Allocasuarina humilis	S-shrub	0.5	Bi 0%	
Melaleuca tuberculata var *tuberculata*	S-shrub	0.1	Bi 0%	Fruiting
Goodenia incana	H-herb		Bi 0%	
Allocasuarina thyoides	S-shrub	1.2	Bi 0%	Fruiting
Melaleuca societatis	S-shrub	1.2	Bi 0%	FL/FR
Acacia latipes subsp. *latipes*	S-shrub	0.8	Bi 0%	
*Eragrostis curvula	G-grass	1	r <10%	FL/FR
Hibbertia racemosa	S-shrub	0.1	Bi 0%	Flowering
Isopogon polycephalus	S-shrub	1.1	Bi 0%	FL/FR

Quadrat One continued.

Mesomelaena tetragona	V-sedge	0.4		Fruiting
Goodenia pterigosperma	H-herb			Flowering

Quadrat	Q2	Veg Code	1: Pro SL	Date Surveyed	5/11/2021
Location	Located on the western railway corridor, within the central area of the survey area. 354.686KM				
GPS (Lat, Long)	-33.6365062270, 121.8084962430				
Landform and Slope	Plain, Flat				
Soils	Light Grey Sand				
Hydrology	Good drainage				
Vegetation description	Vegetation Description (NVIS; DoEE, 2017): U ^*Lambertia inermis* var *inermis*, +/-*Eucalyptus densa* subsp. *densa*, *Acacia cyclops*\shrub, mallee\4\c; M^ ^^*Phymatocarpus maxwellii*, *Hakea trifurcata, Micromyrtus elobata* subsp. *elobata*\shrub\2,3\c; G ^^*Chorizandra enodis, Hypolaena humilis, Chamaescilla corymbosa*\sedge, herb\1\c Vegetation Description (Muir, 1977s): *Eucalyptus densa* subsp. *densa* very open shrub Mallee, over *Lambertia inermis* var *inermis* and *Acacia cyclops* thicket, over *Phymatocarpus, Hakea trifurcata* and *Cyathostemon tenuifolius* Heath A and B, over *Micromyrtus elobata* subsp. *elobata* and *Adenanthos cuneatus* Dwarf Scrub C and D, over *Neurachne alopecuroidea* Open Low Grass, over *Caustis dioica* Tall Sedge, over *Chorizandra enodis, Hypolaena humilis* and *Desmocladus flexuosus* Low Sedge, over *Chamaescilla corymbosa* and *Opercularia vaginata* Open Herbs				
Condition	Very Good				
Comments	10x10m for mid and understorey, 20x20m for upperstorey.				

Species Name	Form	Height (m)	Cover (%)	Flowering/Fruiting
Hakea denticulata	S-shrub	2.5	r <10%	
Baeckea latens	S-shrub	1	r <10%	Fruiting
Daviesia teretifolia	S-shrub	0.1	Bi 0%	Fruiting
Neurachne alopecuroidea	G-grass		r <10%	Flowering
Chorizandra enodis	V-sedge	0.1	r <10%	Fruiting
Opercularia vaginata	H-herb		r <10%	Flowering
Conostylis seorsiflora subsp. *seorsiflora*	V-sedge		Bi 0%	Flowering
Cyathostemon tenuifolius	S-shrub	1	r <10%	Flowering
Beaufortia schaueri	S-shrub	0.3		FL/FR
Caustis dioica	V-sedge	1	r <10%	Flowering
Phymatocarpus maxwellii	S-shrub	0.5	r <10%	Fruiting
Micromyrtus elobata subsp. *elobata*	S-shrub	0.1	r <10%	Flowering
Gastrolobium spinosum	S-shrub	1.2	Bi 0%	Fruiting
Desmocladus flexuosus	V-sedge	0.1	r <10%	
Hypolaena humilis	V-sedge	1	r <10%	Flowering
Cryptandra sp	S-shrub	0.1	Bi 0%	Flowering
Stylidium repens	H-herb		r <10%	Flowering
Levenhookia stipitata	H-herb		Bi 0%	Flowering
Billardiera fusiformis			r <10%	Flowering
Chamaescilla corymbosa	H-herb		r <10%	FL/FR
Acacia cyclops	S-shrub	0.1	Bi 0%	
Eucalyptus densa subsp. *densa*	M-mallee	3	r <10%	Fruiting
Melaleuca societatis	S-shrub	0.6	r <10%	FL/FR
Goodenia pterigosperma	H-herb		Bi 0%	Flowering
Styphelia breviflora	S-shrub	0.1	Bi 0%	Fruiting
Hakea lissocarpha	S-shrub	2	r <10%	Fruiting
Lepidosperma squamatum	V-sedge	0.1	Bi 0%	Flowering
Melaleuca suberosa	S-shrub	0.2	r <10%	Fruiting
Isopogon polycephalus	S-shrub	0.1	Bi 0%	Flowering
Melaleuca tuberculata var *tuberculata*	S-shrub	0.1	Bi 0%	Fruiting
Taxandria spathulata	S-shrub	1	Bi 0%	Flowering
Stylidium rupestre	H-herb		Bi 0%	Flowering
Chorizema aciculare	S-shrub	0.1	Bi 0%	Fruiting
Glischrocaryon sp	H-herb		Bi 0%	Flowering
Verticordia inclusa	S-shrub	0.1	Bi 0%	Flowering
Levenhookia pusilla	H-herb		Bi 0%	Flowering

Quadrat two continued.

Banksia armata	S-shrub		r <10%	FL/FR
Drosera leucoblasta	H-herb			Flowering

Table 22: Fauna species recorded within survey area.

Family	Species	Common Name	Conservation Code	Comments
Birds				
Artamidae	*Cracticus torquatus*	Grey Butcherbird		
Meliphagidae	*Anthochaera carunculata*	Red Wattlebird		
Meliphagidae	*Anthochaera lunulata*	Western Wattlebird		
Meliphagidae	*Manorina flavigula*	Yellow-throated Miner		
Meliphagidae	*Phylidonyris novaehollandiae*	New Holland Honeyeater		
Petroicidae	*Eopsaltria griseogularis*	Western Yellow Robin		
Phasianidae	*Coturnix pectoralis*	Stubble Quail		
Rhipiduridae	*Rhipidura leucophrys*	Willy Wagtail		
Invertebrates				
Araneidae	*Austracantha minax*	Christmas Spider		
Pieridae	*Pieris rapae*	Cabbage White		
Formicidae	*Iridomyrmex purpureus*	Southern Meat Ant		
Mammals				
Canidae	*Vulpes*	Fox		
Leporidae	*Oryctolagus cuniculus*	Rabbit		
Macropodidae	*Macropus fuliginosus*	Western Grey Kangaroo		
Reptiles				
Scincidae	*Tiliqua rugosa*	Bobtail Skink		

Appendix E

Threatened and Priority reporting forms

Appendix F

NatureMap and EPBC Act PMST reports

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

Threatened and Priority Flora Report Form

Version 1.4 March 2021

Please complete as much of the form as possible, with emphasis on those sections bordered in black. For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DBCA website at www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants

TAXON: Comesperma calcicola **TPFL Pop. No:**

OBSERVATION DATE: 05/11/2021 **CONSERVATION STATUS:** P3 **New population** ☒

OBSERVER/S: Katie White, Kimberly Jenkins **PHONE** 0439 993 451 or 0458 441 432

ROLE: Botanist / Consultant **ORGANISATION:** Bio Diverse Solutions

EMAIL: katie@biodiversesolutions.com.au ; enquiry@biodiversesolutions.com.au

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place)**:**

~24km north of Esperance townsite, within Gibson townsite. On railway reserve, 1.7 km north of Eastern Loop Rd on western railway reserve

Reserve No:

DBCA DISTRICT: South coast **LGA:** Esperance Land manager present: ☐

DATUM:
GDA94 / MGA94 ☒
AGD84 / AMG84 ☐
WGS84 ☐
Unknown ☐

COORDINATES: (If UTM coords provided, **Zone** is also required)
DecDegrees ☐ DegMinSec ☐ UTMs ☒

Lat / Northing: **945951.312**

Long / Easting: 6268206.369

ZONE: **51H**

METHOD USED:
GPS ☐ Differential GPS ☐ Map ☒

No. satellites: _____ Map used: ArcGIS

Boundary polygon captured: ☐ Map scale: _____

LAND TENURE:

Nature reserve ☐	Timber reserve ☐	Private property ☐	Rail reserve ☒	Shire road reserve ☐
National park ☐	State forest ☐	Pastoral lease ☐	MRWA road reserve ☐	Other Crown reserve ☐
Conservation park ☐	Water reserve ☐	UCL ☐	SLK/Pole 355.382 to _____	Specify other: _____

AREA ASSESSMENT: Edge survey ☐ Partial survey ☒ Full survey ☐ Area observed (m²): _____

EFFORT: Time spent surveying (minutes): _____ No. of minutes spent / 100 m²: _____

POP'N COUNT ACCURACY: Actual ☐ Extrapolation ☐ Estimate ☒ Count method: _____
(Refer to field manual for list)

WHAT COUNTED: Plants ☒ Clumps ☐ Clonal stems ☒

TOTAL POP'N STRUCTURE:	**Mature:**	**Juveniles:**	**Seedlings:**	**Totals:**
Alive	225			
Dead				

Area of pop (m²): _____

Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. _____ Size _____ Data attached ☐ Total area of quadrats (m²): _____

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☒
Immature fruit ☐ Fruit ☐ Dehisced fruit ☐ Percentage in flower: 70%

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT: Adjacent to track disturbance of railway access track and old laydown area. Within previously disturbed /graded / excavated area directly.

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. **Specify agent** where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	**Current impact (N-E)**	**Potential Impact (L-E)**	**Potential Threat Onset (S-L)**
• Laydown areas and track widening along the railway access tracks	M	H	S
•			

Please return completed form to **Species And Communities Program** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:
Crest ☐
Hill ☐
Ridge ☐
Outcrop ☐
Slope ☐
Flat ☐
Open depression ☐
Drainage line ☒
Closed depression ☐
Wetland ☐

ROCK TYPE:
Granite ☐
Dolerite ☐
Laterite ☐
Ironstone ☐
Limestone ☐
Quartz ☐
Specify other:

LOOSE ROCK:
(on soil surface; eg gravel, quartz fields)
0-10% ☐
10-30% ☐
30-50% ☐
50-100% ☐

SOIL TYPE:
Sand ☐
Sandy loam ☒
Loam ☐
Clay loam ☒
Light clay ☐
Peat ☐
Specify other:

SOIL COLOUR:
Red ☐
Brown ☐
Yellow ☐
White ☐
Grey ☐
Black ☐
Specify other: Orange-brown

DRAINAGE:
Well drained ☒
Seasonally inundated ☐
Permanently inundated ☐
Tidal ☐

Specific **Landform** Element: **On periphery of man-made constructed artificial drainage line for water.**
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
1. Open shrubland with dense sedgeland on periphery of open water
2.
3.
4.

Eg: **1**. Banksia woodland (B. attenuata, B. ilicifolia); **2**. Open shrubland (Hibbertia sp., Acacia spp.) ; **3**. Isolated clumps of sedges (M.tetragona)

ASSOCIATED SPECIES: Melaleuca brevifolia, Gahnia trifida, Acacia gonophylla, Hypolaena sp

Other (non-dominant) spp

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☐ Good ☒ Degraded ☒ Completely degraded ☐

COMMENT:

FIRE HISTORY: **Last Fire:** Season/Month: _____ Year: **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☒

FENCING: Not required ☐ Present ☐ Replace / repair ☐ Required ☐ Length req'd: _____

ROADSIDE MARKERS: Not required ☐ Present ☐ Replace / reposition ☐ Required ☐ Quantity req'd: _____

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

Specimen retained by WA Herbarium

Proposed impact and targeted level survey results presented in 'Bio Diverse Solutions, reconnaissance flora, vegetation and basic survey, AI005-010 North Gibson, KM 353-355 (2022)

FLORA AUTHORISATION / LICENCE No: FB62000327 Note if only observing plants (i.e. no specimens or plant matieral is taken) then no authorisation/licence is required. For further information on authorisation and licening requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

SPECIMEN: Collectors No: KW183 WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other: _____

LODGEMENT: WA Herb Lodgement No: 9281

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☒ District Office ☒ Other: _____

Submitter of Record: Katie White Role: Botanist / Ecologist Signed: KW Date: 05/ 01 /2022

Please return completed form to **Species And Communities Program** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

Threatened and Priority Flora Report Form

Version 1.4 March 2021

Please complete as much of the form as possible, with emphasis on those sections bordered in black. For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DBCA website at www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants

TAXON: Persoonia scabra **TPFL Pop. No:**

OBSERVATION DATE: 05/11/2021 **CONSERVATION STATUS:** P3 **New population** ☒

OBSERVER/S: Katie White, Kimberly Jenkins **PHONE** 0439 993 451 or 0458 441 432

ROLE: Botanist / Consultant **ORGANISATION:** Bio Diverse Solutions

EMAIL: katie@biodiversesolutions.com.au ; enquiry@biodiversesolutions.com.au

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place)**:**

~24km north of Esperance townsite, within Gibson townsite. On railway reserve, 1.8km north of Eastern Loop Rd on eastern Rail reserve

Reserve No:

DBCA DISTRICT: South coast **LGA:** Esperance Land manager present: ☐

DATUM:
GDA94 / MGA94 ☐
AGD84 / AMG84 ☐
WGS84 ☐
Unknown ☐

COORDINATES: (If UTM coords provided, **Zone** is also required)
DecDegrees ☐ DegMinSec ☒ UTMs ☐

Lat / Northing: **33°38'10.72''**

Long / Easting: 121°48'31.82''

ZONE:

METHOD USED:
GPS ☐ Differential GPS ☐ Map ☒

No. satellites: Map used: ArcGIS

Boundary polygon captured: ☐ Map scale:

LAND TENURE:

Nature reserve ☐	Timber reserve ☐	Private property ☐	Rail reserve ☒	Shire road reserve ☐
National park ☐	State forest ☐	Pastoral lease ☐	MRWA road reserve ☐	Other Crown reserve ☐
Conservation park ☐	Water reserve ☐	UCL ☐	SLK/Pole 364.674 to	Specify other:

AREA ASSESSMENT: Edge survey ☐ Partial survey ☒ Full survey ☐ Area observed (m²):

EFFORT: Time spent surveying (minutes): No. of minutes spent / 100 m²:

POP'N COUNT ACCURACY: Actual ☒ Extrapolation ☐ Estimate ☐ Count method: (Refer to field manual for list)

WHAT COUNTED: Plants ☒ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:	**Mature:**	**Juveniles:**	**Seedlings:**	**Totals:**
Alive	2			
Dead				

Area of pop (m²):

Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. Size Data attached ☐ Total area of quadrats (m²):

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☐
Immature fruit ☐ Fruit ☒ Dehisced fruit ☐ Percentage in flower: 0%

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT: Adjacent to track disturbance of railway access track and old laydown area.

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. **Specify agent** where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	**Current impact (N-E)**	**Potential Impact (L-E)**	**Potential Threat Onset (S-L)**
• Laydown areas and track widening along the railway access tracks	M	H	S
•			

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GOVERNMENT OF WESTERN AUSTRALIA

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:
Crest ☐
Hill ☐
Ridge ☐
Outcrop ☐
Slope ☐
Flat ☒
Open depression ☐
Drainage line ☐
Closed depression ☐
Wetland ☐

ROCK TYPE:
Granite ☐
Dolerite ☐
Laterite ☐
Ironstone ☐
Limestone ☐
Quartz ☐
Specify other:

LOOSE ROCK:
(on soil surface; eg gravel, quartz fields)
0-10% ☐
10-30% ☒
30-50% ☐
50-100% ☐

SOIL TYPE:
Sand ☒
Sandy loam ☐
Loam ☐
Clay loam ☐
Light clay ☐
Peat ☐
Specify other:

SOIL COLOUR:
Red ☐
Brown ☐
Yellow ☐
White ☐
Grey ☒
Black ☐
Specify other:

DRAINAGE:
Well drained ☒
Seasonally inundated ☐
Permanently inundated ☐
Tidal ☐

Specific **Landform** Element: Sandplain
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
Eg: **1**. Banksia woodland (B. attenuata, B. ilicifolia); **2**. Open shrubland (Hibbertia sp., Acacia spp.) ; **3**. Isolated clumps of sedges (M.tetragona)

1. Dense and diverse shrubland, with mixed Myrtaceaous and Proteaceous shrusbs
2.
3.
4.

ASSOCIATED SPECIES: Isopogon polycephalus, Phymatocarpus maxwelli, Lambertia inermis, Calothamnus gracilis

Other (non-dominant) spp

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☐ Good ☒ Degraded ☐ Completely degraded ☐

COMMENT:

FIRE HISTORY: **Last Fire:** Season/Month: _____ Year: **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☒

FENCING: Not required ☐ Present ☐ Replace / repair ☐ Required ☐ Length req'd: _____

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Specimen not retained by WA Herbarium

Proposed impact and targeted level survey results presented in 'Bio Diverse Solutions, reconnaissance flora, vegetation and basic survey, AI005-010 North Gibson, KM 353-355 (2022)

No GIS data – but population located in vicinity to GPS pts of KW183

FLORA AUTHORISATION / LICENCE No: FB62000327 Note if only observing plants (i.e. no specimens or plant matieral is taken) then no authorisation/licence is required. For further information on authorisation and licening requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

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LODGEMENT: WA Herb Lodgement No: 9281

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NatureMap
Mapping Western Australia's biodiversity

AI005-0010 NatureMap 30km Species Report

Created By Guest user on 17/11/2021

Current Names Only	Yes
Core Datasets Only	Yes
Method	'By Circle'
Centre	121° 48' 30" E,33° 38' 07" S
Buffer	30km
Group By	Kingdom

Kingdom	Species	Records
Animalia	703	10887
Chromista	18	34
Fungi	56	140
Plantae	1354	4718
TOTAL	**2131**	**15779**

	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.		*Acanthopagrus butcheri*			
6.	25242	*Acanthophis antarcticus (Southern Death Adder)*		P3	
7.	24560	*Acanthorhynchus superciliosus (Western Spinebill)*			
8.	25535	*Accipiter cirrocephalus (Collared Sparrowhawk)*			
9.	25536	*Accipiter fasciatus (Brown Goshawk)*			
10.		*Acercella falcipes*			
11.	42368	*Acritoscincus trilineatus (Western Three-lined Skink)*			
12.	25755	*Acrocephalus australis (Australian Reed Warbler)*			
13.	41323	*Actitis hypoleucos (Common Sandpiper)*		IA	
14.		*Adversaeschna brevistyla*			
15.		*Aedes (Och.) sp. 1 (nr. nigrithorax) (SAP)*			
16.		*Aedes camptorhynchus*			
17.		*Aedes sp.*			
18.	25544	*Aegotheles cristatus (Australian Owlet-nightjar)*			
19.		*Agaue similis*			Y
20.		*Agaue tenuipes*			
21.		*Agauopsis calidictyota*			Y
22.		*Agauopsis miliaris*			
23.		*Agraptocorixa eurynome*			
24.		*Agraptocorixa parvipunctata*			
25.		*Agraptocorixa sp.*			
26.		*Alboa worooa*			
27.		*Aldrichetta forsteri*			
28.		*Allodessus bistrigatus*			
29.		*Allomycterus pilatus*			
30.		*Ammotretis elongatus*			
31.	24860	*Amphibolurus norrisi (Mallee Tree Dragon)*			
32.	25647	*Amytornis striatus (Striated Grasswren)*			
33.		*Aname mainae*			
34.		*Aname tepperi*			
35.	24310	*Anas castanea (Chestnut Teal)*			
36.	24312	*Anas gracilis (Grey Teal)*			
37.	24313	*Anas platyrhynchos (Mallard)*			
38.		*Anas platyrhynchos subsp. domesticus*			
39.	24315	*Anas rhynchotis (Australasian Shoveler)*			
40.	24316	*Anas superciliosa (Pacific Black Duck)*			
41.		*Anax papuensis*			
42.	47414	*Anhinga novaehollandiae (Australasian Darter)*			
43.		*Anisops baylii*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
44.		*Anisops hackeri*			
45.		*Anisops hyperion*			
46.		*Anisops sp.*			
47.		*Anisops thienemanni*			
48.		*Anostraca (unident.)*			
49.	24561	*Anthochaera carunculata (Red Wattlebird)*			
50.	24562	*Anthochaera lunulata (Western Little Wattlebird)*			
51.	24599	*Anthus australis subsp. australis (Australian Pipit)*			
52.		*Antiporus occidentalis*			
53.		*Apocyclops dengizicus*			
54.	24991	*Aprasia repens (Sand-plain Worm-lizard)*			
55.	24994	*Aprasia striolata (Lined Worm-lizard)*			
56.	25554	*Apus pacificus (Fork-tailed Swift, Pacific Swift)*		IA	
57.	24285	*Aquila audax (Wedge-tailed Eagle)*			
58.		*Aracana aurita*			
59.		*Aracana ornata*			
60.		*Araneus necopinus*			
61.		*Araneus senicaudatus*			
62.		*Arcella discoides*			
63.		*Arcella hemisphaerica*			
64.	24208	*Arctocephalus forsteri (New Zealand Fur Seal, long-nosed fur-seal)*		S	
65.	25558	*Ardea ibis (Cattle Egret)*			
66.	41324	*Ardea modesta (great egret, white egret)*			
67.	24340	*Ardea novaehollandiae (White-faced Heron)*			
68.	24341	*Ardea pacifica (White-necked Heron)*			
69.	24610	*Ardeotis australis (Australian Bustard)*			
70.	25736	*Arenaria interpres (Ruddy Turnstone)*		IA	
71.		*Argiope trifasciata*			
72.		*Arrenurus (Truncaturus) sp. (SAP)*			
73.		*Arripis truttaceus*			Y
74.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
75.	24353	*Artamus cyanopterus (Dusky Woodswallow)*			
76.		*Artoria cingulipes*			
77.		*Artoria flavimana*			
78.		*Artoria taeniifera*			
79.		*Artoriopsis eccentrica*			
80.		*Artoriopsis expolita*			
81.		*Artoriopsis joergi*			
82.		*Ascorhis occidua*			
83.		*Asplanchna brightwelli*			
84.		*Asymbolus vincenti*			
85.		*Atherinosoma wallacei*			
86.		*Aulopus purpurissatus*			
87.		*Austracantha minax*			
88.		*Australocyclops similis*			
89.		*Australocypris insularis*			
90.		*Australocypris sp.*			
91.		*Australomedusa ?baylii (SAP)*			
92.		*Austroagrion cyane*			
93.		*Austrochiltonia sp.*			
94.		*Austrochiltonia subtenuis*			
95.		*Austrolestes analis*			
96.		*Austrolestes annulosus*			
97.		*Austrolestes aridus*			
98.		*Austrolestes io*			
99.		*Austrolestes sp.*			
100.	24318	*Aythya australis (Hardhead)*			
101.		*Barnardius zonarius*			
102.		*Bdelloidea med-large contracted of RJS (SAP)*			
103.		*Bdelloidea sp.*			
104.		*Bdelloidea sp. 2:2*			
105.		*Bennelongia barangaroo lineage*			
106.		*Bennelongia frumenta*			
107.		*Berosus discolor*			
108.		*Berosus munitipennis*			
109.		*Berosus sp.*			
110.		*Bezzia sp. (not 1 or 2)*			
111.		*Bivalvia sp.*			
112.	24319	*Biziura lobata (Musk Duck)*			
113.		*Boeckella triarticulata*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
114.		*Boolathana mainae*			
115.		*Brachaluteres jacksonianus*			
116.		*Brachionus angularis*			
117.		*Brachionus cf. nilsoni (SAP)*			
118.		*Brachionus cf. plicatilis (SAP)*			
119.		*Brachionus leydigii*			
120.		*Brachionus plicatilis complex ("towerinninensis" form)*			Y
121.		*Brachionus plicatilis s.l.*			
122.		*Brachionus quadridentatus cluniorbicularis*			
123.		*Brachionus rotundiformis*			
124.		*Brachionus sp.*			
125.		*Brachionus urceolaris s.l.*			
126.		*Bradyagaue exilis*			Y
127.		*Branchipodidae sp.*			
128.		*Brentidae sp.*			
129.	24359	*Burhinus grallarius (Bush Stone-curlew)*			
130.		*Caboncypris kondininensis*			
131.	25598	*Cacomantis flabelliformis (Fan-tailed Cuckoo)*			
132.	24427	*Cacomantis flabelliformis subsp. flabelliformis (Fan-tailed Cuckoo)*			
133.	42307	*Cacomantis pallidus (Pallid Cuckoo)*			
134.	24269	*Calamanthus campestris (Rufous Fieldwren)*			
135.		*Calamoecia clitellata*			
136.		*Calamoecia sp. 342 (ampulla variant) (CB)*			
137.		*Calanoida sp.*			
138.	24779	*Calidris acuminata (Sharp-tailed Sandpiper)*		IA	
139.	24780	*Calidris alba (Sanderling)*		IA	
140.	25738	*Calidris canutus (Red Knot, knot)*		IA	
141.	24783	*Calidris canutus subsp. rogersi (Red Knot (north-eastern Siberia))*		T	
142.	24784	*Calidris ferruginea (Curlew Sandpiper)*		T	
143.	24786	*Calidris melanotos (Pectoral Sandpiper)*		IA	
144.	24788	*Calidris ruficollis (Red-necked Stint)*		IA	
145.	24790	*Calidris tenuirostris (Great Knot)*		T	
146.		*Callogobius mucosus*			
147.	24734	*Calyptorhynchus latirostris (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)*		T	
148.	48400	*Calyptorhynchus sp. (white-tailed black cockatoo)*		T	
149.		*Candonocypris novaezelandiae*			
150.		*Capitella sp.*			
151.		*Capitellidae sp.*			
152.		*Capropygia unistriata*			
153.		*Carabidae sp.*			
154.		*Carcharhinus brachyurus*			
155.		*Ceinidae sp.*			
156.		*Centropyxis aculeata*			
157.		*Centropyxis cassis*			Y
158.		*Centropyxis sp. b (SAP)*			
159.		*Ceratopogonidae sp.*			
160.		*Ceratopogonidae sp. A (SAP)*			
161.	24086	*Cercartetus concinnus (Western Pygmy-possum, Mundarda)*			
162.		*Cercophonius granulosus*			
163.	25551	*Cereopsis novaehollandiae (Cape Barren Goose)*		T	
164.	24320	*Cereopsis novaehollandiae subsp. grisea (Recherche Cape Barren Goose, Cape Barren Goose)*		T	
165.		*Ceriodaphnia n. sp. c (Berner sp.#1) (SAP)*			
166.	25575	*Charadrius leschenaultii (Greater Sand Plover)*		T	
167.	24377	*Charadrius ruficapillus (Red-capped Plover)*			
168.	24321	*Chenonetta jubata (Australian Wood Duck, Wood Duck)*			
169.	47909	*Cheramoeca leucosterna (White-backed Swallow)*			
170.		*Chironomidae sp.*			
171.		*Chironominae sp.*			
172.		*Chironomus aff. alternans (V24) (CB)*			
173.		*Chironomus occidentalis*			
174.		*Chironomus tepperi*			
175.	24980	*Christinus marmoratus (Marbled Gecko)*			
176.		*Chroicocephalus novaehollandiae*			
177.	24288	*Circus approximans (Swamp Harrier)*			
178.	24289	*Circus assimilis (Spotted Harrier)*			
179.		*Cladopelma curtivalva*			
180.	24774	*Cladorhynchus leucocephalus (Banded Stilt)*			
181.		*Cladotanytarsus sp. A (SAP)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
182.		*Cletocamptus aff deitersi*			
183.		*Clinohelea sp.*			
184.		*Clynotis albobarbatus*			
185.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
186.	24399	*Columba livia (Domestic Pigeon)*	Y		
187.		*Colurella colurus*			
188.		*Colurella uncinata*			
189.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
190.		*Cordylophora sp.*			Y
191.		*Corixidae sp.*			
192.		*Cormocephalus michaelseni*			
193.	24416	*Corvus bennetti (Little Crow)*			
194.	25592	*Corvus coronoides (Australian Raven)*			
195.	24417	*Corvus coronoides subsp. perplexus (Australian Raven)*			
196.		*Corynoneura sp. (V49) (SAP)*			
197.	24671	*Coturnix pectoralis (Stubble Quail)*			
198.	25701	*Coturnix ypsilophora (Brown Quail)*			
199.		*Coxiella glabra*			
200.		*Coxiella sp.*			
201.		*Coxiella sp. 3 (ABP)*			Y
202.		*Coxiella striatula*			
203.	24420	*Cracticus nigrogularis (Pied Butcherbird)*			
204.	25595	*Cracticus tibicen (Australian Magpie)*			
205.	24422	*Cracticus tibicen subsp. dorsalis (White-backed Magpie)*			
206.	25596	*Cracticus torquatus (Grey Butcherbird)*			
207.	25398	*Crinia georgiana (Quacking Frog)*			
208.	25399	*Crinia glauerti (Clicking Frog)*			
209.	25401	*Crinia pseudinsignifera (Bleating Froglet)*			
210.	30893	*Cryptoblepharus buchananii*			
211.	30888	*Cryptoblepharus pulcher subsp. clarus*			
212.		*Cryptochironomus griseidorsum*			
213.	42385	*Ctenophorus chapmani (Eastern Heath Dragon)*			
214.	25460	*Ctenophorus maculatus (Spotted Military Dragon)*			
215.	24879	*Ctenophorus maculatus subsp. griseus (Spotted Military Dragon)*			
216.	25040	*Ctenotus gemmula (Jewelled South-west Ctenotus (Swan Coastal Plain subpop P3), skink)*			
217.	25047	*Ctenotus impar*			
218.	25049	*Ctenotus labillardieri*			
219.	25074	*Ctenotus schomburgkii*			
220.		*Culicidae sp.*			
221.		*Culicoides sp.*			
222.		*Curculionidae sp.*			
223.		*Cyclosa trilobata*			
224.	24322	*Cygnus atratus (Black Swan)*			
225.		*Cyprideis australiensis*			
226.		*Cyprididae sp.*			
227.		*Cyprinotus cingalensis*			
228.		*Cyprinotus cingalensis (ex edwardi)*			
229.		*Cytherideidae sp.*			Y
230.		*Daphnia australis*			
231.		*Daphnia carinata*			
232.		*Daphnia queenslandensis*			
233.		*Daphnia sp.*			
234.		*Daphnia truncata*			
235.		*Daphnia wardi*			
236.	25673	*Daphoenositta chrysoptera (Varied Sittella)*			
237.		*Dasyhelea sp.*			
238.	24995	*Delma australis*			
239.	25766	*Delma fraseri (Fraser's Legless Lizard)*			
240.	24052	*Delphinus delphis (Common Dolphin)*			
241.	25346	*Dermochelys coriacea (Leatherback Turtle)*		T	
242.		*Dero digitata*			
243.		*Diacypris 'gunyidi' (ms name) (SAP)*			
244.		*Diacypris compacta*			
245.		*Diacypris sp.*			
246.		*Diacypris sp. 581 (n. sp.) (SAP)*			Y
247.		*Diacypris spinosa*			
248.		*Diaprepocoris barycephala*			
249.		*Diaprepocoris sp.*			
250.		*Dicrotendipes conjunctus*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
251.		*Dicrotendipes pseudoconjunctus*			
252.		*Dicrotendipes sp.*			
253.		*Dicrotendipes sp. A (V47) (SAP)*			
254.		*Difflugia sp.*			
255.		*Diodon sp.*			
256.	25618	*Diomedea exulans (Wandering Albatross)*		T	
257.	41403	*Diplodactylus calcicolus (South Coast Gecko)*			
258.		*Dolichopodidae sp.*			
259.		*Dolichopodidae sp. B (SAP)*			
260.	24470	*Dromaius novaehollandiae (Emu)*			
261.		*Dytiscidae sp.*			
262.	25251	*Echiopsis curta (Bardick)*			
263.		*Ecnomus pansus/turgidus*			
264.	25096	*Egernia kingii (King's Skink)*			
265.		*Egretta garzetta*			
266.		*Egretta novaehollandiae*			
267.		*Elanus axillaris*			
268.	25250	*Elapognathus coronatus (Crowned Snake)*			
269.	47937	*Elseyornis melanops (Black-fronted Dotterel)*			
270.		*Empididae sp.*			
271.		*Enchytraeidae sp.*			
272.		*Enochrus eyrensis*			
273.		*Enochrus sp.*			
274.		*Eolophus roseicapillus*			
275.		*Ephydridae sp.*			
276.		*Ephydridae sp. 3 (SAP)*			
277.		*Ephydridae sp. 6 (SAP)*			
278.		*Ephydridae sp. 7(SAP)*			
279.	24567	*Epthianura albifrons (White-fronted Chat)*			
280.	24379	*Erythrogonys cinctus (Red-kneed Dotterel)*			
281.	47938	*Esacus magnirostris (Beach Stone-curlew, Beach Thick-knee)*			
282.	24043	*Eubalaena australis (Southern Right Whale)*		T	
283.		*Eubalichthys mosaicus*			
284.		*Euchlanis dilatata*			
285.		*Eucyclops australiensis*			
286.	25744	*Eudyptes chrysocome (Rockhopper Penguin)*			
287.	24816	*Eudyptes pachyrhynchus (Fiordland Penguin)*			
288.	24817	*Eudyptes sclateri (Erect-crested Penguin)*			Y
289.		*Euglypha sp.*			
290.		*Exosphaeroma sp.*			
291.		*Eylais sp.*			
292.	25621	*Falco berigora (Brown Falcon)*			
293.	25622	*Falco cenchroides (Australian Kestrel, Nankeen Kestrel)*			
294.	25623	*Falco longipennis (Australian Hobby)*			
295.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
296.		*Favonigobius lateralis*			
297.		*Ferrissia petterdi*			
298.		*Filinia longiseta*			
299.	25727	*Fulica atra (Eurasian Coot)*			
300.	24761	*Fulica atra subsp. australis (Eurasian Coot)*			
301.		*Galaxias maculatus*			
302.	39404	*Galaxias truttaceus (Trout Minnow)*			
303.	25730	*Gallirallus philippensis (Buff-banded Rail)*			
304.		*Gea theridioides*			
305.		*Geogarypus taylori*			
306.	34030	*Geotria australis (Pouched Lamprey)*		P3	
307.	25530	*Gerygone fusca (Western Gerygone)*			
308.		*Gianius sp. WA9 (SAP)*			Y
309.		*Gladioferens imparipes*			
310.	47962	*Glyciphila melanops (Tawny-crowned Honeyeater)*			
311.		*Glyptophysa cf. gibbosa (SAP)*			
312.		*Gonorynchus greyi*			
313.	24443	*Grallina cyanoleuca (Magpie-lark)*			
314.	24056	*Grampus griseus (Risso's Dolphin)*			
315.		*Gymnocthebius sp. 1 (SAP)*			
316.		*Gymnometriocnemus sp. B (=V45=sp. A&2=ortho sp. O)*			
317.		*Gymnometriocnemus spp. (not V44 or V45)*			
318.		*Gyrinidae sp.*			
319.		*Habronestes grimwadei*			
320.	25627	*Haematopus fuliginosus (Sooty Oystercatcher)*			

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321.	24485	*Haematopus fuliginosus subsp. fuliginosus (Sooty Oystercatcher)*			
322.	24487	*Haematopus longirostris (Pied Oystercatcher)*			
323.	24293	*Haliaeetus leucogaster (White-bellied Sea-Eagle)*			
324.	24295	*Haliastur sphenurus (Whistling Kite)*			
325.		*Halicyclops sp. 1 (nr ambiguus) (SAP)*			
326.		*Haliplus fuscatus*			
327.		*Haliplus sp.*			
328.		*Haloniscus searlei*			
329.		*Haloniscus sp.*			
330.		*Harpacticoida sp*			
331.	25410	*Heleioporus eyrei (Moaning Frog)*			
332.	25412	*Heleioporus psammophilus (Sand Frog)*			
333.		*Hellyethira litua*			
334.		*Helochares tenuistriatus*			
335.		*Hemicordulia tau*			
336.	25474	*Hemiergis initialis*			
337.	25115	*Hemiergis initialis subsp. initialis*			
338.	25475	*Hemiergis peronii*			
339.	25117	*Hemiergis peronii subsp. peronii*			
340.		*Heteroceridae sp.*			
341.		*Hexarthra fennica*			
342.		*Hexarthra n. sp.a (cf. fennica with 7/7 unci teeth) (SAP)*			
343.	47965	*Hieraaetus morphnoides (Little Eagle)*			
344.	25734	*Himantopus himantopus (Black-winged Stilt)*			
345.		*Hirudinea sp.*			
346.	24491	*Hirundo neoxena (Welcome Swallow)*			
347.		*Hoggicosa storri*			
348.		*Hogna crispipes*			
349.		*Hogna kuyani*			
350.		*Holasteron esperance*			Y
351.		*Hyderodes crassus*			
352.		*Hydra sp.*			
353.		*Hydrachnidae sp.*			
354.		*Hydrobiidae sp.*			
355.		*Hydrophilidae sp.*			
356.	48587	*Hydroprogne caspia (Caspian Tern)*		IA	
357.		*Hydryphantes meridianus*			
358.		*Hyphydrus elegans*			
359.		*Hyphydrus sp.*			
360.		*Idiommata blackwalli*			
361.		*Ilyocryptus cf. timmsi (SAP)*			Y
362.		*Ilyocypris australiensis*			
363.		*Ilyodromus sp.*			
364.		*Ischnura heterosticta heterosticta*			
365.	48588	*Isoodon fusciventer (Quenda, southwestern brown bandicoot)*		P4	
366.		*Isopeda leishmanni*			
367.		*Kathetostoma laeve*			
368.		*Kennethia cristata*			
369.		*Keratella australis*			
370.		*Keratella cf. quadrata (SAP)*			
371.		*Keratella procurva*			
372.		*Keratella quadrata*			
373.		*Kiefferulus intertinctus*			
374.		*Kiefferulus martini*			
375.		*Koenikea nr australica (=verrucosa)*			
376.	24070	*Kogia breviceps (Pygmy Sperm Whale)*			
377.		*Lampona cylindrata*			
378.		*Lancetes lanceolatus*			
379.		*Lancetes sp.*			
380.	24510	*Larus dominicanus (Kelp Gull)*			
381.	24511	*Larus novaehollandiae subsp. novaehollandiae (Silver Gull)*			
382.	25638	*Larus pacificus (Pacific Gull)*			
383.	24512	*Larus pacificus subsp. georgii (Pacific Gull)*			
384.		*Lecane (M) sp. A (ESP023)*			Y
385.		*Lecane [M] sp.*			
386.		*Lecane bulla*			
387.		*Lecane luna*			
388.		*Lecane sp. s.str.*			
389.	24557	*Leipoa ocellata (Malleefowl)*		T	
390.		*Lepadella discoidea*			

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391.		*Lepadella patella*			
392.		*Lepidoblennius marmoratus*			
393.		*Lepidoptera (non-pyralid)*			
394.		*Lepidoptera (non-pyralid) sp. 3 (SAP)*			
395.		*Lepidoptera (non-pyralid) sp. 9 (SAP) (nr Pilbara sp. 3)*			
396.		*Leptatherina presbyteroides*			
397.		*Leptoceridae sp.*			
398.		*Leptocythere lacustris*			
399.		*Leptoichthys fistularius*			
400.	25131	*Lerista distinguenda*			
401.	25483	*Lerista microtis*			
402.	25153	*Lerista microtis subsp. intermedia*			
403.		*Lesquereusia sp.*			
404.		*Leydigia cf. leydigii (SAP)*			
405.	25659	*Lichenostomus leucotis (White-eared Honeyeater)*			
406.	25661	*Lichmera indistincta (Brown Honeyeater)*			
407.	25739	*Limicola falcinellus (Broad-billed Sandpiper)*		IA	
408.		*Limnesia dentifera*			
409.		*Limnichidae sp.*			
410.		*Limnochares australica*			
411.	25415	*Limnodynastes dorsalis (Western Banjo Frog)*			
412.		*Limnophyes vestitus (V41)*			
413.	30932	*Limosa lapponica (Bar-tailed Godwit)*		IA	
414.	25383	*Litoria cyclorhyncha (Spotted-thighed Frog)*			
415.		*Lohmannella pinggi*			
416.		*Lophoictinia isura*			
417.		*Lycosa godeffroyi*			
418.	24132	*Macropus fuliginosus (Western Grey Kangaroo)*			
419.		*Macrothrix breviseta*			
420.		*Macrothrix cf. breviseta (SAP)*			
421.		*Macrothrix sp.*			
422.		*Macrotrachela sp. a (SAP)*			Y
423.		*Makaira sp.*			Y
424.	24326	*Malacorhynchus membranaceus (Pink-eared Duck)*			
425.		*Manayunkia n. sp.*			
426.	24583	*Manorina flavigula (Yellow-throated Miner)*			
427.		*Maratus chrysomelas*			
428.	25758	*Megalurus gramineus (Little Grassbird)*			
429.		*Megaporus howittii*			
430.		*Megaporus solidus*			
431.		*Megaporus sp.*			
432.		*Melita kauerti*			
433.	24736	*Melopsittacus undulatus (Budgerigar)*			
434.	25184	*Menetia greyii*			
435.		*Meridiecyclops baylyi*			
436.	24598	*Merops ornatus (Rainbow Bee-eater)*			
437.		*Mesochra baylyi*			
438.		*Mesochra nr flava*			
439.		*Mesocyclops brooksi*			
440.		*Mesostigmata sp.*			
441.		*Microcarbo melanoleucos*			
442.		*Micronecta robusta*			
443.		*Micronecta sp.*			
444.	24213	*Mirounga leonina (Southern Elephant Seal)*			
445.		*Missulena granulosa*			
446.		*Missulena hoggi*			
447.		*Molycria quadricauda*			
448.		*Monohelea sp. 3 (SAP)*			
449.	25188	*Morethia adelaidensis*			
450.	25192	*Morethia obscura*			
451.	48008	*Morus serrator (Australasian Gannet)*			
452.		*Muraenichthys breviceps*			
453.	24223	*Mus musculus (House Mouse)*	Y		
454.		*Muscidae sp.*			
455.		*Muscidae sp. A (SAP)*			
456.		*Muscidae sp. D (SAP)*			
457.		*Myandra bicincta*			
458.	25610	*Myiagra inquieta (Restless Flycatcher)*			
459.		*Mytilocypris ambiguosa*			
460.		*Mytilocypris mytiloides*			

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461.		*Mytilocypris sp.*			
462.		*Naididae (ex Tubificidae)*			
463.		*Necterosoma penicillatus*			
464.		*Necterosoma sp.*			
465.		*Necterosoma wollastoni*			
466.		*Nematoda sp.*			
467.	25421	*Neobatrachus albipes (White-footed Trilling Frog)*			
468.	25425	*Neobatrachus kunapalari (Kunapalari Frog)*			
469.	25426	*Neobatrachus pelobatoides (Humming Frog)*			
470.	24738	*Neophema elegans (Elegant Parrot)*			
471.	24739	*Neophema petrophila (Rock Parrot)*			
472.	24210	*Neophoca cinerea (Australian Sea-lion)*		T	
473.		*Nephila edulis*			
474.		*Newnhamia fenestrata*			
475.		*Nicodamus mainae*			
476.		*Nilobezzia sp.*			
477.		*Nitocra near sp. 4 (SAP)*			
478.		*Nitocra reducta*			
479.		*Nitocra sp. 4 (SAP)*			
480.		*Nitocra sp. 5 (nr reducta) (SAP)*			
481.		*No invertebrates*			
482.		*Nomindra flavipes*			
483.		*Notalina spira*			
484.	48022	*Notamacropus irma (Western Brush Wallaby)*		P4	
485.	25252	*Notechis scutatus (Tiger Snake)*			
486.		*Notholca salina*			
487.	24229	*Notomys mitchellii (Mitchell's Hopping-mouse)*			
488.		*Notonectidae sp.*			
489.		*Novakiella trituberculosa*			
490.	25564	*Nycticorax caledonicus (Rufous Night Heron)*			
491.	24194	*Nyctophilus geoffroyi (Lesser Long-eared Bat)*			
492.		*Ochthebius sp.*			
493.		*Ochthebius sp. 4*			Y
494.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
495.		*Oecetis sp.*			
496.		*Oecobius navus*			
497.		*Oligochaeta sp.*			
498.		*Oniscidae sp.*			
499.		*Onychocamptus bengalensis*			
500.		*Opisthopora sp.*			
501.		*Oribatida sp.*			
502.		*Oribatida sp. 1 (PLP)*			Y
503.		*Oribatida sp. 2(PLP)*			Y
504.		*Orthetrum caledonicum*			
505.		*Orthocladiinae sp.*			
506.		*Orthocladiinae sp. G (SAP)*			
507.		*Orthocladiinae sp. I (SAP)*			
508.		*Orthocladiinae sp. J (SAP)*			
509.		*Orthocladiinae sp. P (SAP)*			
510.	24328	*Oxyura australis (Blue-billed Duck)*		P4	
511.		*Ozestheria packardi*			
512.	24619	*Pachycephala inornata (Gilbert's Whistler)*			
513.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
514.		*Palaemonetes australis*			
515.		*Paracyclops ?chiltoni (SAP)*			
516.		*Paralimnophyes pullulus (V42)*			
517.		*Paramerina levidensis*			
518.		*Paranais litoralis*			
519.		*Parartemia longicaudata*			
520.		*Parartemia sp.*			
521.	25253	*Parasuta gouldii*			
522.	25255	*Parasuta nigriceps*			
523.	25256	*Parasuta spectabilis subsp. bushi (spectacled hooded snake (Esperance), Mallee Black-headed Snake (Esperance area))*		P1	Y
524.	25681	*Pardalotus punctatus (Spotted Pardalote)*			
525.	24626	*Pardalotus punctatus subsp. xanthopyge (Yellow-rumped Pardalote)*			
526.	25682	*Pardalotus striatus (Striated Pardalote)*			
527.		*Paroster niger*			
528.	24642	*Passer montanus (Eurasian Tree Sparrow)*	Y		
529.	24648	*Pelecanus conspicillatus (Australian Pelican)*			

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530.		*Pescecyclops sp. 434 (Stuart's original arnaudi sensu Sars)*			
531.		*Pescecyclops sp. 442=462=465=CB2 (salinarum in Morton)*			
532.	48060	*Petrochelidon ariel (Fairy Martin)*			
533.	48061	*Petrochelidon nigricans (Tree Martin)*			
534.	48066	*Petroica boodang (Scarlet Robin)*			
535.		*Pezidae sp.*			
536.	41348	*Pezoporus flaviventris (Western Ground Parrot)*		T	
537.	25697	*Phalacrocorax carbo (Great Cormorant)*			
538.	24665	*Phalacrocorax fuscescens (Black-faced Cormorant)*			
539.	25698	*Phalacrocorax melanoleucos (Little Pied Cormorant)*			
540.	24667	*Phalacrocorax sulcirostris (Little Black Cormorant)*			
541.	25699	*Phalacrocorax varius (Pied Cormorant)*			
542.	24409	*Phaps chalcoptera (Common Bronzewing)*			
543.	25587	*Phaps elegans (Brush Bronzewing)*			
544.		*Philodinidae sp.*			
545.		*Phycodurus eques subsp. glauerti*			Y
546.	48071	*Phylidonyris niger (White-cheeked Honeyeater)*			
547.	24596	*Phylidonyris novaehollandiae (New Holland Honeyeater)*			
548.		*Phyllophryne scortea*			
549.		*Phyllopteryx taeniolatus*			
550.		*Physa acuta*			
551.		*Placobdelloides sp.*			
552.	24841	*Platalea flavipes (Yellow-billed Spoonbill)*			
553.	24842	*Platalea regia (Royal Spoonbill)*			
554.		*Platycephalus speculator*			
555.	25720	*Platycercus icterotis (Western Rosella)*			
556.	24747	*Platycercus spurius (Red-capped Parrot)*			
557.		*Platycypris baueri*			
558.	24843	*Plegadis falcinellus (Glossy Ibis)*		IA	
559.		*Pleuroxus inermis*			
560.		*Pleuroxus jugosus*			
561.		*Pleuroxus sp.*			
562.		*Plumatella sp.*			
563.		*Plurispina chauliodis*			
564.	24381	*Pluvialis dominica (American Golden Plover)*			
565.	24382	*Pluvialis fulva (Pacific Golden Plover)*		IA	
566.	24383	*Pluvialis squatarola (Grey Plover)*		IA	
567.	25703	*Podargus strigoides (Tawny Frogmouth)*			
568.	25704	*Podiceps cristatus (Great Crested Grebe)*			
569.	25510	*Pogona minor (Dwarf Bearded Dragon)*			
570.	24907	*Pogona minor subsp. minor (Dwarf Bearded Dragon)*			
571.	24681	*Poliocephalus poliocephalus (Hoary-headed Grebe)*			
572.		*Polypedilum nr vespertinus (M2) (SAP)*			
573.		*Polypedilum nr. convexum (SAP)*			
574.		*Polypedilum nubifer*			
575.		*Pomatiopsidae sp.*			
576.	24683	*Pomatostomus superciliosus (White-browed Babbler)*			
577.	25731	*Porphyrio porphyrio (Purple Swamphen)*			
578.	24767	*Porphyrio porphyrio subsp. bellus (Purple Swamphen)*			
579.	24769	*Porzana fluminea (Australian Spotted Crake)*			
580.	24771	*Porzana tabuensis (Spotless Crake)*			
581.		*Pristina jenkinae*			
582.		*Pristina longiseta*			
583.		*Procladius paludicola*			
584.		*Procladius villosimanus*			
585.		*Protogarypinus giganteus*			
586.		*Protozoan sp*			
587.		*Pseudocaranx dentex*			
588.		*Pseudogobius olorum*			
589.	44625	*Pseudohydryphantes doegi (Doeg's Watermite)*		P2	
590.		*Pseudolabrus parilus*			
591.	25259	*Pseudonaja affinis subsp. affinis (Dugite)*			
592.	25263	*Pseudonaja modesta (Ringed Brown Snake)*			
593.	25433	*Pseudophryne guentheri (Crawling Toadlet)*			
594.		*Pseudophycis breviuscula*			
595.		*Pseudorhombus jenynsii*			
596.		*Psychodidae sp.*			
597.	42344	*Purnella albifrons (White-fronted Honeyeater)*			
598.		*Purpureicephalus spurius*			
599.	25008	*Pygopus lepidopodus (Common Scaly Foot)*			

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600.		*Pyralidae sp.*			
601.	24243	*Rattus fuscipes (Western Bush Rat)*			
602.	24245	*Rattus rattus (Black Rat)*	Y		
603.		*Raveniella cirrata*			
604.	24776	*Recurvirostra novaehollandiae (Red-necked Avocet)*			
605.		*Reticypris ?pinguis (SAP)*			
606.		*Reticypris clava*			
607.		*Reticypris sp. 557 (n. sp.) (SAP)*			
608.		*Reticypris walbu*			
609.		*Rhantus suturalis*			
610.	30818	*Rhinoplocephalus bicolor (Square-nosed Snake)*			
611.	48096	*Rhipidura albiscapa (Grey Fantail)*			
612.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
613.		*Rhombognathus vulgaris*			
614.		*Saldula brevicornis*			
615.		*Sarscypridopsis aculeata*			
616.		*Scatopsidae sp.*			
617.		*Schizopera clandestina*			
618.		*Sciomyzidae sp.*			
619.		*Scobinichthys granulatus*			
620.		*Scomber australasicus*			
621.		*Scomberomorus semifasciatus*			
622.	25534	*Sericornis frontalis (White-browed Scrubwren)*			
623.	24279	*Sericornis frontalis subsp. maculatus (White-browed Scrubwren)*			
624.		*Sigara sp.*			
625.		*Sillago bassensis*			
626.		*Simocephalus elizabethae*			
627.		*Siphonognathus argyrophanes*			
628.		*Siphonognathus radiatus*			
629.	30948	*Smicrornis brevirostris (Weebill)*			
630.	24108	*Sminthopsis crassicaudata (Fat-tailed Dunnart)*			
631.	24112	*Sminthopsis granulipes (White-tailed Dunnart)*			
632.		*Sphaeriidae sp.*			
633.		*Sphaeromatidae sp.*			
634.	24645	*Stagonopleura oculata (Red-eared Firetail)*			
635.		*Staphylinidae sp.*			
636.		*Steatoda grossa*			
637.	25643	*Sterna hybrida (Whiskered Tern)*			
638.		*Sternopriscus multimaculatus*			
639.		*Sternopriscus sp.*			
640.	48594	*Sternula nereis (Fairy Tern)*			
641.	24329	*Stictonetta naevosa (Freckled Duck)*			
642.	25655	*Stipiturus malachurus (Southern Emu-wren)*			
643.	24554	*Stipiturus malachurus subsp. westernensis (Southern Emu-wren)*			
644.		*Storena fungina*			
645.		*Stratiomyidae sp.*			
646.	25597	*Strepera versicolor (Grey Currawong)*			
647.	25590	*Streptopelia senegalensis (Laughing Turtle-Dove)*	Y		
648.	25518	*Strophurus spinigerus*			
649.	24943	*Strophurus spinigerus subsp. inornatus*			
650.		*Symphitoneuria wheeleri*			
651.		*Synsphyronus callus*			
652.		*Synsphyronus mimulus*			
653.		*Tabanidae sp.*			
654.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
655.	24331	*Tadorna tadornoides (Australian Shelduck, Mountain Duck)*			
656.		*Talitridae sp.*			
657.		*Tanypodinae sp.*			
658.		*Tanytarsus barbitarsis*			
659.		*Tanytarsus fuscithorax/semibarbitarsus*			
660.		*Tanytarsus nr bispinosus (SAP)*			
661.		*Tardigrada sp.*			
662.	24167	*Tarsipes rostratus (Honey Possum, Noolbenger)*			
663.		*Tasmanicosa leuckartii*			
664.		*Tasmanocoenis tillyardi*			
665.		*Testudinella patina*			
666.		*Tetragnatha nitens*			
667.		*Tetragnatha valida*			
668.	34007	*Thalassarche chlororhynchos (Atlantic Yellow-nosed Albatross)*		T	
669.	48597	*Thalasseus bergii (Crested Tern)*		IA	

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
670.	48135	*Thinornis rubricollis (Hooded Plover, Hooded Dotterel)*		P4	
671.		*Threpterius maculosus*			
672.	24845	*Threskiornis spinicollis (Straw-necked Ibis)*			
673.	25203	*Tiliqua occipitalis (Western Bluetongue)*			
674.	25207	*Tiliqua rugosa subsp. rugosa*			
675.		*Tipulidae sp.*			
676.		*Tipulidae type F (SAP)*			
677.		*Tipulidae type J (SAP)*			Y
678.	25549	*Todiramphus sanctus (Sacred Kingfisher)*			
679.	24309	*Todiramphus sanctus subsp. sanctus (Sacred Kingfisher)*			
680.	48141	*Tribonyx ventralis (Black-tailed Native-hen)*			
681.		*Trichocerca sp.*			
682.	24803	*Tringa brevipes (Grey-tailed Tattler)*		P4	
683.	24806	*Tringa glareola (Wood Sandpiper)*		IA	
684.	24808	*Tringa nebularia (Common Greenshank, greenshank)*		IA	
685.	24809	*Tringa stagnatilis (Marsh Sandpiper, little greenshank)*		IA	
686.		*Triplectides australis*			
687.		*Turbellaria sp.*			
688.	48147	*Turnix varius (Painted Button-quail)*			
689.	30954	*Tursiops aduncus (Indo-Pacific Bottlenose Dolphin)*			
690.	24069	*Tursiops truncatus (Bottlenose Dolphin)*			
691.		*Upeneichthys lineatus*			
692.		*Urodacus novaehollandiae*			
693.	25577	*Vanellus miles (Masked Lapwing)*			
694.	24385	*Vanellus miles subsp. novaehollandiae (Masked Lapwing)*			
695.	24386	*Vanellus tricolor (Banded Lapwing)*			
696.	25225	*Varanus rosenbergi (Heath Monitor)*			
697.		*Venatrix pullastra*			
698.	24206	*Vespadelus regulus (Southern Forest Bat)*			
699.	34113	*Westralunio carteri (Carter's Freshwater Mussel)*		T	
700.		*Xanthagrion erythroneurum*			
701.		*Zeus faber*			
702.		*Zonocypris sp BOS082*			Y
703.	25765	*Zosterops lateralis (Grey-breasted White-eye, Silvereye)*			

Chromista

704.	26586	*Caulocystis uvifera*			
705.	26717	*Cystophora brownii*			
706.	26729	*Cystophora subfarcinata*			
707.	26765	*Dictyopteris gracilis*			
708.	26766	*Dictyopteris muelleri*			
709.	26778	*Dictyota furcellata*			
710.	35218	*Dictyota nigricans*			
711.	35216	*Dictyota paniculata*			
712.	35223	*Dictyota polyclada*			
713.	26805	*Ecklonia radiata*			
714.	26947	*Hormosira banksii*			
715.	26949	*Hydroclathrus clathratus*			
716.	27044	*Lobospira bicuspidata*			
717.	27092	*Myriodesma tuberosum*			
718.	27105	*Notheia anomala*			
719.	27164	*Polycerea zostericola*			
720.	27239	*Sargassum fallax*			
721.	27264	*Scaberia agardhii*			

Fungi

722.		*Agaricus sp.*			
723.	38754	*Amanita conicobulbosa*			
724.	38758	*Anthracophyllum archeri*			
725.		*Armillaria luteobubalina*			
726.	38762	*Auriscalpium barbatum*			
727.	42106	*Austroparmelina conlabrosa*			
728.	38848	*Bolbitius titubans*			
729.		*Boletus sp.*			
730.	27597	*Buellia disciformis*			
731.		*Caloplaca sp.*			
732.	27663	*Cladia aggregata*			
733.	48177	*Cladia muelleri*			
734.	28208	*Cladonia cervicornis subsp. verticillata*			
735.		*Claviceps purpurea*			
736.		*Coltricia cinnamomea*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
737.		*Coprinus comatus*			
738.	27726	*Diplotomma alboatrum*			
739.	27744	*Flavoparmelia ferax*			
740.	27748	*Flavoparmelia rutidota*			
741.	27750	*Flavoparmelia secalonica*			
742.	44983	*Fulgensia cranfieldii*			
743.		*Fusarium avenaceum*			
744.		*Geastrum sp.*			
745.	38789	*Gymnopilus junonius*			
746.	27777	*Heterodermia obscurata*			
747.	28219	*Hypogymnia subphysodes var. subphysodes*			
748.	45301	*Jackelixia ligulata*			
749.	38802	*Laccocephalum tumulosum*			
750.		*Lecidea sp.*			
751.	46454	*Leucoagaricus leucothites*			
752.	38808	*Limacella pitereka*			
753.	49003	*Macrolepiota turbinata*			
754.	38816	*Omphalotus nidiformis*			
755.	49073	*Peziza austrogeaster*			
756.		*Physcia sp.*			
757.		*Phytophthora cinnamomi*			
758.		*Pisolithus sp.*			
759.	38824	*Pleurotus australis*			
760.	48835	*Pycnoporus coccineus*			
761.	28027	*Ramalina celastri*			
762.	28224	*Ramalina inflata subsp. australis*			
763.	28034	*Ramboldia crassithallina*			
764.		*Rhizopogon luteolus*			
765.		*Schizophyllum commune*			
766.	28065	*Teloschistes chrysophthalmus*			
767.	28066	*Teloschistes sieberianus*			
768.	28069	*Thelotrema lepadinum*			
769.	45838	*Tilletia ehrhartae*			
770.		*Uromycladium tepperianum*			
771.	28086	*Usnea dasaea*			
772.	28087	*Usnea inermis*			
773.	45909	*Ustilago tritici*			
774.		*Verrucaria sp.*			
775.	29970	*Xanthoparmelia conranensis*			
776.	28172	*Xanthoparmelia reptans*			
777.	28327	*Xanthoparmelia semiviridis*			
Plantae					
778.	14608	*Acacia aemula subsp. aemula*			
779.	16108	*Acacia aemula subsp. muricata*			
780.	3226	*Acacia assimilis*			
781.	15468	*Acacia assimilis subsp. atroviridis*			
782.	41461	*Acacia bartlei*		P3	
783.	3238	*Acacia bidentata*			
784.	3239	*Acacia biflora*			
785.	3244	*Acacia brachyclada*			
786.	16114	*Acacia bracteolata*			
787.	3256	*Acacia chrysella*			
788.	3262	*Acacia cochlearis (Rigid Wattle)*			
789.	3276	*Acacia crassuloides*			
790.	3277	*Acacia crispula*			
791.	12672	*Acacia cupularis*			
792.	3278	*Acacia curvata*			
793.	3282	*Acacia cyclops (Coastal Wattle)*			
794.	3289	*Acacia delphina*			
795.	3296	*Acacia dermatophylla*			
796.	14075	*Acacia euthyphylla*		P3	
797.	16123	*Acacia evenulosa*			
798.	3342	*Acacia fragilis*			
799.	14621	*Acacia glaucissima*		P3	
800.	3349	*Acacia glaucoptera (Flat Wattle)*			
801.	3353	*Acacia gonophylla*			
802.	16128	*Acacia hadrophylla*			
803.	3408	*Acacia lasiocalyx (Silver Wattle, Wilyurwur)*			
804.	11519	*Acacia lasiocarpa var. bracteolata*			
805.	15476	*Acacia latipes subsp. latipes*			

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806.	3436	*Acacia maxwellii*			
807.	14465	*Acacia mimica var. angusta*			
808.	16134	*Acacia mutabilis subsp. mutabilis*			
809.	3453	*Acacia myrtifolia*			
810.	3457	*Acacia nigricans*			
811.	16138	*Acacia pachyphylla*			
812.	12265	*Acacia patagiata*			
813.	16139	*Acacia pinguiculosa subsp. teretifolia*			
814.	16141	*Acacia pravifolia*			
815.	3496	*Acacia preissiana*			
816.	3498	*Acacia pritzeliana*			
817.	15482	*Acacia pulchella var. goadbyi*			
818.	3504	*Acacia pycnantha (Golden Wattle)*	Y		
819.	16147	*Acacia rostellata*			
820.	3525	*Acacia rostellifera (Summer-scented Wattle)*			
821.	3527	*Acacia saligna (Orange Wattle, Kudjong)*			
822.	30034	*Acacia saligna subsp. pruinescens*			
823.	30032	*Acacia saligna subsp. saligna*			
824.	3548	*Acacia sorophylla*			
825.	18669	*Acacia sp. Ravensthorpe (R.S. Cowan & B.R. Maslin RSC A-760)*			
826.	15485	*Acacia sphacelata subsp. recurva*			
827.	3564	*Acacia subcaerulea*			
828.	13505	*Acacia sulcata var. planoconvexa*			
829.	3582	*Acacia triptycha*			
830.	15715	*Acacia varia var. parviflora*			
831.	7812	*Achillea millefolium (Yarrow, Milfoil)*	Y		
832.	6295	*Acrotriche cordata (Coast Ground Berry)*			
833.	20328	*Acrotriche sp. Israelite Bay (M. Hislop & F. Hort MH 2630)*			
834.	43201	*Adelphacme minima*		P3	
835.	1773	*Adenanthos cuneatus (Coastal Jugflower)*			
836.	4582	*Adriana quadripartita (Bitter Bush)*			
837.	20331	*Aeonium arboreum*	Y		
838.	20330	*Agonis baxteri*			
839.	23501	*Agrostocrinum scabrum subsp. scabrum*			
840.	185	*Aira cupaniana (Silvery Hairgrass)*	Y		
841.	1719	*Allocasuarina acuaria*			
842.	1721	*Allocasuarina campestris*			
843.	1730	*Allocasuarina helmsii*			
844.	1732	*Allocasuarina humilis (Dwarf Sheoak)*			
845.	13907	*Allocasuarina lehmanniana subsp. ecarinata*			
846.	1739	*Allocasuarina thuyoides (Horned Sheoak)*			
847.	48624	*Althenia cylindrocarpa*			
848.	48620	*Althenia preissii*			
849.	4905	*Alyogyne hakeifolia*			
850.	43023	*Alyogyne sp. Hutt River (B.J. Lepschi & T.R. Lally 2310)*			
851.	35909	*Amansia pinnatifida*			
852.	2655	*Amaranthus albus (Tumbleweed)*	Y		
853.	37280	*Amaranthus muricatus*	Y		Y
854.	2669	*Amaranthus retroflexus (Redroot Amaranth)*	Y		
855.	126	*Amphibolis antarctica (Sea Nymph)*			
856.	127	*Amphibolis griffithii*			
857.	13380	*Amphibromus nervosus*			
858.	195	*Amphipogon avenaceus*			
859.	200	*Amphipogon turbinatus*			
860.	1058	*Anarthria gracilis*			
861.	1059	*Anarthria humilis*			
862.	1060	*Anarthria laevis*			
863.	1061	*Anarthria polyphylla*			
864.	1062	*Anarthria prolifera*			
865.	1063	*Anarthria scabra*			
866.	6316	*Andersonia macranthera*			
867.	6318	*Andersonia parvifolia*			
868.	29108	*Andersonia sp. Kulin (J.M. Powell 2588)*			
869.	6321	*Andersonia sprengelioides*			
870.	40903	*Androcalva aphrix*			
871.	7833	*Angianthus preissianus*			
872.	12102	*Anigozanthos bicolor subsp. minor*		T	
873.	1415	*Anigozanthos rufus (Red Kangaroo Paw)*			
874.	6949	*Anthocercis littorea (Yellow Tailflower)*			
875.	11555	*Anthocercis viscosa subsp. caudata*			

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876.	7411	*Anthotium humile (Dwarf Anthotium)*			
877.	26475	*Antithamnion hanovioides*			
878.	19627	*Aotus sp. Esperance (P.G. Wilson 7904)*			
879.	43548	*Aphelia sp. Albany (B.G. Briggs 596)*			
880.	6210	*Apium annuum*			
881.	6211	*Apium prostratum (Sea Celery)*			
882.	12040	*Apium prostratum subsp. prostratum var. prostratum (Sea Celery)*			
883.	7838	*Arctotheca calendula (Cape Weed, African Marigold)*	Y		
884.	13327	*Argentipallium niveum*			
885.	13329	*Argentipallium tephrodes*			
886.	26485	*Asparagopsis armata*			
887.	8779	*Asparagus asparagoides (Bridal Creeper)*	Y		
888.	1364	*Asphodelus fistulosus (Onion Weed)*	Y		
889.	20347	*Astartea astarteoides*			
890.	42787	*Astartea reticulata*		P3	
891.	7845	*Asteridea asteroides*			
892.	7850	*Asteridea nivea*			
893.	6326	*Astroloma epacridis*			
894.	6335	*Astroloma prostratum (Cranberry Heath)*			
895.	14503	*Astroloma sp. Grass Patch (A.J.G. Wilson 110)*		P2	
896.	6338	*Astroloma tectum*			
897.	2457	*Atriplex exilifolia*			
898.	2471	*Atriplex prostrata (Hastate Orache)*	Y		
899.	2475	*Atriplex semibaccata (Berry Saltbush)*			
900.	2481	*Atriplex vesicaria (Bladder Saltbush)*			
901.	17231	*Austrostipa acrociliata*			
902.	17236	*Austrostipa drummondii*			
903.	17240	*Austrostipa flavescens*			
904.	17241	*Austrostipa hemipogon*			
905.	17242	*Austrostipa juncifolia*			
906.	17244	*Austrostipa macalpinei*			
907.	35317	*Austrostipa mundula*		P3	
908.	17250	*Austrostipa pycnostachya*			
909.	17257	*Austrostipa variabilis*			
910.	231	*Avellinia michelii*	Y		
911.	233	*Avena barbata (Bearded Oat)*	Y		
912.	5352	*Baeckea latens*			
913.	20674	*Baeckea sp. Esperance (A.G. Gunness AG 2435)*			
914.	20620	*Baeckea sp. Gibson (K.R. Newbey 11084)*		P1	
915.	5373	*Baeckea uncinella*			
916.	32681	*Banksia armata (Prickly Dryandra)*			
917.	32682	*Banksia armata var. armata*			
918.	32683	*Banksia armata var. ignicida*			
919.	1805	*Banksia blechnifolia*			
920.	1832	*Banksia media (Southern Plains Banksia)*			
921.	32203	*Banksia nivea subsp. nivea*			
922.	1836	*Banksia nutans (Nodding Banksia)*			
923.	11360	*Banksia nutans var. nutans (Nodding Banksia)*			
924.	32198	*Banksia obovata (Wedge-leaved Dryandra)*			
925.	32197	*Banksia obtusa (Shining Honeypot)*			
926.	1837	*Banksia occidentalis (Red Swamp Banksia)*			
927.	1839	*Banksia petiolaris*			
928.	1840	*Banksia pilostylis*			
929.	32143	*Banksia prolata*			
930.	32145	*Banksia prolata subsp. calcicola*		P4	
931.	1843	*Banksia pulchella (Teasel Banksia)*			
932.	1845	*Banksia repens (Creeping Banksia)*			
933.	1850	*Banksia speciosa (Showy Banksia)*			
934.	32035	*Banksia tenuis*			
935.	32036	*Banksia tenuis var. tenuis*			
936.	1856	*Banksia violacea (Violet Banksia)*			
937.	32315	*Barbula calycina*			
938.	32320	*Barbula subcalycina*			
939.	741	*Baumea articulata (Jointed Rush)*			
940.	743	*Baumea juncea (Bare Twigrush)*			
941.	745	*Baumea preissii*			
942.	5383	*Beaufortia empetrifolia (South Coast Beaufortia)*			
943.	5388	*Beaufortia micrantha (Little Bottlebrush, Small-leaved Beaufortia)*			
944.	5391	*Beaufortia schaueri (Pink Beaufortia, Pink Bottlebrush)*			
945.	34262	*Beyeria physaphylla*		P1	Y

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946.	34297	*Beyeria sulcata var. gracilis*			
947.	3154	*Billardiera coriacea*			
948.	25798	*Billardiera fusiformis (Australian Bluebell)*			
949.	25796	*Billardiera heterophylla (Australian Bluebell)*			
950.	3160	*Billardiera lehmanniana (Kurup)*			
951.	7856	*Blennospora drummondii*			
952.	749	*Bolboschoenus caldwellii (Marsh Club-rush)*			
953.	4403	*Boronia alata (Winged Boronia)*			
954.	4404	*Boronia albiflora*			
955.	16627	*Boronia baeckeacea subsp. baeckeacea*			
956.	4409	*Boronia coerulescens*			
957.	4411	*Boronia crassifolia*			
958.	16629	*Boronia fabianoides subsp. fabianoides*			
959.	4425	*Boronia inornata (Desert Boronia)*			
960.	15965	*Boronia inornata subsp. inornata*			
961.	15966	*Boronia inornata subsp. leptophylla*			
962.	11381	*Boronia ramosa subsp. anethifolia*			
963.	4441	*Boronia spathulata (Boronia)*			
964.	4446	*Boronia tetrandra (Yellow Boronia)*			
965.	1267	*Borya constricta*			
966.	30254	*Bossiaea flexuosa*		P3	
967.	3712	*Bossiaea leptacantha*			
968.	3716	*Bossiaea preissii*			
969.	3718	*Bossiaea rufa*			
970.	26518	*Botryocladia sonderi*			
971.	30138	*Brachyloma geissoloma*			
972.	17922	*Brachyloma mogin*		P3	
973.	7871	*Brachyscome ciliaris*			
974.	7874	*Brachyscome eyrensis*			
975.	11187	*Brassica barrelieri subsp. oxyrrhina (Smooth-stem Turnip)*	Y		
976.	2999	*Brassica rapa*	Y		
977.	3000	*Brassica tournefortii (Mediterranean Turnip)*	Y		
978.	2995	*Brassica x napus*	Y		
979.	244	*Briza maxima (Blowfly Grass)*	Y		
980.	245	*Briza minor (Shivery Grass)*	Y		
981.	248	*Bromus catharticus (Prairie Grass)*	Y		
982.	249	*Bromus diandrus (Great Brome)*	Y		
983.	250	*Bromus hordeaceus (Soft Brome)*	Y		
984.	1366	*Bulbine semibarbata (Leek Lily)*			
985.	1277	*Caesia occidentalis*			
986.	3001	*Cakile edentula (American Sea Rocket)*	Y		
987.	3002	*Cakile maritima (Sea Rocket)*	Y		
988.	13853	*Caladenia arrecta*			
989.	15333	*Caladenia attingens subsp. gracillima*			
990.	15334	*Caladenia brevisura*			
991.	1580	*Caladenia cairnsiana (Zebra Orchid)*			
992.	15342	*Caladenia cruscula*			
993.	15343	*Caladenia decora*			
994.	15348	*Caladenia flava subsp. flava*			
995.	1594	*Caladenia graminifolia*			
996.	15353	*Caladenia heberleana*			
997.	18023	*Caladenia horistes*			
998.	1599	*Caladenia latifolia (Pink Fairy Orchid)*			
999.	15362	*Caladenia longicauda subsp. crassa*			
1000.	13860	*Caladenia longicauda subsp. rigidula*			
1001.	1605	*Caladenia marginata (White Fairy Orchid)*			
1002.	15374	*Caladenia pachychila*			
1003.		*Caladenia sp.*			
1004.	1589	*Caladenia x ericksoniae*			
1005.	2845	*Calandrinia brevipedata (Short-stalked Purslane)*			
1006.	2846	*Calandrinia calyptrata (Pink Purslane)*			
1007.	2848	*Calandrinia corrigioloides (Strap Purslane)*			
1008.	2853	*Calandrinia eremaea (Twining Purslane)*			
1009.	48569	*Calandrinia sp. Gypsum (F. Obbens & L. Hancock FO 10/14)*			
1010.	40827	*Calandrinia tholiformis*			
1011.	19084	*Calectasia gracilis*			
1012.	10861	*Callistachys lanceolata (Wonnich)*			
1013.	5395	*Callistemon phoeniceus (Lesser Bottlebrush, Dubarda)*			
1014.	93	*Callitris drummondii (Drummond's Cypress Pine)*			
1015.	96	*Callitris preissii (Rottnest Island Pine, Maro)*			

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1016.	97	*Callitris roei (Roe's Cypress Pine)*			
1017.	26538	*Callophyllis rangiferina*			
1018.	5407	*Calothamnus gibbosus*			
1019.	5408	*Calothamnus gilesii*			
1020.	5409	*Calothamnus gracilis*			
1021.	35816	*Calothamnus quadrifidus subsp. quadrifidus*			
1022.	5449	*Calytrix decandra (Pink Starflower)*			
1023.	5450	*Calytrix depressa*			
1024.	5454	*Calytrix duplistipulata*			
1025.	48451	*Calytrix hirta*			
1026.	5465	*Calytrix leschenaultii*			
1027.	5483	*Calytrix tetragona (Common Fringe-myrtle)*			
1028.	3003	*Camelina sativa (False Flax)*	Y		
1029.	32461	*Campylopus bicolor var. bicolor*			
1030.	32338	*Campylopus introflexus*	Y		
1031.	43241	*Carex thecata*			
1032.	2796	*Carpobrotus modestus (Inland Pigface)*			
1033.	2798	*Carpobrotus virescens (Coastal Pigface, Kolboko, Bain)*			
1034.	3008	*Carrichtera annua (Ward's Weed)*	Y		
1035.	2952	*Cassytha glabella (Tangled Dodder Laurel)*			
1036.	11211	*Cassytha glabella forma dispar*			
1037.	2953	*Cassytha melantha (Large Dodder-laurel)*			
1038.	2957	*Cassytha racemosa (Dodder Laurel)*			
1039.	11242	*Cassytha racemosa forma pilosa*			
1040.	26563	*Caulerpa flexilis*			
1041.	26570	*Caulerpa obscura*			
1042.	26573	*Caulerpa racemosa*			
1043.	760	*Caustis dioica*			
1044.	7915	*Centaurea calcitrapa (Star Thistle)*	Y		
1045.	7916	*Centaurea melitensis (Maltese Cockspur, Malta Thistle)*	Y		
1046.	6539	*Centaurium erythraea (Common Centaury)*	Y		
1047.	6214	*Centella asiatica*			
1048.	19761	*Centipeda crateriformis subsp. compacta*			
1049.	35322	*Centranthus ruber subsp. ruber*	Y		
1050.	1121	*Centrolepis aristata (Pointed Centrolepis)*			
1051.	1124	*Centrolepis cephaloformis*			
1052.	13122	*Centrolepis cephaloformis subsp. cephaloformis*			
1053.	1130	*Centrolepis humillima (Dwarf Centrolepis)*			
1054.	1134	*Centrolepis polygyna (Wiry Centrolepis)*			
1055.	13125	*Centrolepis strigosa subsp. strigosa*			
1056.	26599	*Ceramium puberulum*			
1057.	2889	*Cerastium glomeratum (Mouse Ear Chickweed)*	Y		
1058.	26607	*Chaetomorpha aerea*			
1059.	1280	*Chamaescilla corymbosa (Blue Squill)*			
1060.	1281	*Chamaescilla spiralis*			
1061.	5489	*Chamelaucium axillare (Esperance Waxflower)*			
1062.	5491	*Chamelaucium ciliatum*			
1063.	5495	*Chamelaucium megalopetalum (Large Waxflower)*			
1064.	1513	*Chasmanthe floribunda (African Cornflag)*	Y		
1065.	3168	*Cheiranthera filifolia*			
1066.	2490	*Chenopodium glaucum (Glaucous Goosefoot)*	Y		
1067.	2494	*Chenopodium murale (Nettle-leaf Goosefoot)*	Y		
1068.	272	*Chloris virgata (Feathertop Rhodes Grass)*	Y		
1069.	7925	*Chondrilla juncea (Skeleton Weed)*	Y		
1070.	17689	*Chordifex laxus*			
1071.	17834	*Chordifex sphacelatus*			
1072.	763	*Chorizandra enodis (Black Bristlerush)*			
1073.	13112	*Chorizema aciculare subsp. aciculare*			
1074.	3758	*Chorizema ilicifolium (Holly Flame Pea)*			
1075.	3759	*Chorizema nervosum*			
1076.	13108	*Chorizema obtusifolium*			
1077.	3763	*Chorizema uncinatum*			
1078.	6543	*Cicendia filiformis (Slender Cicendia)*	Y		
1079.	7937	*Cirsium vulgare (Spear Thistle, Scotch Thistle)*	Y		
1080.	10804	*Clematis linearifolia*			
1081.	2929	*Clematis pubescens (Common Clematis)*			
1082.	26672	*Codium galeatum*			
1083.	26678	*Codium muelleri*			
1084.	26686	*Coelarthrum opuntia*			
1085.	6342	*Coleanthera coelophylla*		P1	

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1086.	14664	*Comesperma calcicola*		P3	
1087.	4550	*Comesperma calymega (Blue-spike Milkwort)*			
1088.	4552	*Comesperma confertum*			
1089.	4553	*Comesperma drummondii (Drummond's Milkwort)*			
1090.	4554	*Comesperma flavum*			
1091.	14663	*Comesperma griffinii*		P2	
1092.	4555	*Comesperma integerrimum*			
1093.	4563	*Comesperma spinosum (Spiny Milkwort)*			
1094.	4564	*Comesperma virgatum (Milkwort)*			
1095.	4566	*Comesperma volubile (Love Creeper)*			
1096.	40923	*Commersonia craurophylla (Brittle Leaved Rulingia)*			
1097.	40924	*Commersonia rotundifolia (Round-leaved Rulingia)*		P3	
1098.	1868	*Conospermum distichum*			
1099.	15518	*Conospermum filifolium subsp. filifolium*			
1100.	16349	*Conospermum leianthum subsp. leianthum*			
1101.	16350	*Conospermum leianthum subsp. orientale*			
1102.	14003	*Conospermum quadripetalum*		P2	
1103.	15611	*Conospermum stoechadis subsp. stoechadis (Common Smokebush)*			
1104.	1883	*Conospermum teretifolium (Spider Smokebush)*			
1105.	6346	*Conostephium marchantiorum*		P3	
1106.	43107	*Conostephium papillosum*			
1107.	1424	*Conostylis bealiana*			
1108.	1426	*Conostylis breviscapa*			
1109.	1439	*Conostylis lepidospermoides (Sedge Conostylis)*		T	
1110.	1445	*Conostylis phathyrantha*			
1111.	11923	*Conostylis seorsiflora subsp. seorsiflora*			
1112.	1453	*Conostylis serrulata*			
1113.	5500	*Conothamnus aureus*			
1114.	7939	*Conyza bonariensis (Flaxleaf Fleabane)*	Y		
1115.		*Conyza sp.*			
1116.	20074	*Conyza sumatrensis*	Y		
1117.	7418	*Coopernookia polygalacea*			
1118.	7419	*Coopernookia strophiolata*			
1119.	2891	*Corrigiola litoralis (Strapwort)*	Y		
1120.	1624	*Corybas despectans*			
1121.	12012	*Corynotheca micrantha var. panda*			
1122.	7943	*Cotula australis (Common Cotula)*			
1123.	7944	*Cotula bipinnata (Ferny Cotula)*	Y		
1124.	7945	*Cotula coronopifolia (Waterbuttons)*	Y		
1125.	7946	*Cotula cotuloides (Smooth Cotula)*			
1126.	3136	*Crassula alata*	Y		
1127.	3137	*Crassula colorata (Dense Stonecrop)*			
1128.	3139	*Crassula exserta*			
1129.	3142	*Crassula natans*	Y		
1130.	15706	*Crassula natans var. minus*	Y		
1131.	16188	*Cryptandra minutifolia subsp. brevistyla*			
1132.	9076	*Cryptandra myriantha*			
1133.	4809	*Cryptandra pungens*			
1134.	48865	*Cucumis myriocarpus subsp. myriocarpus*	Y		
1135.	20717	*Cyanicula aperta*			
1136.	15114	*Cyanicula gemmata*			
1137.	769	*Cyathochaeta clandestina*			
1138.	17618	*Cyathochaeta equitans*			
1139.	42220	*Cyathostemon ambiguus*			
1140.	42080	*Cyathostemon blackettii*			
1141.	43962	*Cyathostemon sp. Esperance (A. Fairall 2431)*		P1	
1142.	20422	*Cyathostemon tenuifolius*			
1143.	40661	*Cycnogeton lineare*			
1144.	6680	*Cynoglossum australe (Australian Hound's-tongue)*			
1145.	783	*Cyperus congestus (Dense Flat-sedge)*	Y		
1146.	801	*Cyperus laevigatus*	Y		
1147.	815	*Cyperus tenellus (Tiny Flatsedge)*	Y		
1148.	2779	*Cypselocarpus haloragoides*			
1149.	10964	*Cyrtostylis robusta*			
1150.	18632	*Dampiera angulata subsp. angulata*			
1151.	7439	*Dampiera fasciculata (Bundled-leaf Dampiera)*			
1152.	7461	*Dampiera parvifolia (Many-bracted Dampiera)*			
1153.	7471	*Dampiera sacculata (Pouched Dampiera)*			
1154.	7474	*Dampiera sericantha*		P3	
1155.	7485	*Dampiera triloba*		P3	

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1156.	5510	*Darwinia diosmoides*			
1157.	5525	*Darwinia polycephala*		P4	
1158.	20451	*Darwinia sp. Gibson (R.D. Royce 3569)*		P1	
1159.	35618	*Darwinia sp. Karonie (K. Newbey 8503)*			
1160.	18574	*Darwinia sp. Ravensthorpe (G.J. Keighery 8030)*			
1161.	5533	*Darwinia vestita (Pom-pom Darwinia)*			
1162.	26734	*Dasya clavigera*			
1163.	26738	*Dasya elongata*			
1164.	26739	*Dasya extensa*			
1165.	6218	*Daucus glochidiatus (Australian Carrot)*			
1166.	8977	*Daviesia aphylla*			
1167.	16736	*Daviesia apiculata*			
1168.	16577	*Daviesia articulata*			
1169.	3796	*Daviesia benthamii*			
1170.	15507	*Daviesia incrassata subsp. reversifolia*			
1171.	3818	*Daviesia lancifolia*			
1172.	14892	*Daviesia major*			
1173.	3823	*Daviesia nematophylla*			
1174.	12817	*Daviesia pauciflora*		P3	
1175.	3844	*Daviesia teretifolia*			
1176.	16593	*Desmocladus biformis*		P3	
1177.	16595	*Desmocladus flexuosus*			
1178.	46362	*Desmocladus lateriflorus*			
1179.	16471	*Desmocladus myriocladus*			
1180.	299	*Deyeuxia quadriseta (Reed Bentgrass)*			
1181.	16326	*Dianella brevicaulis*			
1182.	1259	*Dianella revoluta (Blueberry Lily)*			
1183.	26762	*Dictyomenia sonderi*			
1184.	32346	*Didymodon torquatus*			
1185.	38260	*Dielsiodoxa oligarrhenoides*			
1186.	3862	*Dillwynia acerosa*			
1187.	3864	*Dillwynia divaricata*			
1188.	3866	*Dillwynia uncinata (Silky Parrot Pea)*			
1189.	3012	*Diplotaxis tenuifolia (Sand Rocket)*	Y		
1190.	3867	*Dipogon lignosus (Dolichos Pea)*	Y		
1191.	19649	*Disa bracteata*	Y		
1192.	7054	*Dischisma arenarium*	Y		
1193.	2799	*Disphyma crassifolium (Round-leaved Pigface)*			
1194.	11681	*Disphyma crassifolium subsp. clavellatum*			
1195.	327	*Distichlis distichophylla*			Y
1196.	7961	*Dittrichia graveolens (Stinkwort)*	Y		
1197.	12942	*Diuris concinna*			
1198.	12941	*Diuris conspicillata*			Y
1199.	42231	*Diuris decrementa*			
1200.	33159	*Diuris immaculata*			Y
1201.	1634	*Diuris laxiflora (Bee Orchid)*			
1202.	46873	*Diuris littoralis*			
1203.	12937	*Diuris pulchella*			
1204.	4753	*Dodonaea amblyophylla*			
1205.	4756	*Dodonaea caespitosa*			
1206.	4757	*Dodonaea ceratocarpa*			
1207.	26795	*Doxodasya bolbochaete*			
1208.	26796	*Doxodasya lanuginosa*			
1209.	1640	*Drakaea glyptodon (King-in-his-carriage)*			
1210.	48726	*Drosera australis*			
1211.	48751	*Drosera drummondii*			
1212.	3098	*Drosera glanduligera (Pimpernel Sundew)*			
1213.	3102	*Drosera huegelii (Bold Sundew)*			
1214.	3105	*Drosera leucoblasta (Wheel Sundew)*			
1215.	3109	*Drosera menziesii (Pink Rainbow)*			
1216.	3113	*Drosera neesii (Jewel Rainbow)*			
1217.	3114	*Drosera nitidula (Shining Sundew)*			
1218.	3128	*Drosera ramellosa (Branched Sundew)*			
1219.	13227	*Drosera sargentii*			
1220.	3130	*Drosera scorpioides (Shaggy Sundew)*			
1221.	49090	*Drosera sp. Branched styles (S.C. Coffey 193)*			
1222.	48708	*Drosera trichocaulis*			
1223.	3135	*Drosera zonaria (Painted Sundew)*			
1224.	33501	*Dysphania cristata (Crested Goosefoot)*			
1225.	33480	*Dysphania pumilio (Clammy Goosefoot)*			

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1226.	32351	*Eccremidium pulchellum*			
1227.	26803	*Echinothamnion hystrix*			
1228.	347	*Ehrharta calycina (Perennial Veldt Grass)*	Y		
1229.	349	*Ehrharta longiflora (Annual Veldt Grass)*	Y		
1230.		*Ehrharta sp.*			
1231.	831	*Eleocharis sphacelata (Tall Spikerush, Djabren)*			
1232.	1643	*Elythranthera brunonis (Purple Enamel Orchid)*			
1233.	1644	*Elythranthera emarginata (Pink Enamel Orchid)*			
1234.	2511	*Enchylaena tomentosa (Barrier Saltbush)*			
1235.	1645	*Epiblema grandiflorum (Babe-in-a-cradle)*			
1236.	11570	*Epilobium billardiereanum subsp. billardiereanum (Smooth Willow Herb)*			
1237.	374	*Eragrostis cilianensis (Stinkgrass)*	Y		
1238.	376	*Eragrostis curvula (African Lovegrass)*	Y		
1239.	7180	*Eremophila alternifolia (Poverty Bush)*			
1240.	7187	*Eremophila calorhabdos (Red Rod)*			
1241.	7188	*Eremophila chamaephila*		P3	
1242.	16807	*Eremophila densifolia subsp. pubiflora*			
1243.	7215	*Eremophila glabra (Tar Bush)*			
1244.	28351	*Eremophila glabra subsp. Scaddan (C. Turley s.n. 10/11/2005)*		T	
1245.	7226	*Eremophila ionantha (Violet-flowered Eremophila)*			
1246.	10780	*Eremophila psilocalyx*			
1247.	7264	*Eremophila saligna (Willowy Eremophila)*			
1248.	14633	*Eremophila subfloccosa subsp. glandulosa*			
1249.	20718	*Ericksonella saccharata*			
1250.	1646	*Eriochilus dilatatus (White Bunny Orchid)*			
1251.	15413	*Eriochilus dilatatus subsp. undulatus*			
1252.	13866	*Eriochilus pulchellus*			
1253.	4336	*Erodium moschatum (Musky Crowfoot)*	Y		
1254.	12740	*Erymophyllum tenellum*			
1255.	5550	*Eucalyptus angulosa (Ridge-fruited Mallee, Kwararl)*			
1256.	5551	*Eucalyptus angustissima (Narrow-leaved Mallee)*			
1257.	19508	*Eucalyptus calycogona subsp. calycogona*			
1258.	13518	*Eucalyptus captiosa*			
1259.	5600	*Eucalyptus conglobata (Port Lincoln Mallee)*			
1260.	20292	*Eucalyptus conglobata subsp. conglobata*			
1261.	20293	*Eucalyptus conglobata subsp. perata*			
1262.	5611	*Eucalyptus cylindriflora (White Mallee)*			
1263.	5616	*Eucalyptus decurva (Slender Mallee)*			
1264.	12870	*Eucalyptus densa*			
1265.	12869	*Eucalyptus densa subsp. densa*			
1266.	5622	*Eucalyptus dielsii (Cap-fruited Mallee)*			
1267.	5624	*Eucalyptus discreta*			
1268.	13517	*Eucalyptus dolichorhyncha*		P4	
1269.	5637	*Eucalyptus eremophila (Tall Sand Mallee)*			
1270.	12377	*Eucalyptus extensa*			
1271.	16043	*Eucalyptus famelica*		P3	
1272.	5648	*Eucalyptus flocktoniae (Merrit, Merid)*			
1273.	13022	*Eucalyptus foliosa*		P3	
1274.	5652	*Eucalyptus forrestiana (Fuchsia Gum)*			
1275.	14277	*Eucalyptus fraseri subsp. fraseri*			
1276.	18216	*Eucalyptus globulus*	Y		
1277.	5659	*Eucalyptus gomphocephala (Tuart, Duart)*			
1278.	5669	*Eucalyptus halophila*			
1279.	5675	*Eucalyptus incrassata (Lerp Mallee)*			
1280.	13535	*Eucalyptus indurata (Ironbark)*			
1281.	14299	*Eucalyptus kessellii*			
1282.	13065	*Eucalyptus kessellii subsp. eugnosta*			
1283.	13066	*Eucalyptus kessellii subsp. kessellii*			
1284.	5695	*Eucalyptus leptocalyx (Hopetoun Mallee)*			
1285.	19811	*Eucalyptus leptocalyx subsp. leptocalyx*			
1286.	12696	*Eucalyptus litorea*		P2	
1287.	13037	*Eucalyptus loxophleba subsp. lissophloia*			
1288.	5704	*Eucalyptus macrandra (Long-flowered Marlock, Dwed)*			
1289.	5712	*Eucalyptus merrickiae (Goblet Mallee)*		T	
1290.	5713	*Eucalyptus micranthera (Alexander River Mallee)*			
1291.	13023	*Eucalyptus misella*		P1	
1292.	5723	*Eucalyptus occidentalis (Flat-topped Yate, Moidj)*			
1293.	5745	*Eucalyptus pileata (Capped Mallee)*			
1294.	15742	*Eucalyptus platypus subsp. congregata*			
1295.	18551	*Eucalyptus platypus subsp. platypus*			

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1296.	16180	*Eucalyptus pleurocarpa*			
1297.	15068	*Eucalyptus preissiana subsp. lobata*		P4	
1298.	13525	*Eucalyptus quadrans*			
1299.	12694	*Eucalyptus rigens (Saltlake Mallee)*			
1300.	5767	*Eucalyptus salubris (Gimlet)*			
1301.	10834	*Eucalyptus scyphocalyx (Goblet Mallee)*			
1302.	13014	*Eucalyptus semiglobosa*		P3	
1303.	5772	*Eucalyptus sheathiana (Ribbon-barked Gum)*			
1304.		*Eucalyptus sp.*			
1305.	29700	*Eucalyptus sp. Truslove (M.I.H. Brooker 7499)*			
1306.	5775	*Eucalyptus spathulata (Swamp Mallet)*			
1307.	14189	*Eucalyptus sporadica*			
1308.	13030	*Eucalyptus suggrandis subsp. suggrandis*			
1309.	34778	*Eucalyptus sweedmaniana*		P2	
1310.	13027	*Eucalyptus tenera*			
1311.	5788	*Eucalyptus tetraptera (Four-winged Mallee)*			
1312.	12889	*Eucalyptus tumida*			
1313.	5796	*Eucalyptus uncinata (Hook-leaved Mallee)*			
1314.	18085	*Eucalyptus utilis*			
1315.	15808	*Eucalyptus valens*			
1316.	12864	*Eucalyptus varia*			
1317.	12862	*Eucalyptus varia subsp. salsuginosa*			
1318.	12863	*Eucalyptus varia subsp. varia*			
1319.	8587	*Eucalyptus x erythrandra*			
1320.	19661	*Eucalyptus x missilis*		P4	
1321.	5802	*Eucalyptus yilgarnensis (Yorrell)*			
1322.	19088	*Euchiton collinus*			
1323.	4636	*Euphorbia paralias (Sea Spurge)*	Y		
1324.	4643	*Euphorbia segetalis (Shortstemmed Carnation Weed)*	Y		Y
1325.	4648	*Euphorbia terracina (Geraldton Carnation Weed)*	Y		
1326.	11271	*Euphrasia collina subsp. tetragona*			
1327.	26830	*Euptilota articulata*			
1328.	37740	*Eutaxia inuncta*			
1329.	19614	*Eutaxia lutea*			
1330.	20214	*Eutaxia myrtifolia*			
1331.	3879	*Eutaxia parvifolia*			
1332.	10977	*Exocarpos aphyllus (Leafless Ballart)*			
1333.	10765	*Exocarpos sparteus (Broom Ballart, Djuk)*			
1334.	20162	*Fabronia hampeana*		P2	
1335.	8850	*Fallopia convolvulus*	Y		
1336.	20216	*Ficinia nodosa (Knotted Club Rush)*			
1337.	5191	*Frankenia cinerea*			
1338.	5209	*Frankenia pauciflora (Seaheath)*			
1339.	5213	*Frankenia tetrapetala (Four Petaled Frankenia)*			
1340.	1944	*Franklandia fucifolia (Lanoline Bush)*			
1341.	899	*Gahnia ancistrophylla (Hooked-leaf Saw Sedge)*			
1342.	901	*Gahnia australis*			
1343.	16249	*Gahnia sp. Headland (G.J. Keighery 8501)*			
1344.	16283	*Gahnia sp. L (K.R. Newbey 7888)*			
1345.	43205	*Gahnia sp. South West (K.L. Wilson & K. Frank KLW 9266)*			
1346.	907	*Gahnia trifida (Coast Saw-sedge)*			
1347.	7323	*Galium murale (Small Goosegrass)*	Y		
1348.	19702	*Gastrolobium discolor*			
1349.	11044	*Gastrolobium heterophyllum*			
1350.	20453	*Gastrolobium latifolium*			
1351.	19725	*Gastrolobium musaceum*			
1352.	10981	*Gastrolobium parviflorum*			
1353.	3913	*Gastrolobium parvifolium (Berry Poison)*			
1354.	20487	*Gastrolobium punctatum*			
1355.	3924	*Gastrolobium spinosum (Prickly Poison)*			
1356.	16311	*Gazania linearis*	Y		
1357.	26850	*Gelinaria ulvoidea*			
1358.	1518	*Gladiolus angustus (Long Tubed Painted Lady)*	Y		
1359.	33620	*Glischrocaryon angustifolium*			
1360.	6143	*Glischrocaryon aureum (Common Popflower)*			
1361.	6145	*Glischrocaryon roei*			
1362.	26860	*Gloiocladia halymenioides*			
1363.	7983	*Gnaphalium indutum (Tiny Cudweed)*			
1364.	7991	*Gnephosis drummondii*			
1365.	8003	*Gnephosis tridens*			

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1366.	6587	*Gomphocarpus fruticosus (Narrowleaf Cottonbush)*	Y		
1367.	3946	*Gompholobium baxteri*			
1368.	10909	*Gompholobium confertum*			
1369.	3950	*Gompholobium knightianum*			
1370.	3954	*Gompholobium polymorphum*			
1371.	11083	*Gompholobium scabrum*			
1372.	3957	*Gompholobium tomentosum (Hairy Yellow Pea)*			
1373.	3959	*Gompholobium viscidulum*			
1374.	6163	*Gonocarpus pycnostachyus*		P3	
1375.	7488	*Goodenia affinis (Silver Goodenia)*			
1376.	7499	*Goodenia concinna (Elegant Goodenia)*			
1377.	7503	*Goodenia decursiva*			
1378.	7517	*Goodenia incana (Hoary Goodenia)*			
1379.	17655	*Goodenia laevis subsp. laevis*		P3	
1380.	12551	*Goodenia micrantha*			
1381.	7537	*Goodenia pterigosperma*			
1382.	19051	*Goodenia scapigera subsp. scapigera*			
1383.	23461	*Goodenia turleyae*		P1	
1384.	7562	*Goodenia viscida (Viscid Goodenia)*			
1385.	1961	*Grevillea baxteri (Cape Arid Grevillea)*		P4	
1386.	1991	*Grevillea disjuncta*			
1387.	2018	*Grevillea huegelii*			
1388.	2050	*Grevillea nudiflora*			
1389.	2053	*Grevillea oligantha*			
1390.	2061	*Grevillea pectinata (Comb-leaved Grevillea)*			
1391.	19492	*Grevillea plurijuga subsp. plurijuga*			
1392.	19491	*Grevillea plurijuga subsp. superba*			
1393.	32386	*Grimmia laevigata*			
1394.	5011	*Guichenotia ledifolia*			
1395.	5013	*Guichenotia micrantha (Small Flowered Guichenotia)*			
1396.	2804	*Gunniopsis glabra*			
1397.	2787	*Gyrostemon sheathii*			
1398.	1475	*Haemodorum spicatum (Mardja)*			
1399.	2126	*Hakea adnata*			
1400.	12224	*Hakea bicornata*			
1401.	2139	*Hakea cinerea (Ashy Hakea)*			
1402.	2141	*Hakea clavata (Coastal Hakea)*			
1403.	2142	*Hakea commutata*			
1404.	2145	*Hakea corymbosa (Cauliflower Hakea)*			
1405.	12226	*Hakea denticulata*			
1406.	12227	*Hakea drupacea*			
1407.	2160	*Hakea ferruginea*			
1408.	2171	*Hakea laurina (Pincushion Hakea, Kodjet)*			
1409.	2175	*Hakea lissocarpha (Honey Bush)*			
1410.	2187	*Hakea nitida (Frog Hakea)*			
1411.	2188	*Hakea obliqua (Needles and Corks)*			
1412.	13335	*Hakea obliqua subsp. obliqua*			
1413.	2193	*Hakea pandanicarpa*			
1414.	16910	*Hakea pandanicarpa subsp. pandanicarpa*			
1415.	2197	*Hakea prostrata (Harsh Hakea)*			
1416.	2203	*Hakea ruscifolia (Candle Hakea)*			
1417.	2208	*Hakea strumosa*			
1418.	2212	*Hakea sulcata (Furrowed Hakea)*			
1419.	2214	*Hakea trifurcata (Two-leaf Hakea)*			
1420.	2216	*Hakea varia (Variable-leaved Hakea)*			
1421.	2218	*Hakea victoria (Royal Hakea, Dalyongurd)*			
1422.	31013	*Halgania anagalloides var. Southern (A.E. Orchard 1609)*			
1423.	6684	*Halgania andromedifolia*			
1424.	6691	*Halgania integerrima*			
1425.	161	*Halophila australis*			
1426.	26900	*Haloplegma preissii*			
1427.	6171	*Haloragis digyna*			
1428.	48666	*Halymenia harveyana*			
1429.	8008	*Helianthus annuus (Sunflower, Common Sunflower)*	Y		
1430.	3016	*Heliophila pusilla*	Y		
1431.	6707	*Heliotropium curassavicum (Smooth Heliotrope)*			
1432.	6710	*Heliotropium europaeum (Common Heliotrope)*	Y		
1433.	439	*Hemarthria uncinata (Matgrass)*			
1434.	11451	*Hemarthria uncinata var. uncinata*			
1435.	2689	*Hemichroa pentandra (Trailing Jointweed)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1436.	26936	*Heterosiphonia muelleri*			
1437.	26938	*Heterosiphonia wrangelioides*			
1438.	5108	*Hibbertia acerosa (Needle Leaved Guinea Flower)*			
1439.	5110	*Hibbertia andrewsiana*			
1440.	5117	*Hibbertia cuneiformis (Cutleaf Hibbertia)*			
1441.	5122	*Hibbertia eatoniae*			
1442.	5131	*Hibbertia gracilipes*			
1443.	20059	*Hibbertia hemignosta*			
1444.	20049	*Hibbertia hibbertioides var. meridionalis*			
1445.	5143	*Hibbertia lineata*			
1446.	20417	*Hibbertia oligantha*			
1447.	20349	*Hibbertia psilocarpa*			
1448.	5162	*Hibbertia racemosa (Stalked Guinea Flower)*			
1449.	5165	*Hibbertia rostellata*			
1450.		*Hibbertia sp.*			
1451.	5173	*Hibbertia subvaginata*			
1452.	20036	*Hibbertia turleyana*		P2	Y
1453.	19433	*Hibbertia ulicifolia*			
1454.	13773	*Hopkinsia adscendens*		P3	
1455.	450	*Hordeum marinum*	Y		
1456.	3966	*Hovea pungens (Devil's Pins, Puyenak)*			
1457.	3968	*Hovea trisperma (Common Hovea)*			
1458.	12742	*Hyalosperma demissum*			
1459.	5220	*Hybanthus epacroides (Spiny Hybanthus)*			
1460.	6223	*Hydrocotyle alata*			
1461.	48770	*Hydrocotyle asterocarpa (Starry Pennywort)*		P2	
1462.	6234	*Hydrocotyle medicaginoides (Trefoil Pennywort)*			
1463.	49013	*Hydrocotyle tuberculata (Bumpy-fruited Pennywort)*		P2	
1464.	26962	*Hymenocladia dactyloides*			
1465.	26965	*Hymenocladia usnea*			
1466.	452	*Hyparrhenia hirta (Tambookie Grass)*	Y		
1467.	26971	*Hypnea ramentacea*			
1468.	26973	*Hypnea valentiae*			
1469.	5827	*Hypocalymma strictum*			
1470.	8086	*Hypochaeris glabra (Smooth Catsear)*	Y		
1471.	9352	*Hypochaeris radicata (Flat Weed, Cats-ear)*	Y		
1472.	1070	*Hypolaena exsulca*			
1473.	1071	*Hypolaena fastigiata*			
1474.	17844	*Hypolaena humilis*			
1475.	910	*Isolepis cernua (Nodding Club-rush)*			
1476.	912	*Isolepis cyperoides*			
1477.	917	*Isolepis marginata (Coarse Club-rush)*			
1478.	2220	*Isopogon alcicornis (Elkhorn Coneflower)*		P3	
1479.	2225	*Isopogon buxifolius*			
1480.	16880	*Isopogon formosus subsp. formosus*			
1481.	2234	*Isopogon polycephalus (Clustered Coneflower)*			
1482.	19998	*Isopogon sp. Fitzgerald River (D.B. Foreman 813)*			
1483.	2240	*Isopogon trilobus (Barrel Coneflower)*			
1484.	7399	*Isotoma scapigera (Long-scaped Isotome)*			
1485.	3992	*Isotropis cuneifolia (Granny Bonnets)*			
1486.	3993	*Isotropis drummondii (Lamb Poison)*			
1487.	3997	*Jacksonia alata*			
1488.	4002	*Jacksonia capitata*			
1489.	4005	*Jacksonia condensata*			
1490.	4028	*Jacksonia spinosa*			
1491.	14741	*Jacksonia venosa*			
1492.	14777	*Jacksonia viscosa*			
1493.	1295	*Johnsonia acaulis*			
1494.	1175	*Juncus acutus (Spiny Rush)*	Y		
1495.	20454	*Juncus acutus subsp. acutus*	Y		
1496.	1176	*Juncus aridicola*			
1497.	1178	*Juncus bufonius (Toad Rush)*	Y		
1498.	1179	*Juncus caespiticius (Grassy Rush)*			
1499.	1180	*Juncus capitatus (Capitate Rush)*	Y		
1500.	11922	*Juncus kraussii subsp. australiensis*			
1501.	1188	*Juncus pallidus (Pale Rush)*			
1502.	1194	*Juncus radula*			
1503.	4035	*Kennedia beckxiana (Cape Arid Kennedia)*		P4	
1504.	4037	*Kennedia coccinea (Coral Vine)*			
1505.	37961	*Kennedia coccinea subsp. esotera*			

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1506.	4042	*Kennedia nigricans (Black Kennedia)*			
1507.	4044	*Kennedia prostrata (Scarlet Runner)*			
1508.	42680	*Kennedia sp. South coast (T.R. Lally 1576 & I.P. Lally)*			
1509.	26995	*Kuetzingia canaliculata*			
1510.	5830	*Kunzea affinis*			
1511.	5831	*Kunzea baxteri (Baxter's Kunzea)*			
1512.	5839	*Kunzea preissiana*			
1513.	38222	*Kunzea salina*		P3	
1514.	11528	*Labichea lanceolata subsp. brevifolia*			
1515.	467	*Lagurus ovatus (Hare's Tail Grass)*	Y		
1516.	13647	*Lambertia echinata subsp. echinata*		T	
1517.	2248	*Lambertia inermis (Chittick, Djidiok)*			
1518.	16870	*Lambertia inermis var. drummondii*			
1519.	16871	*Lambertia inermis var. inermis*			
1520.	5030	*Lasiopetalum discolor*			
1521.	5035	*Lasiopetalum indutum*			
1522.	5047	*Lasiopetalum rosmarinifolium*			
1523.	35642	*Lasiopetalum sp. Mt Ragged (T.E.H. Aplin 4349)*			
1524.	26997	*Laurencia arbuscula*			
1525.	48408	*Laurencia dendroidea*			
1526.	27001	*Laurencia filiformis*			
1527.	27002	*Laurencia forsteri*			
1528.	4954	*Lawrencia diffusa*			
1529.	4955	*Lawrencia glomerata*			
1530.	4958	*Lawrencia spicata*			
1531.	4959	*Lawrencia squamata*			
1532.	1301	*Laxmannia brachyphylla (Stilted Paper-lily)*			
1533.	1304	*Laxmannia minor*			
1534.	1305	*Laxmannia omnifertilis*			
1535.	1306	*Laxmannia paleacea*			
1536.	1307	*Laxmannia ramosa (Branching Lily)*			
1537.	12029	*Laxmannia ramosa subsp. deflexa*			
1538.	7569	*Lechenaultia brevifolia*			
1539.	7575	*Lechenaultia formosa (Red Leschenaultia)*			
1540.	7590	*Lechenaultia tubiflora (Heath Leschenaultia)*			
1541.	1051	*Lemna disperma (Duckweed)*			
1542.	35864	*Lenormandia muelleri*			
1543.	27013	*Lenormandia spectabilis*			
1544.	8099	*Leontodon saxatilis (Hairy Hawkbit)*	Y		
1545.	3018	*Lepidium africanum (Rubble Peppercress)*	Y		
1546.	3021	*Lepidium bonariense (Peppercress)*	Y		
1547.	3026	*Lepidium fasciculatum (Bundled Peppercress)*		P3	
1548.	3044	*Lepidium rotundum (Veined Peppercress)*			
1549.	1073	*Lepidobolus chaetocephalus (Bristle-headed Chaff Rush)*			
1550.	1075	*Lepidobolus preissianus*			
1551.	929	*Lepidosperma carphoides (Black Rapier Sedge)*			
1552.	45756	*Lepidosperma fairallianum (Fairalls' Sword Sedge)*			
1553.	936	*Lepidosperma leptostachyum*			
1554.	939	*Lepidosperma pruinosum*			
1555.		*Lepidosperma sp.*			
1556.	945	*Lepidosperma squamatum*			
1557.	947	*Lepidosperma tenue*			
1558.	949	*Lepidosperma tuberculatum*			
1559.	1653	*Leporella fimbriata (Hare Orchid)*			
1560.	1078	*Leptocarpus coangustatus*			
1561.	46381	*Leptocarpus crebriculmis*			
1562.	2347	*Leptomeria lehmannii*			
1563.	2349	*Leptomeria pachyclada*			
1564.	2350	*Leptomeria pauciflora (Sparse-flowered Currant Bush)*			
1565.	5849	*Leptospermum incanum*			
1566.	5850	*Leptospermum laevigatum (Coast Teatree)*	Y		
1567.	5851	*Leptospermum maxwellii*			
1568.	5853	*Leptospermum oligandrum*			
1569.	5855	*Leptospermum roei*			
1570.	5856	*Leptospermum sericeum (Silver Teatree)*			
1571.	5857	*Leptospermum spinescens*			
1572.	12692	*Leptospermum subtenue*			
1573.	1088	*Lepyrodia macra (Large Scale Rush)*			
1574.	16449	*Leucophyta brownii*			
1575.	6358	*Leucopogon assimilis*			

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1576.	34768	*Leucopogon canaliculatus*			
1577.	6368	*Leucopogon carinatus*			
1578.	6373	*Leucopogon concinnus*			
1579.	6374	*Leucopogon conostephioides*			
1580.	44222	*Leucopogon corymbiformis*		P2	
1581.	6383	*Leucopogon cuneifolius*			
1582.	6386	*Leucopogon dielsianus*			
1583.	6391	*Leucopogon fimbriatus*			
1584.	40940	*Leucopogon obovatus subsp. obovatus*			
1585.	6419	*Leucopogon obtusatus*			
1586.	6422	*Leucopogon opponens*			
1587.	6427	*Leucopogon parviflorus (Coast Beard-heath)*			
1588.	34769	*Leucopogon remotus*		P1	
1589.	6442	*Leucopogon rotundifolius*		P3	
1590.	19580	*Leucopogon sp. Bremer Bay (K.R. Newbey 4667)*			
1591.	14637	*Leucopogon sp. Coujinup (M.A. Burgman 1085)*			
1592.	16051	*Leucopogon sp. Kau Rock (M.A. Burgman 1126)*			
1593.	41769	*Leucopogon sp. Lake Magenta (K.R. Newbey 3387)*		P1	
1594.	14205	*Leucopogon sp. Mount Heywood (M.A. Burgman 1211)*			
1595.	34163	*Leucopogon sp. Newdegate (M. Hislop 3585)*			
1596.	6455	*Leucopogon woodsii (Nodding Beard-heath)*			
1597.	39820	*Levenhookia murfetii*			
1598.	7673	*Levenhookia pauciflora (Deceptive Stylewort)*			
1599.	27023	*Liagora harveyana*			
1600.	4362	*Linum marginale (Wild Flax)*			
1601.	20647	*Lissanthe rubicunda*			
1602.	9289	*Lobelia anceps (Angled Lobelia)*			
1603.	7402	*Lobelia gibbosa (Tall Lobelia)*			
1604.	7403	*Lobelia heterophylla (Wing-seeded Lobelia)*			
1605.	7405	*Lobelia rarifolia*			
1606.	3048	*Lobularia maritima (Sweet Alyssum)*	Y		
1607.	6504	*Logania buxifolia*			
1608.	6507	*Logania fasciculata*			
1609.	6509	*Logania micrantha*			
1610.	13129	*Logania perryana*			
1611.	6513	*Logania stenophylla*			
1612.	6515	*Logania vaginalis (White Spray)*			
1613.	478	*Lolium rigidum (Wimmera Ryegrass)*	Y		
1614.		*Lolium sp.*			
1615.	11384	*Lolium temulentum forma temulentum*	Y		
1616.	1224	*Lomandra collina (Pale Mat Rush)*			
1617.	1227	*Lomandra hastilis*			
1618.	14542	*Lomandra micrantha subsp. micrantha*			
1619.	14543	*Lomandra micrantha subsp. teretifolia*			
1620.	1233	*Lomandra mucronata*			
1621.	1234	*Lomandra nigricans*			
1622.	1241	*Lomandra rigida (Stiff Mat Rush)*			
1623.	6968	*Lycium ferocissimum (African Boxthorn)*	Y		
1624.	1097	*Lyginia barbata*			
1625.	18049	*Lyginia imberbis*			
1626.	6456	*Lysinema ciliatum (Curry Flower)*			
1627.	34736	*Lysinema pentapetalum*			
1628.	5281	*Lythrum hyssopifolia (Lesser Loosestrife)*	Y		
1629.	2838	*Macarthuria apetala*			
1630.	27053	*Macrothamnion pellucidum*			
1631.	14366	*Macrozamia dyeri*			
1632.	2542	*Maireana erioclada*			
1633.	2553	*Maireana oppositifolia*			
1634.	36480	*Malva arborea (Tree Mallow)*	Y		
1635.	19421	*Marianthus bicolor (Painted Marianthus)*			
1636.	4076	*Medicago lupulina (Black Medic)*	Y		
1637.	4079	*Medicago polymorpha (Burr Medic)*	Y		
1638.	4080	*Medicago sativa (Alfalfa)*	Y		
1639.	4083	*Medicago truncatula (Barrel Medic)*	Y		
1640.	5881	*Melaleuca brevifolia*			
1641.	5882	*Melaleuca bromelioides*			
1642.	37600	*Melaleuca calcicola*			
1643.	5885	*Melaleuca calycina*			
1644.	17982	*Melaleuca carrii*			
1645.	5896	*Melaleuca cordata*			

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1646.	5898	*Melaleuca cucullata*			
1647.	5900	*Melaleuca cuticularis (Saltwater Paperbark)*			
1648.	15693	*Melaleuca dempta*		P3	
1649.	5909	*Melaleuca elliptica (Granite Bottlebrush, Ngow)*			
1650.	13269	*Melaleuca fissurata*		P4	
1651.	15603	*Melaleuca fulgens subsp. fulgens*			
1652.	5913	*Melaleuca glaberrima*			
1653.	18277	*Melaleuca glena*			
1654.	19486	*Melaleuca hamata*			
1655.	5918	*Melaleuca haplantha*			
1656.	18274	*Melaleuca hnatiukii*			
1657.	13272	*Melaleuca incana subsp. tenella*			
1658.	5922	*Melaleuca lanceolata (Rottnest Teatree, Moonah)*			
1659.	19080	*Melaleuca linguiformis*			
1660.	5948	*Melaleuca pentagona*			
1661.	11686	*Melaleuca pentagona var. latifolia*			
1662.	15993	*Melaleuca pentagona var. pentagona*			
1663.	19609	*Melaleuca plumea*			
1664.	5955	*Melaleuca pulchella (Claw Flower)*			
1665.	5960	*Melaleuca rigidifolia*			
1666.	18276	*Melaleuca sapientes*			
1667.	5961	*Melaleuca scabra (Rough Honeymyrtle, Wurru Bush)*			
1668.	18165	*Melaleuca societatis*			
1669.	5971	*Melaleuca striata*			
1670.	5973	*Melaleuca suberosa (Corky Honeymyrtle)*			
1671.	5974	*Melaleuca subfalcata*			
1672.	19399	*Melaleuca thapsina*			
1673.	5980	*Melaleuca thymoides*			
1674.	5981	*Melaleuca thyoides*			
1675.	5982	*Melaleuca torquata*			
1676.	18126	*Melaleuca tuberculata var. macrophylla*			
1677.	5985	*Melaleuca undulata (Hidden Honey-myrtle)*			
1678.	4084	*Melilotus albus*	Y		
1679.	4085	*Melilotus indicus*	Y		
1680.	6883	*Mentha pulegium (Pennyroyal)*	Y		
1681.	2813	*Mesembryanthemum crystallinum (Iceplant)*	Y		
1682.	956	*Mesomelaena stygia*			
1683.	11473	*Mesomelaena stygia subsp. stygia*			
1684.	957	*Mesomelaena tetragona (Semaphore Sedge)*			
1685.	27069	*Metagoniolithon stelliferum*			
1686.	27070	*Metamastophora flabellata*			
1687.	6887	*Microcorys barbata*			
1688.	6893	*Microcorys glabra*			
1689.	6902	*Microcorys subcanescens*			
1690.	18046	*Microcybe multiflora subsp. multiflora*			
1691.	4488	*Microcybe pauciflora (Yellow Microcybe)*			
1692.	13785	*Microcybe pauciflora subsp. pauciflora*			
1693.	5993	*Micromyrtus elobata*			
1694.	20543	*Micromyrtus elobata subsp. elobata*			
1695.	5998	*Micromyrtus imbricata*			
1696.	34158	*Microtis alboviridis*			
1697.	1658	*Microtis atrata (Swamp Mignonette Orchid)*			
1698.	8814	*Microtis brownii*			
1699.	10954	*Microtis media (Tall Mignonette Orchid)*			
1700.	15419	*Microtis media subsp. media*			
1701.	1660	*Microtis orbicularis (Dark Mignonette Orchid)*			
1702.	8106	*Millotia tenuifolia (Soft Millotia)*			
1703.	14344	*Millotia tenuifolia var. tenuifolia (Soft Millotia)*			
1704.	4090	*Mirbelia dilatata (Holly-leaved Mirbelia)*			
1705.	4096	*Mirbelia ovata*			
1706.	29418	*Monoculus monstrosus*	Y		
1707.	4667	*Monotaxis paxii*			
1708.	19179	*Moraea flaccida (One-leaf Cape Tulip)*	Y		
1709.	2412	*Muehlenbeckia adpressa (Climbing Lignum)*			
1710.	27077	*Mychodea aciculare*			
1711.	27079	*Mychodea carnosa*			
1712.	27080	*Mychodea disticha*			
1713.	7291	*Myoporum insulare (Blueberry Tree, boobialla)*			
1714.	7295	*Myoporum tetrandrum (Boobialla)*			
1715.	6196	*Myriophyllum muelleri (Hooded Water Milfoil)*		P1	

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1716.	6464	*Needhamiella pumilio*			
1717.	4492	*Nematolepis phebalioides*			
1718.	492	*Neurachne alopecuroidea (Foxtail Mulga Grass)*			
1719.	4366	*Nitraria billardierei (Nitre Bush)*			
1720.	2401	*Nuytsia floribunda (Christmas Tree, Mudja)*			
1721.	6138	*Oenothera drummondii (Beach Evening Primrose)*	Y		
1722.	14292	*Oenothera stricta subsp. stricta*	Y		
1723.	2365	*Olax benthamiana*			
1724.	2366	*Olax phyllanthi*			
1725.	8127	*Olearia axillaris (Coastal Daisybush)*			
1726.	8131	*Olearia ciliata (Fringed Daisy Bush)*			
1727.	8134	*Olearia exiguifolia (Small-leaved Daisy Bush)*			
1728.	8137	*Olearia imbricata (Imbricate Daisy Bush)*			
1729.	11397	*Olearia passerinoides subsp. passerinoides*			
1730.	44401	*Olearia sp. Eremicola (Diels & Pritzel s.n. PERTH 00449628)*			
1731.	6465	*Oligarrhena micrantha*			
1732.	20661	*Oncosiphon suffruticosum (Calomba Daisy)*	Y		
1733.	7348	*Opercularia hispidula (Hispid Stinkweed)*			
1734.	18256	*Opercularia spermacocea*			
1735.	18255	*Opercularia vaginata (Dog Weed)*			
1736.	46217	*Orianthera callosa*			
1737.	46255	*Orianthera campanulata*			
1738.	46316	*Orianthera serpyllifolia subsp. angustifolia*			
1739.	36181	*Ornduffia parnassifolia*			
1740.	4113	*Ornithopus compressus (Yellow Serradella)*	Y		
1741.	4115	*Ornithopus sativus (French Serradella)*	Y		
1742.	7122	*Orobanche minor (Lesser Broomrape)*	Y		
1743.	1539	*Orthrosanthus multiflorus (Morning Iris)*			
1744.	27107	*Osmundaria prolifera*			
1745.	30375	*Oxalis exilis*			
1746.	4355	*Oxalis perennans*			
1747.	34841	*Oxymyrrhine gracilis*			
1748.	12645	*Ozothamnus lepidophyllus*			
1749.	502	*Panicum capillare (Witchgrass)*	Y		
1750.	2964	*Papaver hybridum (Rough Poppy)*	Y		
1751.	1667	*Paracaleana nigrita (Flying Duck Orchid)*			
1752.	23499	*Paracaleana parvula*		P2	
1753.	516	*Parapholis incurva (Coast Barbgrass)*	Y		
1754.	1545	*Patersonia inaequalis (Unequal Bract Patersonia)*		P2	
1755.	1546	*Patersonia juncea (Rush Leaved Patersonia)*			
1756.	19670	*Patersonia lanata forma calvata*			
1757.	19669	*Patersonia lanata forma lanata*			
1758.	1549	*Patersonia maxwellii*			
1759.	1550	*Patersonia occidentalis (Purple Flag, Koma)*			
1760.	30472	*Patersonia occidentalis var. occidentalis*			
1761.	1552	*Patersonia rudis (Hairy Flag)*			
1762.	4343	*Pelargonium capitatum (Rose Pelargonium)*	Y		
1763.	4344	*Pelargonium drummondii*			
1764.	4346	*Pelargonium littorale*			
1765.	40423	*Pentameris airoides (False Hairgrass)*	Y		
1766.	11052	*Persicaria prostrata*			
1767.	15136	*Persoonia cymbifolia*		P3	
1768.	2275	*Persoonia scabra*		P3	
1769.	2279	*Persoonia teretifolia*			
1770.	2296	*Petrophile fastigiata*			
1771.	2304	*Petrophile phylicoides*			
1772.	2311	*Petrophile squamata*			
1773.	20053	*Petrophile squamata subsp. northern (J. Monks 40)*			
1774.	2313	*Petrophile teretifolia*			
1775.	551	*Phalaris minor (Lesser Canary Grass)*	Y		
1776.	4501	*Phebalium lepidotum*			
1777.	18536	*Philotheca fitzgeraldii*			
1778.	18515	*Philotheca gardneri subsp. gardneri*			
1779.	18532	*Philotheca nodiflora subsp. lasiocalyx*			
1780.	1173	*Philydrella pygmaea (Butterfly Flowers)*			
1781.	555	*Phragmites australis (Common Reed)*	Y		
1782.	16825	*Phyllangium divergens*			
1783.	4675	*Phyllanthus calycinus (False Boronia)*			
1784.	4685	*Phyllanthus scaber*			
1785.	4	*Phylloglossum drummondii (Pigmy Clubmoss)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1786.	6007	*Phymatocarpus maxwellii*			
1787.	5231	*Pimelea angustifolia (Narrow-leaved Pimelea)*			
1788.	5232	*Pimelea argentea (Silvery Leaved Pimelea)*			
1789.	5234	*Pimelea brachyphylla*			
1790.	11282	*Pimelea brevifolia subsp. brevifolia*			
1791.	5240	*Pimelea cracens*			
1792.	5241	*Pimelea drummondii*			
1793.	5242	*Pimelea erecta*			
1794.	5243	*Pimelea ferruginea*			
1795.	11402	*Pimelea imbricata var. piligera*			
1796.	12701	*Pimelea pelinos*		P1	
1797.	5267	*Pimelea subvillifera*			
1798.	6804	*Pityrodia chrysocalyx*		P3	
1799.	7297	*Plantago coronopus (Buckshorn Plantain)*	Y		
1800.	7301	*Plantago exilis*			
1801.	6249	*Platysace compressa (Tapeworm Plant)*			
1802.	6250	*Platysace deflexa*			
1803.	6252	*Platysace effusa*			
1804.	27150	*Platysiphonia victoriae*			
1805.	27156	*Plocamium mertensii*			
1806.	27157	*Plocamium preissianum*			
1807.	577	*Poa poiformis (Coastal Poa)*			
1808.	8173	*Podolepis capillaris (Wiry Podolepis)*			
1809.	8180	*Podolepis rugata (Pleated Podolepis)*			
1810.	8182	*Podotheca angustifolia (Sticky Longheads)*			
1811.	8188	*Pogonolepis stricta*			
1812.	2905	*Polycarpon tetraphyllum (Fourleaf Allseed)*	Y		
1813.	2419	*Polygonum aviculare (Wireweed)*	Y		
1814.	582	*Polypogon monspeliensis (Annual Beardgrass)*	Y		
1815.	27173	*Polysiphonia decipiens*			
1816.	27177	*Polysiphonia mollis*			Y
1817.	14547	*Pomaderris brevifolia*			
1818.	4818	*Pomaderris myrtilloides*			
1819.	16191	*Pomaderris rotundifolia*			
1820.	122	*Posidonia angustifolia*			
1821.	123	*Posidonia australis (Fibreball Weed)*			
1822.	106	*Posidonia denhartogii*			
1823.	107	*Posidonia kirkmanii*			
1824.	124	*Posidonia ostenfeldii*			
1825.	108	*Posidonia robertsoniae*			
1826.	125	*Posidonia sinuosa*			
1827.	110	*Potamogeton drummondii*			
1828.	15424	*Praecoxanthus aphyllus*			
1829.	15425	*Prasophyllum calcicola*			
1830.	1671	*Prasophyllum elatum (Tall Leek Orchid)*			
1831.	1672	*Prasophyllum fimbria (Fringed Leek Orchid)*			
1832.	1674	*Prasophyllum giganteum (Bronze Leek Orchid)*			
1833.	1677	*Prasophyllum macrostachyum (Laughing Leek Orchid)*			
1834.	17650	*Prasophyllum odoratissimum*			
1835.	1680	*Prasophyllum parvifolium (Autumn Leek Orchid)*			
1836.	1682	*Prasophyllum sargentii*			
1837.	6911	*Prostanthera baxteri*			
1838.	11304	*Prostanthera serpyllifolia subsp. microphylla*			
1839.	8189	*Pseudognaphalium luteoalbum (Jersey Cudweed)*			
1840.	13255	*Pterochaeta paniculata*			
1841.		*Pterostylis aff. nana*			
1842.	48670	*Pterostylis arbuscula*			
1843.	1687	*Pterostylis dilatata*			
1844.	1689	*Pterostylis mutica (Midget Greenhood)*			
1845.	1693	*Pterostylis recurva (Jug Orchid)*			
1846.	1694	*Pterostylis rogersii (Curled-tongue Shell Orchid)*			
1847.	1696	*Pterostylis sargentii (Frog Greenhood)*			
1848.	10998	*Pterostylis turfosa (Bird Orchid)*			
1849.	1698	*Pterostylis vittata (Banded Greenhood)*			
1850.	27204	*Ptilocladia vestita*			
1851.	32417	*Ptychostomum angustifolium*			
1852.	31672	*Puccinellia longior*			
1853.	592	*Puccinellia stricta (Marsh Grass)*			
1854.	4165	*Pultenaea barbata*			
1855.	4170	*Pultenaea elachista*			

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1856.	4172	*Pultenaea ericifolia*			
1857.	28286	*Pultenaea heterochila*			
1858.	20785	*Pultenaea indira subsp. indira*			
1859.	20790	*Pultenaea purpurea*			
1860.	4184	*Pultenaea spinulosa*			
1861.	4186	*Pultenaea tenuifolia*			
1862.	4187	*Pultenaea verruculosa*			
1863.	16367	*Pyrorchis nigricans (Red beaks, Elephants ears)*			
1864.	8195	*Quinetia urvillei*			
1865.	3061	*Raphanus raphanistrum (Wild Radish)*	Y		
1866.	3063	*Rapistrum rugosum (Turnip Weed)*	Y		
1867.	6014	*Regelia inops*			
1868.	27211	*Rhabdonia coccinea*			
1869.	2578	*Rhagodia baccata (Berry Saltbush)*			
1870.	2580	*Rhagodia crassifolia (Fleshy Saltbush)*			
1871.	2584	*Rhagodia preissii*			
1872.	13300	*Rhodanthe citrina*			
1873.	13294	*Rhodanthe laevis*			
1874.	13234	*Rhodanthe manglesii*			
1875.	13252	*Rhodanthe pygmaea*			
1876.	31911	*Ricinocarpos megalocarpus*			
1877.	11096	*Rinzia dimorphandra (Esperance Rinzia)*			
1878.	48269	*Rinzia icosandra (Recherche Mainland Rinzia)*			
1879.	48887	*Roepera billardierei*			
1880.	1556	*Romulea rosea (Guildford Grass)*	Y		
1881.	10970	*Rostraria cristata*	Y		
1882.	32426	*Rosulabryum campylothecium*			
1883.	32429	*Rosulabryum torquescens*			
1884.	20496	*Rubus laudatus*	Y		
1885.	2429	*Rumex acetosella (Sorrel)*	Y		
1886.	2430	*Rumex brownii (Swamp Dock)*	Y		
1887.	2433	*Rumex crispus (Curled Dock)*	Y		
1888.	46434	*Rumex hypogaeus*	Y		
1889.	115	*Ruppia megacarpa*			
1890.	116	*Ruppia polycarpa*			
1891.	117	*Ruppia tuberosa*			
1892.	40431	*Rytidosperma acerosum*			
1893.	40425	*Rytidosperma caespitosum*			
1894.	40427	*Rytidosperma setaceum*			
1895.	48433	*Salicornia blackiana*			
1896.	48430	*Salicornia quinqueflora*			
1897.	48431	*Salicornia quinqueflora subsp. quinqueflora (Beaded Glasswort)*			
1898.	6928	*Salvia reflexa (Mintweed)*	Y		
1899.	6483	*Samolus junceus*			
1900.	6484	*Samolus repens (Creeping Brookweed)*			
1901.	2356	*Santalum acuminatum (Quandong, Warnga)*			
1902.	2817	*Sarcozona praecox (Sarcozona)*			
1903.	7606	*Scaevola crassifolia (Thick-leaved Fan-flower)*			
1904.	7607	*Scaevola cuneiformis (Wedge-leaved Scaevola)*			
1905.	7614	*Scaevola globulifera*			
1906.	7639	*Scaevola restiacea*			
1907.	13151	*Scaevola thesioides subsp. filifolia*			
1908.	41660	*Schenkia australis*			
1909.	976	*Schoenus breviculmis*			
1910.	978	*Schoenus brevisetis*			
1911.	979	*Schoenus caespititius*			
1912.	984	*Schoenus curvifolius*			
1913.	992	*Schoenus grandiflorus (Large Flowered Bogrush)*			
1914.	994	*Schoenus humilis*			
1915.	996	*Schoenus laevigatus*			
1916.	1004	*Schoenus nitens (Shiny Bog-rush)*			
1917.	1005	*Schoenus obtusifolius*			
1918.	1006	*Schoenus odontocarpus*			
1919.	1009	*Schoenus pleiostemoneus*			
1920.	17614	*Schoenus plumosus*			
1921.	16089	*Schoenus racemosus*			
1922.	1013	*Schoenus sculptus (Gimlet Bog-rush)*			
1923.	14626	*Schoenus sp. A1 Boorabbin (K.L. Wilson 2581)*			
1924.	16273	*Schoenus sp. Grey Rhizome (K.L. Wilson 2922)*		P1	
1925.	1016	*Schoenus subbarbatus (Bearded Bog-rush)*			

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1926.	1018	*Schoenus subfascicularis*			
1927.	1019	*Schoenus subflavus (Yellow Bog-rush)*			
1928.	16251	*Schoenus subflavus subsp. long leaves (K.L. Wilson 2865)*			
1929.	1022	*Schoenus submicrostachyus*			
1930.	6544	*Sebaea ovata (Yellow Sebaea)*			
1931.	32433	*Sematophyllum homomallum*			
1932.	8207	*Senecio glossanthus (Slender Groundsel)*			
1933.	8216	*Senecio picridioides*			
1934.	25882	*Senecio pinnatifolius var. maritimus (Coastal Groundsel)*			
1935.	25883	*Senecio pinnatifolius var. pinnatifolius*			
1936.	7362	*Sherardia arvensis (Field Madder)*	Y		
1937.	4823	*Siegfriedia darwinioides*			
1938.	8224	*Siloxerus filifolius*			
1939.	14583	*Siloxerus multiflorus*			
1940.	3071	*Sisymbrium officinale (Hedge Mustard)*	Y		
1941.	3072	*Sisymbrium orientale (Indian Hedge Mustard)*	Y		
1942.	7017	*Solanum laciniatum (Kangaroo Apple)*	Y		
1943.	7022	*Solanum nigrum (Black Berry Nightshade)*	Y		
1944.	7033	*Solanum rostratum (Buffalo Burr)*	Y		
1945.	7037	*Solanum symonii*			
1946.	45036	*Solidago chilensis*	Y		
1947.	8230	*Sonchus asper (Rough Sowthistle)*	Y		
1948.	9367	*Sonchus hydrophilus (Native Sowthistle)*			
1949.	8231	*Sonchus oleraceus (Common Sowthistle)*	Y		
1950.	614	*Sorghastrum nutans*	Y		Y
1951.	617	*Sorghum halepense (Johnson Grass)*	Y		
1952.	1560	*Sparaxis pillansii (Harlequin Flower)*	Y		
1953.	2914	*Spergularia diandra (Lesser Sand Spurry)*	Y		
1954.	8900	*Spergularia marina*			
1955.	2915	*Spergularia rubra (Sand Spurry)*	Y		
1956.	4201	*Sphaerolobium daviesioides (Prickly Globe-pea)*			
1957.	4205	*Sphaerolobium linophyllum*			
1958.	4206	*Sphaerolobium macranthum*			
1959.	624	*Spinifex hirsutus (Hairy Spinifex)*			
1960.	635	*Sporobolus virginicus (Marine Couch)*			
1961.	27309	*Spyridia dasyoides*			
1962.	27310	*Spyridia filamentosa*			
1963.	4828	*Spyridium globulosum (Basket Bush)*			
1964.	4830	*Spyridium microcephalum (Small-headed Spyridium)*			
1965.	14243	*Spyridium minutum*			
1966.	14795	*Spyridium mucronatum subsp. multiflorum*		P2	
1967.	15140	*Spyridium polycephalum*			
1968.	31916	*Spyridium sp. Jerdacuttup (A. Williams 332)*			
1969.	4715	*Stachystemon polyandrus*			
1970.	20540	*Stachystemon vinosus*		P4	
1971.	20537	*Stachystemon virgatus*			
1972.	4733	*Stackhousia monogyna*			
1973.	4734	*Stackhousia muricata*			
1974.	9070	*Stackhousia pubescens (Downy Stackhousia)*			
1975.	43662	*Stackhousia sp. Thick sepals (A.E. Orchard 1547)*			
1976.	1315	*Stawellia gymnocephala*			
1977.	2918	*Stellaria media (Chickweed)*	Y		
1978.	15065	*Stenanthemum notiale subsp. notiale*			
1979.	16375	*Stirlingia anethifolia*			
1980.	2317	*Stirlingia simplex*			
1981.	27318	*Struvea plumosa*			
1982.	7678	*Stylidium adnatum (Common Beaked Triggerplant)*			
1983.	7682	*Stylidium albomontis*			
1984.	7687	*Stylidium assimile (Bronze-leaved Triggerplant)*			
1985.	7692	*Stylidium breviscapum (Boomerang Triggerplant)*			
1986.	12057	*Stylidium corymbosum var. corymbosum*			
1987.	7741	*Stylidium insensitivum (Insensitive Trigger Plant)*			
1988.	7758	*Stylidium macranthum (Crab Claws)*			
1989.	7772	*Stylidium perpusillum (Tiny Triggerplant)*			
1990.	7774	*Stylidium piliferum (Common Butterfly Triggerplant)*			
1991.	7775	*Stylidium pilosum (Silky Triggerplant)*			
1992.	7777	*Stylidium preissii (Lizard Triggerplant)*			
1993.	7785	*Stylidium repens (Matted Triggerplant)*			
1994.	7794	*Stylidium rupestre (Rock Triggerplant)*			
1995.		*Stylidium sp.*			

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1996.	20599	*Stylidium turleyae*			
1997.	1260	*Stypandra glauca (Blind Grass)*			
1998.	6473	*Styphelia intertexta*			
1999.	48618	*Styphelia sp. South Coast (J.M. Powell 3374)*			
2000.	2639	*Suaeda australis (Seablite)*			
2001.	2640	*Suaeda baccifera*	Y		
2002.	43203	*Surreya diandra*			
2003.	25902	*Symphyotrichum squamatum (Bushy Starwort)*	Y		
2004.	16860	*Synaphea media*			
2005.	12911	*Synaphea obtusata*			
2006.	16772	*Synaphea oligantha*			
2007.	2324	*Synaphea petiolaris (Synaphea)*			
2008.	16864	*Synaphea petiolaris subsp. petiolaris*			
2009.	2329	*Synaphea spinulosa*			
2010.	15534	*Synaphea spinulosa subsp. major*			
2011.	32437	*Syntrichia antarctica*			
2012.	20102	*Taxandria callistachys*			
2013.	20134	*Taxandria marginata*			
2014.	20103	*Taxandria spathulata*			
2015.	31552	*Tecticornia arbuscula*			
2016.	33236	*Tecticornia halocnemoides (Shrubby Samphire)*			
2017.	31873	*Tecticornia indefessa*		P2	
2018.	33319	*Tecticornia indica subsp. bidens*			
2019.	31718	*Tecticornia lepidosperma*			
2020.	34823	*Tecticornia loriae*			
2021.	31675	*Tecticornia lylei*			
2022.	33297	*Tecticornia pergranulata subsp. pergranulata (Blackseed Samphire)*			
2023.	33218	*Tecticornia pterygosperma subsp. pterygosperma*			
2024.	34845	*Tecticornia sparagosa*			
2025.	31716	*Tecticornia syncarpa*			
2026.	4256	*Templetonia retusa (Cockies Tongues)*			
2027.	35842	*Templetonia rossii*			
2028.	2823	*Tetragonia implexicoma (Bower Spinach)*			
2029.	46437	*Tetrapora preissiana*			
2030.	1034	*Tetraria capillaris (Hair Sedge)*			
2031.	35582	*Tetraria sp. Mt Madden (C.D. Turley 40 BP/897)*			
2032.		*Thelymitra aff. pauciflora*			
2033.	1701	*Thelymitra antennifera (Vanilla Orchid)*			
2034.	10856	*Thelymitra benthamiana (Leopard Orchid)*			
2035.	1705	*Thelymitra crinita (Blue Lady Orchid)*			
2036.	11143	*Thelymitra graminea*			
2037.	20732	*Thelymitra petrophila*			
2038.		*Thelymitra sp.*			
2039.	20735	*Thelymitra speciosa*			
2040.	1716	*Thelymitra tigrina (Tiger Orchid)*			
2041.	1718	*Thelymitra villosa (Custard Orchid)*			
2042.	20731	*Thelymitra vulgaris*			
2043.	5075	*Thomasia angustifolia (Narrow Leaved Thomasia)*			
2044.	5077	*Thomasia cognata*			
2045.	5086	*Thomasia macrocalyx*			
2046.	5088	*Thomasia microphylla*			
2047.	5093	*Thomasia petalocalyx (Paper Flower)*			
2048.	5094	*Thomasia purpurea*			
2049.	5105	*Thomasia triphylla*			
2050.	19698	*Thryptomene australis subsp. australis*			
2051.	6065	*Thryptomene saxicola (Rock Thryptomene)*			
2052.	27330	*Thuretia australasica*			
2053.	27331	*Thuretia quercifolia*			
2054.	1323	*Thysanotus brachiatus*		P2	
2055.	1328	*Thysanotus dichotomus (Branching Fringe Lily)*			
2056.	1338	*Thysanotus manglesianus (Fringed Lily)*			
2057.	1341	*Thysanotus nudicaulis*			
2058.	1343	*Thysanotus patersonii*			
2059.	1351	*Thysanotus sparteus*			
2060.	1358	*Thysanotus triandrus*			
2061.	32444	*Tortula atrovirens*			
2062.	1368	*Trachyandra divaricata*	Y		
2063.	19047	*Trachymene anisocarpa var. trichocarpa*		P3	
2064.	6268	*Trachymene cyanopetala*			
2065.	6279	*Trachymene ornata (Spongefruit)*			

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2066.	6280	*Trachymene pilosa (Native Parsnip)*			
2067.	11112	*Tribolium uniolae*	Y		
2068.	1485	*Tribonanthes violacea (Violet Tiurndin)*			
2069.	32449	*Trichostomum brachydontium*			
2070.	32450	*Trichostomum eckelianum*			
2071.	1361	*Tricoryne elatior (Yellow Autumn Lily)*			
2072.	41648	*Tricostularia aphylla*			
2073.	1037	*Tricostularia compressa*			
2074.	4289	*Trifolium angustifolium (Narrowleaf Clover)*	Y		
2075.	17542	*Trifolium arvense var. arvense*	Y		
2076.	4292	*Trifolium campestre (Hop Clover)*	Y		
2077.	4296	*Trifolium fragiferum (Strawberry Clover)*	Y		
2078.	4312	*Trifolium striatum (Knotted Clover)*	Y		
2079.	33276	*Triglochin isingiana*			
2080.	146	*Triglochin minutissima*			
2081.	147	*Triglochin mucronata*			
2082.	151	*Triglochin striata*			
2083.	152	*Triglochin trichophora*			
2084.	4737	*Tripterococcus brunonis (Winged Stackhousia)*			
2085.	32451	*Triquetrella papillata*			
2086.	13479	*Trymalium ledifolium var. rosmarinifolium*			
2087.	15757	*Trymalium spatulatum*			
2088.	98	*Typha domingensis (Bulrush, Djandjid)*			
2089.	35260	*Ulva compressa*			
2090.	38388	*Ursinia anthemoides subsp. anthemoides*	Y		
2091.	1766	*Urtica incisa (Scrub Nettle)*			
2092.	7145	*Utricularia menziesii (Redcoats)*			
2093.	7148	*Utricularia multifida*			
2094.	7153	*Utricularia tenella*			
2095.	13160	*Velleia exigua*		P2	
2096.	7665	*Velleia trinervis*			
2097.	6072	*Verticordia brownii*			
2098.	6073	*Verticordia chrysantha*			
2099.	6076	*Verticordia densiflora (Compacted Featherflower)*			
2100.	15432	*Verticordia densiflora var. densiflora*			
2101.	6079	*Verticordia fastigiata (Mouse Featherflower)*			
2102.	6090	*Verticordia humilis*			
2103.	12432	*Verticordia inclusa*			
2104.	6096	*Verticordia minutiflora*			
2105.	12450	*Verticordia plumosa var. grandiflora*			
2106.	12451	*Verticordia plumosa var. incrassata*			
2107.	14718	*Verticordia sieberi var. sieberi*			
2108.	12470	*Verticordia vicinella*			
2109.	11474	*Vicia sativa subsp. nigra*	Y		
2110.	27360	*Vidalia spiralis*			
2111.	4325	*Viminaria juncea (Swishbush, Koweda)*			
2112.	8266	*Vittadinia gracilis*			
2113.	12052	*Vulpia myuros forma megalura*	Y		
2114.	33101	*Vulpia myuros forma myuros*	Y		
2115.		*Vulpia sp.*			
2116.	7384	*Wahlenbergia capensis (Cape Bluebell)*	Y		
2117.	7386	*Wahlenbergia gracilenta (Annual Bluebell)*			
2118.	7389	*Wahlenbergia preissii*			
2119.	18108	*Watsonia meriana var. bulbillifera*	Y		
2120.	6939	*Westringia dampieri*			
2121.	9247	*Westringia rigida (Stiff Westringia)*			
2122.	6658	*Wilsonia backhousei (Narrow-leaf Wilsonia)*			
2123.	6659	*Wilsonia humilis (Silky Wilsonia)*			
2124.	6660	*Wilsonia rotundifolia (Round-leaf Wilsonia)*			
2125.	27364	*Wollastoniella myriophylloides*			
2126.	27369	*Wrangelia velutina*			
2127.	1389	*Wurmbea cernua*			
2128.	1394	*Wurmbea dioica (Early Nancy)*			
2129.	1255	*Xanthorrhoea platyphylla*			
2130.	6289	*Xanthosia huegelii*			
2131.	16992	*Yucca aloifolia*	Y		

Conservation Codes
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement

Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area

S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

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

Australian Government

Department of Agriculture, Water and the Environment

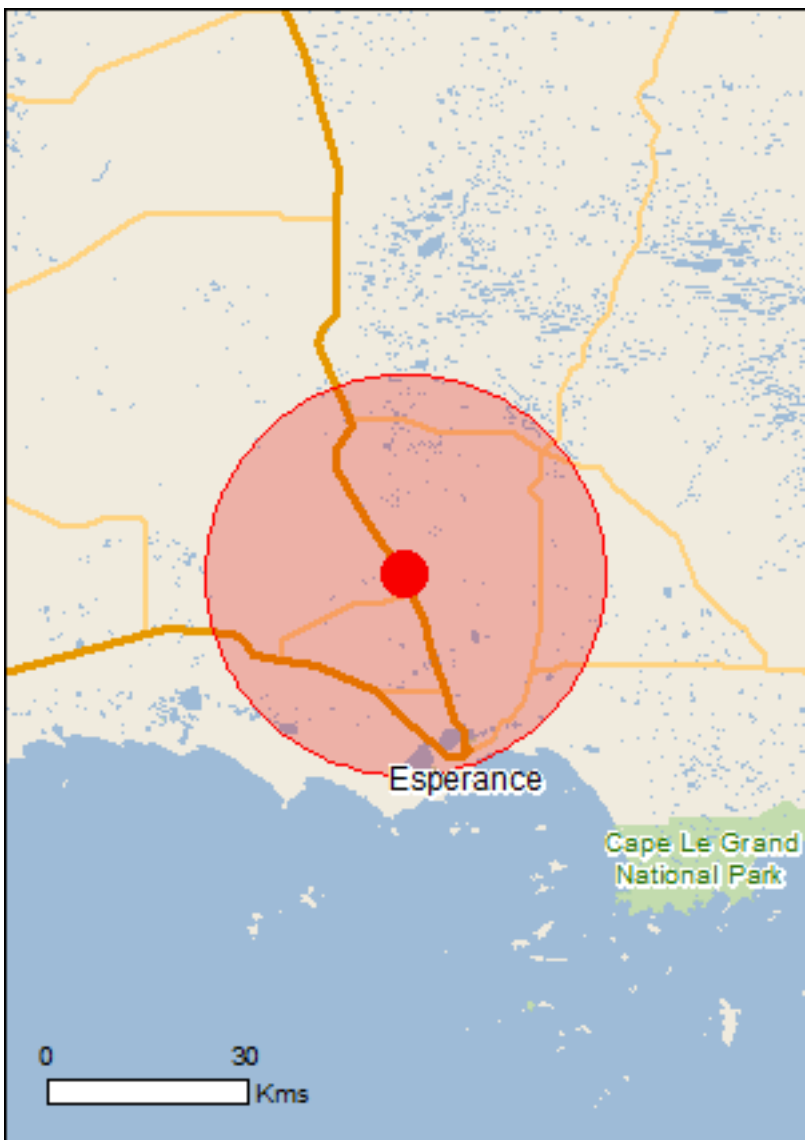
EPBC Act Protected Matters Report

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.

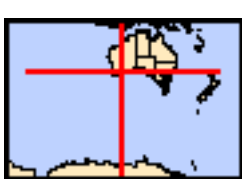
Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 17/11/21 16:19:03



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:	43
Listed Migratory Species:	50

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:	79
Whales and Other Cetaceans:	12
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
Calidris tenuirostris Great Knot [862]	Critically Endangered	Foraging, feeding or related behaviour 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
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or

Name	Status	Type of Presence
		related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may 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
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	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
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat may occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Mammals		
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species

Name	Status	Type of Presence
		habitat may occur within area
Eubalaena australis		
Southern Right Whale [40]	Endangered	Breeding known to occur within area
Megaptera novaeangliae		
Humpback Whale [38]	Vulnerable	Species or species habitat likely to occur within area
Neophoca cinerea		
Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat likely to 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
Sharks		
Carcharias taurus (west coast population)		
Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area
Carcharodon carcharias		
White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Species or species habitat may 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

Name	Threatened	Type of Presence
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Breeding known to occur within area
Ardenna grisea Sooty Shearwater [82651]		Species or species habitat may occur within area
Ardenna tenuirostris Short-tailed Shearwater [82652]		Breeding known to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Hydroprogne caspia Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Onychoprion anaethetus Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Migratory Marine Species		
Balaena glacialis australis Southern Right Whale [75529]	Endangered*	Breeding known to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within

Name	Threatened	Type of Presence
		area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
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
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may 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 within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris alba Sanderling [875]		Foraging, feeding or related behaviour 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

Name	Threatened	Type of Presence
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris ruficollis		
Red-necked Stint [860]		Foraging, feeding or related behaviour known to occur within area
Calidris tenuirostris		
Great Knot [862]	Critically Endangered	Foraging, feeding or related behaviour known to occur within area
Charadrius bicinctus		
Double-banded Plover [895]		Species or species habitat known to occur within area
Gallinago megala		
Swinhoe's Snipe [864]		Foraging, feeding or related behaviour likely to occur within area
Gallinago stenura		
Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely 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
Numenius minutus		
Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour likely to occur within area
Pandion haliaetus		
Osprey [952]		Species or species habitat likely to occur within area
Tringa brevipes		
Grey-tailed Tattler [851]		Foraging, feeding or related behaviour known 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

Name	Threatened	Type of Presence
		habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris alba Sanderling [875]		Foraging, feeding or related behaviour 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]		Foraging, feeding or related behaviour known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Foraging, feeding or related behaviour known to occur within area
Catharacta skua Great Skua [59472]		Species or species habitat may 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
Charadrius bicinctus Double-banded Plover [895]		Species or species habitat known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Foraging, feeding or related behaviour known to occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely

Name	Threatened	Type of Presence
		to occur within area
Gallinago megala Swinhoe's Snipe [864]		Foraging, feeding or related behaviour likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Foraging, feeding or related behaviour known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area
Larus pacificus Pacific Gull [811]		Foraging, feeding or related behaviour known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour likely to occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Phalacrocorax fuscescens Black-faced Cormorant [59660]		Foraging, feeding or related behaviour likely to occur within area
Pterodroma macroptera Great-winged Petrel [1035]		Breeding likely to occur within area

Name	Threatened	Type of Presence
Pterodroma mollis		
Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area
Puffinus assimilis		
Little Shearwater [59363]		Foraging, feeding or related behaviour known to occur within area
Puffinus carneipes		
Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Breeding known to occur within area
Puffinus griseus		
Sooty Shearwater [1024]		Species or species habitat may occur within area
Puffinus tenuirostris		
Short-tailed Shearwater [1029]		Breeding known to occur within area
Recurvirostra novaehollandiae		
Red-necked Avocet [871]		Species or species habitat known to occur within area
Sterna anaethetus		
Bridled Tern [814]		Foraging, feeding or related behaviour likely to occur within area
Sterna caspia		
Caspian Tern [59467]		Foraging, feeding or related behaviour known to occur within area
Thalassarche carteri		
Indian Yellow-nosed Albatross [64464]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Thalassarche cauta		
Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida		
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris		
Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi		
White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thinornis rubricollis		
Hooded Plover [59510]		Species or species habitat known to occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Fish		
Acentronura australe		
Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area
Campichthys galei		
Gale's Pipefish [66191]		Species or species habitat may occur within area
Heraldia nocturna		
Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area
Hippocampus breviceps		
Short-head Seahorse, Short-snouted Seahorse		Species or species

Name	Threatened	Type of Presence
[66235]		habitat may occur within area
Histiogamphelus cristatus Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area
Leptoichthys fistularius Brushtail Pipefish [66248]		Species or species habitat may occur within area
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area
Vanacampus poecilolaemus Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area
Mammals		
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species

Name	Threatened	Type of Presence
		habitat likely to occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	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

Whales and other Cetaceans		[Resource Information]
Name	Status	Type of Presence
Mammals		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may 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
Recherche Archipelago	WA
Shark Lake	WA
Speddingup East	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
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

Name	Status	Type of Presence 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

-33.63517 121.80844

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

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

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

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