RECONNAISSANCE FLORA, VEGETATION AND BASIC FAUNA SURVEY REPORT

Line 51 Esperance Branch Line, Esperance to Gibson –

Section 7 Lake Warden Reserve (374.75 – 376KM, Site 13)

Monjingup, WA 6448

Final v.2

16/06/2022

BUSHFIRE | ENVIRONMENTAL | WATER | GIS

DOCUMENT CONTROL

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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 1.993ha along Railway Line 51 from in the Lake Warden locality, in the Shire of Esperance. Specifically, this was located along Railway Kilometre (KM) marking 368.7 – 371.87KM. This corresponded with Site 13 of the 2022 scope of works programme, as instructed by Arc Infrastructure. The reconnaissance survey was required to assess the impact on areas of native vegetation proposed to be cleared for a construction and maintenance project along the railway line. An environmental risk assessment was completed following the commission of the 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.

Six vegetation units consisting of native vegetation were recorded during the survey, namely 1: Coastal Shrubland [Coastal SL], 2: *Melaleuca thymoides* and *Acacia nigricans* Shrubland [Melthy and Acanig SL], 3: *Melaleuca cuticularis* Shrubland [Melcut SL], 4: *Eucalyptus pleurocarpa* Mixed Shrubland [Eucple MSL], 5: *Nuytsia floribunda* Mixed Shrubland [Nuyflo MSL], and 6: Invasive Grassland and Shrubland [Invasive GL SL]. A large portion of the survey area had historically been cleared and consisted of bare ground. Condition within the survey area ranged from Completely Degraded to Excellent (Keighery, 1994), primarily due to the effect of dominance of invasive species and historical clearing. Floristic diversity was relatively high, with 125 flora species recorded, consisting of 101 native species and 24 introduced species. No Priority or Threatened flora were detected within the survey are. A single invasive species listed as 'Declared Pest – s22(2)' under the *BAM Act 2007* and Weed of National Significance, namely *Asparagus asparagoides,* Bridal Creeper. Two vegetation units identified had the potential to be Threatened (TEC) and Priority (PEC) Ecological Community 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province (Kwongkan)'. Analysis of proposed works and impact to the location and distribution of each of these vegetation units indicated that were present within linear corridors along the railway corridor and would not meet patch of threshold size.

During the survey, a moderate level of fauna diversity was detected with a total of 37 taxa recorded; including 20 birds, 10 invertebrates, four reptiles and three mammals. No Threatened or Priority listed species were observed. Potential habitat was identified for thirteen species, one of which quenda (*Isoodon fusciventer,* P4), is considered 'Likely' to occur within the survey area. Six species including the fork-tailed swift (*Apus pacificus*, MI), Carnaby's Cockatoo (*Calyptorhynchus latirostris,* EN), letter winged kite (*Elanus scriptus*, P4), dibbler (*Parantechinus apicalis*, EN), western mouse (*Pseudomys occidentalis*, P4) and heath mouse (*Pseudomys shortridgei*, VU) are considered to have a possible likelihood of occurrence. The remaining six species including the Cape Arid *Atelomastix* millipede (*Atelomastix anancita*, VU), Brennan's A*telomastix* millipede (*Atelomastix brennani*, sp. nov, VU), Le Grand *Atelomastix* millipede (*Atelomastix grandis,* VU), Moir's A*telomastix* millipede, (*Atelomastix melindae*, VU), Comer's A*telomastix* millipede (*Atelomastix sarahae*, VU) were considered 'Unlikely' to occur within the survey area, due to the lack of observation of species presence within suitable habitat and the Cape Le Grand assassin spider (*Zephyrarchaea marki,* VU) was considered 'Unlikely' to occur within the survey area but may be present in areas immediately adjoining the survey area (see Appendix B, Table 12 for full details).

Vegetation unit 1: Coastal Shrubland [Coastal SL] provides suitable habitat in areas in 'Good' to 'Very Good' condition for quenda (P4), whilst areas that are degraded lack an understorey that reduces the likelihood of this species utilising the area. Other suitable habitat is also present within vegetation units 2: *Melaleuca thymoides* and *Acacia nigricans* Shrubland [Melthy and Acanig SL], 3: *Melaleuca cuticularis* Shrubland [Melcut SL], 4: *Eucalyptus pleurocarpa* Mixed Shrubland [Eucple MSL], and 5: *Nuytsia floribunda* Mixed Shrubland [Nuyflo MSL]. The lack of other signs of quenda presence (diggings, scats) and the presence of a high quantity of rabbit activity suggests that the runnel network is being utilised primarily by rabbits and that, if present, quenda are likely to be transient. There is marginally suitable habitat present for the western mouse, heath mouse and dibbler within vegetation units 1: Coastal SL, 4: Eucple MSL and 5: Nuyflo MSL. For all four of these species the adjacent intact vegetation likely hold 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 marginally suitable foraging habitat identified within vegetation units 1: Coastal SL, and 4: Eucple MSL. Whilst there are suitable feed species located within these vegetation units, the vegetation typically contains a low diversity 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 1ha of high-quality habitat is to be removed. Given the habitat present is less than 1 ha and is not of high-quality it is unlikely that works at this location alone would need to be referred for assessment under the EPBC Act 1999. However, the cumulative total and potential impact across the entire Esperance Branch Line project should be taken into consideration.

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

1. Introduction, Scope and Background Information

Arc Infrastructure ("the client") commissioned Bio Diverse Solutions as Environmental Consultants to conduct a spring reconnaissance flora and vegetation survey and a basic (previously reconnaissance) fauna assessment of a total of 1.993 ha along Line 51 (374.75-376 km) in the Lake Warden locality in the Shire of Esperance. The total 1.993 ha consists of four separate 'areas' or zones and stretches a total distance of 1.22 km along an existing service road for the railway line. 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 types, 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 types 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 (374.5 – 376 km) in the Lake Warden locality, in the Shire of Esperance. The areas surveyed were 1.993ha, the total length of the survey area is approximately 1.22 km (Figure 1). Four separate 'areas' were present within the survey area acting as laydown areas for storage of materials and machinery. These laydown areas ranged from 0.081 to 0.279 ha in size. The area within the survey area has 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 13 of the 2022 Scope of Works for Arc Infrastructure (Tanna, 2021).

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

The survey area consists mostly of remnant vegetation, located within the cadastral boundary of the Arc Infrastructure managed railway line. Some areas within the survey area are already cleared for the purpose of a maintenance access track or part of existing lay down areas. The survey area intersects Reserve 4181, which consists entirely of intact native vegetation. The surrounding landscape is dominated by the rural-urban fringe of smaller hobby-farms to the south. Directly to the south and east of the survey area is open lake bed, Lake Warden.

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 13 (2022 Scope of Works) the operational footprint of construction works required a clearing permit or further environmental approvals. The risk assessment categorised operational space into a 'traffic light' system, as outlined below:

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

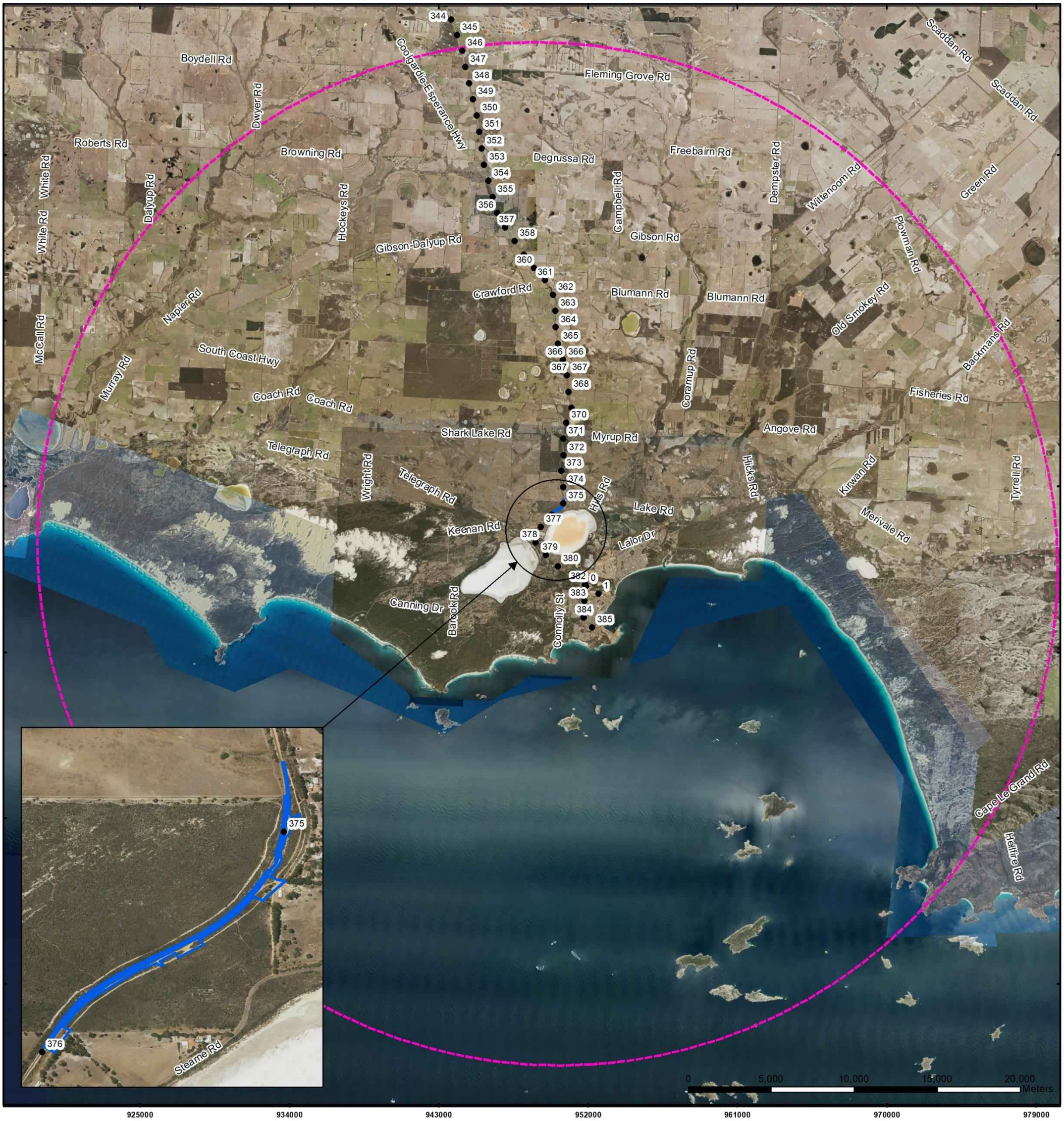
The environmental risk assessment that corresponds with the survey area is outlined in Figure 17 (Appendix A), illustrating how large areas within the survey area were considered previously cleared or exempt from a clearing permit. A linear corridor on the eastern side of the railway and one laydown 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 of Department of Agriculture, Water and Environment (DAWE);
- *Biodiversity Conservation Act 2016* (BC Act). Administered by the Western Australian Department of Biodiversity, Conservation and Attractions (DBCA);
- *Environmental Protection Act 1986* (EP Act). Administered by the Western Australian Department of Water and Environmental Regulations;
- *Biosecurity and Agriculture Management Act 2007* (BAM Act);
- EPA (2016) Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment;
- EPA (2020) Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact;
- CoA (2013) Draft Survey guidelines for Australia's Threatened Orchids*;*
- DEWHA (2010) Survey Guidelines for Australia's Threatened Birds;
- DSEWPaC (2011) Survey Guidelines for Australia's Threatened Mammals; and
- DSEWPaC (2012) Referral Guidelines for Three Threatened Black Cockatoo Species.



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BIO DIVERSE SOLUTIONS

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

Legend

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

Overview Map Scale 1:1,250,000

CLIENT Arc Infrastructure Line 51 (374.75 – 376KM), Esperance to Gibson Section 7, Site 13 - Lake Warden Reserve Monjingup, WA 6448		
Figure 1: Survey Area Locality		
	QA Check **MLH**	Drawn by **BMT**
STATUS **FINAL**	FILE **AI005-007**	DATE **19/05/2022**

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

1.3. Geology and soils

Database searches shows the survey area lies within the Esperance System (245Es) and the Gore System (245Go). 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."* The Gore System is described as "*Discontinuous level to gently undulating coastal plain with subdued sand dunes, lakes and swamps. Unconsolidated Pleistocene sediments*." (DPIRD, 2021).

Database searches shows the survey area lies within the Esperance Sandplain Zone. The Esperance Sandplain Zone is described as "*Level to gently undulating plain dissected by a number of short rivers flowing south. Formed on Eocene marine sediments overlying Proterozoic granitic and metamorphic rocks. Soils are grey fine sandy duplex soils and fine sands."* (DPIRD, 2018a). The soil type within the application area is mapped as the Esperance 2E3b Phase (245Es_2E3b), Esperance 3 e Phase (245Es_4E3e), Gore 3 b Phase (245Go_1G3b) and Gore 3 c Phase (245Go_1G3c). The Esperance 2E3b Phase is described as "*Deep uniform sand, Podzol > 80 cm (Corinup), Uc2.22, on gently undulating plain, 1-3% slope"* (DPIRD, 2019a). The Esperance 3 e Phase is described as "*Deep uniform sand, Podzol > 80 cm (Corinup), Uc2.25, on escarpment, 3-6% slope"* (DPIRD, 2019a). The Gore 3 b Phase is described as "*Deep uniform sand (Corinup), Uc2.21, on gently undulating plain, 1-3% slope"* (DPIRD, 2019a). The Gore 3 c Phase is described as "*Deep uniform sand (Corinup), Uc2.21, on longitudinal dunes, 1-3% slope"* (DPIRD, 2019a).

1.4. Climate

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

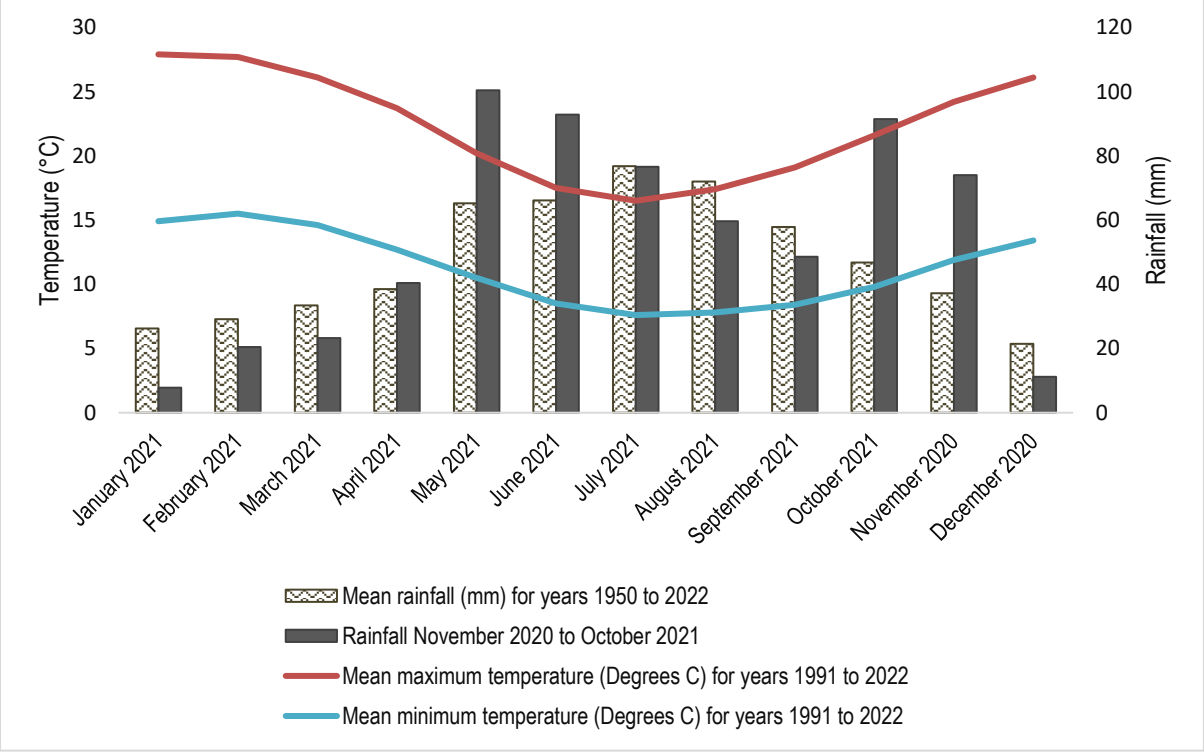


Figure 2: Temperature and Rainfall Data for Esperance BoM Weather Station No. 009789

1.5. Habitat Connectivity

There are small areas of intact remnant vegetation located within private property to the north, east and south of the survey area and Reserve 4181 is located immediately to the east and west of the survey area. There is remnant vegetation located along the railway line itself which ultimately provides connectivity between small remnant patches and the larger areas of reserved vegetation within the broader Esperance area. In a regional context, these larger areas of remnant and reserved vegetation are connected through smaller interconnecting patches within the surrounding agricultural landscape.

Table 1: Reserve Details (GoWA, 2022)

Reserve Number	Responsible Agency	Current Purpose
4181	Department Of Planning, Lands and Heritage (SLSD)	Common

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).

No RAMSAR wetlands, or significant wetlands are located directly within the survey area. However, the desktop survey did identify that the Lake Gore RAMSAR wetland is ~30km west and the Lake Warden RAMSAR system is ~350m to the south of the survey area (DAWE, 2021). Therefore, whilst not being directly within the boundaries of Lake Warden RAMSAR area, it is within close proximity and is located within the catchment (DBCA, 2017a). Formally, it is located within the Esperance Coast Basin and Bandy Creek Hydrographic Catchment (DWER, 2018a) and within the Bandy Harbour Hydrographic Subcatchment (DWER, 2018b).

A single vegetation was present that had a significant relationship with hydrological systems, specifically Vegetation Unit 3: Melcut SL (Section 5.2). Whilst no standing water was present or open wetlands, vegetation present is considered riparian vegetation.

1.7. Environmentally Sensitive Areas

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

1.8. Remnant Vegetation

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

The vegetation has been mapped on a broad scale by J.S. Beard (Shepherd *et al.* 2002) in the 1970's, where a system was devised for state-wide mapping and vegetation classification based on geographic, geological, soil, climate structure, life form and vegetation characteristics (Sandiford and Barrett, 2010). Vegetation units were regarded as associations and were grouped into Vegetation Systems representing a particular pattern of association distribution within a given area. A GIS search of J.S. Beards (Beard *et al.* 2013) vegetation classification places the survey area within one System and Vegetation Association (DPIRD, 2019b) Refer to Map 1 in Appendix A:

- **System Association Name**: Fanny Cove
- **Vegetation Association Number:** 7048
- **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:** 78.94% remaining (GoWA, 2019).
- **Remnant Vegetation by Beard Association Rarity in IBRA Region:** 78.94% remaining (GoWA, 2019).

1.9. Heritage

The survey area is located within the Wudjari Nyungar nation. The survey area is not directly located within a Registered Aboriginal Site (DPLH, 2022). The nearest record is 'Other Heritage Places' area, 358m to the south-east of the survey area consisting of ID 20607 'Lake Warden' across the Lake Warden lake bed. It is recognised that there has been a large scale of loss of cultural knowledge and information, and the survey area may contain additional heritage values that are not recognised through DPLH (2022).

2. Methodology – Desktop Assessment

2.1. Flora and Vegetation

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

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

The full species list compiled from all available data (Table A2 in Appendix D) is based on observations from a broader area than the survey area and is likely to include species that would not occur in the actual survey area due to a lack of suitable habitat. The data also includes very old records and in some cases the species in question may have become locally or regionally extinct. Species that have previously been recorded within the study area are shown in Map 2 in Appendix A. Conservation categories for Threatened and Priority flora and ecological communities are presented in Tables A5-A8 in Appendix C. NatureMap and Protected matters search tool database searches are provided in Appendix F.

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, 2021d). 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 the survey area was undertaken using the following databases:

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

The conservation significance of fauna species was 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 Black Cockatoo records and 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) and Unconfirmed Roost Sites (DBCA_051; DBCA, 2018c).
- Carnaby's Cockatoo Confirmed (DBCA_52) 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/out-of-season season reconnaissance level flora and vegetation survey was undertaken by Katie White (Botanist) of Bio Diverse Solutions on the 7th of October 2021, with a following visit on the 12th of November 2021, supported by Kimberly Jenkins (Technical Assistant) of Bio Diverse Solutions. The survey area was surveyed on foot using traverses and relevés. The intent of the traverses was to identify and map the different vegetation types, their condition category and to undertake more intensive targeted surveys within suitable habitat for conservation significant species.

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

Analysis of vegetation units identified during the 7th of October 2021 field survey occurred to determine whether identified bore similarities to the TEC/PEC Kwongkan, and whether further quadrat analysis was required. Whilst numerous vegetation units bore similarities to Kwongkan, they were all located along linear corridors within the railway corridor. No "laydown" areas of a larger size were located within vegetation units that had the potential to be Kwongkan TEC/PEC. Therefore, all proposed impact was linear trimming of 1-1.5m width, and no further quadrat analysis occurred.

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. Minor limitations were present, relating to two species flowering outside the spring season, namely P2 *Hibbertia turleyae* and P3 *Styphelia rotundifolia,* a lack of information for an undescribed species and survey intensity for capturing orchid species 'Likely' or 'Possible' to occur (CoA, 2013). A major limitation was present for detection of P1 *Lobelia archeri* and P3 *Adelphacme minima,* being a fire ephemeral responding species. However, this cannot be overcome through additional surveys.

Table 2: Flora and vegetation survey limitations and constraints.

Limitation	Significance of limitation	Comment
Experience of personnel	Nil	Katie White has over 5 years' experience at conducting targeted, reconnaissance and detailed flora surveys within the Esperance sandplains bioregion and is competent in taxonomic identification and assessment of vegetation in the area. Additionally, she has conducted targeted flora surveys and worked alongside the DBCA Flora Conservation Officer for a large number of flora species listed on the desktop assessment. Kimberly Jenkins has 10 years' experience of working various technical assistant, field survey, education and other scientific roles. A single species of bryoflora was identified within the desktop assessment (Table 10, Appendix B), namely P2 *Fabronia hampeana.* This is outside the expertise of surveyors. However, a risk assessment was completed on suitable habitat present and was determined to be 'Unlikely' to occur.
Survey timing	Minor	The client requested a spring flora and vegetation survey, consistent with peak flowering times for the majority of species in the area. Survey occurred during two separate times, 7th of October and 12th of November. The November survey detected late-flowering spring species. Three species identified in the desktop assessment (Table 10, Appendix B) as 'Likely' or 'Possible' to occur were flowering immediately prior (September) or immediately after (December) the surveys were conducted. It is likely that early or late buds or blooms were present. However, it may represent a minor limitation. Two species, namely P2 *Hibbertia turleyae* and P3 *Styphelia rotundifolia,* were identified as 'Possible' to occur in the Likelihood of Occurrence assessment. They were recorded flowering outside of the spring season, which may represent a minor limitation as there is a possibility of detection without flowering being shrubs.
Access restrictions	Nil	No access restrictions were encountered during the survey.
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. A single species was identified in the desktop assessment (Table 12, Appendix B) as 'Possible' to occur with very limited information present taxonomically. Namely, *Schoenus* s. Grey Rhizome (K.L. Wilson 2922). Precautionary principles were applied for any species within the Schoenus genera during identification.
Survey effort and extent	Minor	125 species were identified during the survey, and seven relevé 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.)		Following the CoA (2013) *Draft Survey guidelines for Australia's Threatened Orchids,* it is recognised that due to the complex nature of Orchid phenology and physiology, more intensive survey transects and surveys over multiple time periods may be required. Two Orchid species were identified within the desktop assessment as 'Likely' to occur, namely P2 *Paracaleana parvula* and P3 *Pterostylis faceta*. Whilst the survey intensity was appropriate at a reconnaissance level (EPA, 2016), it was recognised that it likely did not meet requirements for sampling Orchids (CoA, 2013), which may represent a minor limitation.
Disturbances that may affect results	Nil Major – Fire ephemeral species, P1 *Lobelia archeri* and P3 *Adelphacme minima*	The primary form of disturbance was the presence of access tracks adjacent to the railway line that were effectively cleared. A fire had occurred in the most southern areas of the survey area, within a small area that had been distinctively previously Vegetation Unit 1: Coastal Shrubland. No fires had previously occurred and the native vegetation showed indications of being long unburnt (density of leaf litter, age and height of obligate seeders, height of Mallee re-sprouters). This is a significant limitation for P1 *Lobelia archeri* and P3 *Adelphacme minima*, identified as 'Possible' in the Likelihood of Occurrence assessment. It is therefore possible to be present through viable soil seed bank, but would not have been captured through this survey.
Identification issues	Nil	The survey was undertaken on 7th of October and 12th of November, during the peak flowering period for many Great Southern flora species to maximise ease of identifying them. However, given that not all flora species flower during this time some species will be more difficult to observe in the field than others. Of the 125 species present within the survey area, the vast majority contained sufficient taxonomic information for identification (such as nuts, fruit, leaf structure or flowers). It is estimated that 70-75% of species present were flowering. All species collected were identified.

3.3. Basic Fauna Survey Methodology

Field survey work was carried out by Bianca Theyer (Senior Ecologist) on the 7th October 2021, and 24th November 2021 with assistance from Dr. Karlene Bain (Senior Zoologist / Wildlife Ecologist) 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.

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

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

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

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

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

3.4.1 Surveys for Breeding Hollows

Carnaby's Cockatoo 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.

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 Surveys for Roosting Habitat

There is currently an absence of criteria within the EPBC Guidelines (DSEWPaC, 2012) for assessing roosting habitat. In this survey, the presence of cockatoo feathers and faecal material were used as indicators of roosting activity.

The presence of roosting habitat if present was mapped in the field, and individual locations where roosting activity was encountered were GPS'd.

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

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

3.5. Fauna Survey Limitations and Constraints

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

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	No access restrictions were encountered.
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), heath mouse (*Pseudomys shortridgei*, VU) and dibbler (*Parantechinus apicalis,* EN) 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 12, Appendix B. Species-level detection probabilities are dealt with in the Threatened fauna Likelihood of Occurrence (LOO) in Table 12, Appendix B.
Survey techniques	Minor	Identifying hollows from the ground has limitations, as the full characteristics of a hollow are not evident (e.g., internal dimensions such as depth). The entrance dimensions and size of the branch / trunk into which the hollow was forming were used as indicators of the potential internal dimensions. The relative visibility of the canopy can also be limiting in identifying potential hollows, particularly where hollows are upward facing or obscured by foliage.
Experience of personnel	Nil	Bianca Theyer has 6 years of fauna survey experience through her role at Bio Diverse Solutions and has been mentored by Dr Karlene Bain (Wildlife Ecologist) during this time. She has experience assisting other Zoologists (Bush Heritage, Australian Wildlife Conservancy and DBCA) in a voluntary capacity with fauna monitoring surveys. Dr Karlene Bain has 26 years of fauna survey experience through roles in biodiversity survey, research and management working with State Government, State Natural Resource Management groups, Regional NRM groups, Research Institutions, and Private Industry.

4. Results – Desktop Assessment

4.1. Threatened and Priority Flora

The full species list compiled from all available data (Table 18, Appendix D) is based on observations from a broader area than the survey area and is likely to include species that would not occur in the actual survey area due to a lack of suitable habitat. The data also includes very old records and in some cases the species in question may have become locally or regionally extinct. Conservation categories for Threatened and Priority flora is presented in Tables 13 and 14, 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 57 Priority species were identified within the study area (30 km buffer). Of these, five species were assessed to be 'Likely' and 29 species as 'Possible' to occur. Refer to Table 10, Appendix B for likelihood of occurrence (LOO) analysis. Species that have previously been recorded within a 30 km radius of the survey area are shown in Figure 3.

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 15 and 16 in Appendix C. NatureMap and Protected matters search tool database searches are provided in Appendix E.

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, 2015a), which are outlined further below. Refer to Table 11, 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 5: 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 10km away from the coastline or distinct hydrological features that would allow for tidal interaction.

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, 2015b). 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* that 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 Approved Conservation Advice Guidelines (DoE, 2015b):

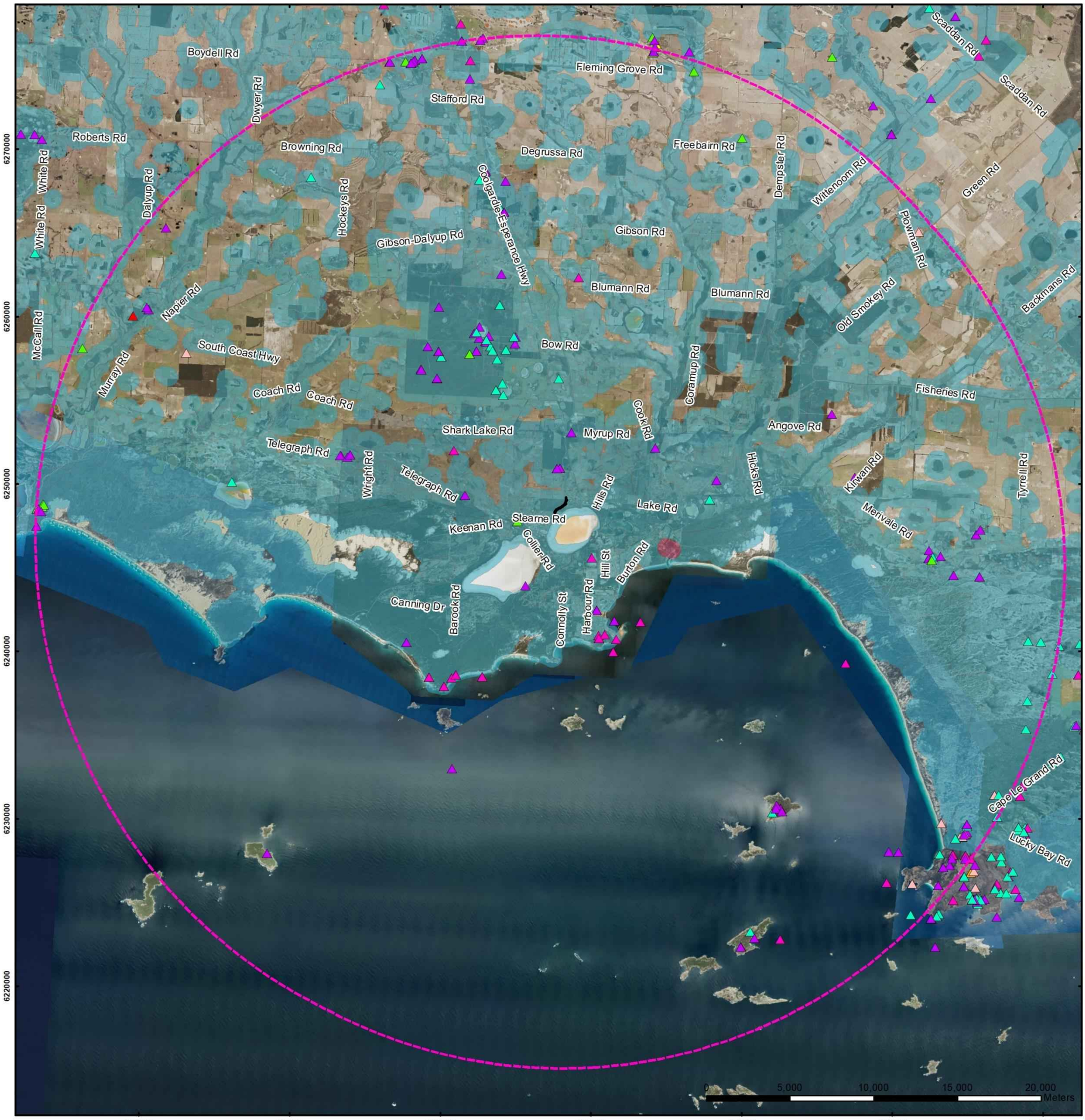
1) Occurs within the South Coastal Floristic Province (Hopper and Gioia, 2004); relating to south west phytogeographic boundaries. Includes Island of the Recherche Archipelago.
2) a) Characterised by Proteaceae species having 30% or greater cover of Proteaceae species across all layers of where shrubs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

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

Table 6: 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.



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

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

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

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-007	19/05/2022

Legend

- Survey Area
- 30km Study Area Buffer

Ecological Communities

State, Commonwealth

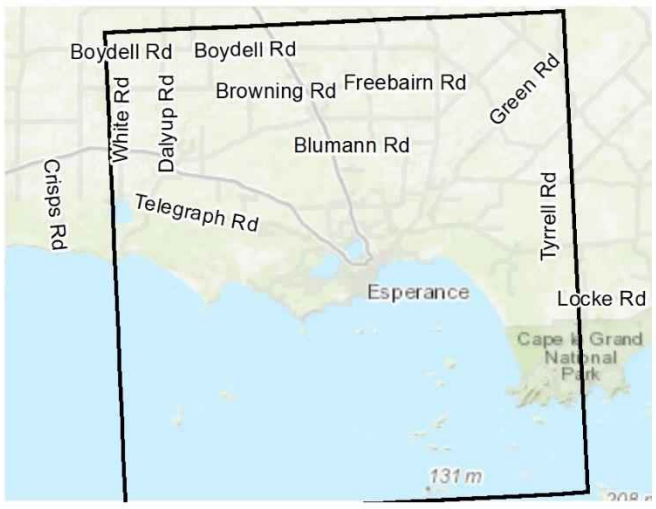
- Priority 3, Endangered
- Priority 3, Vulnerable

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

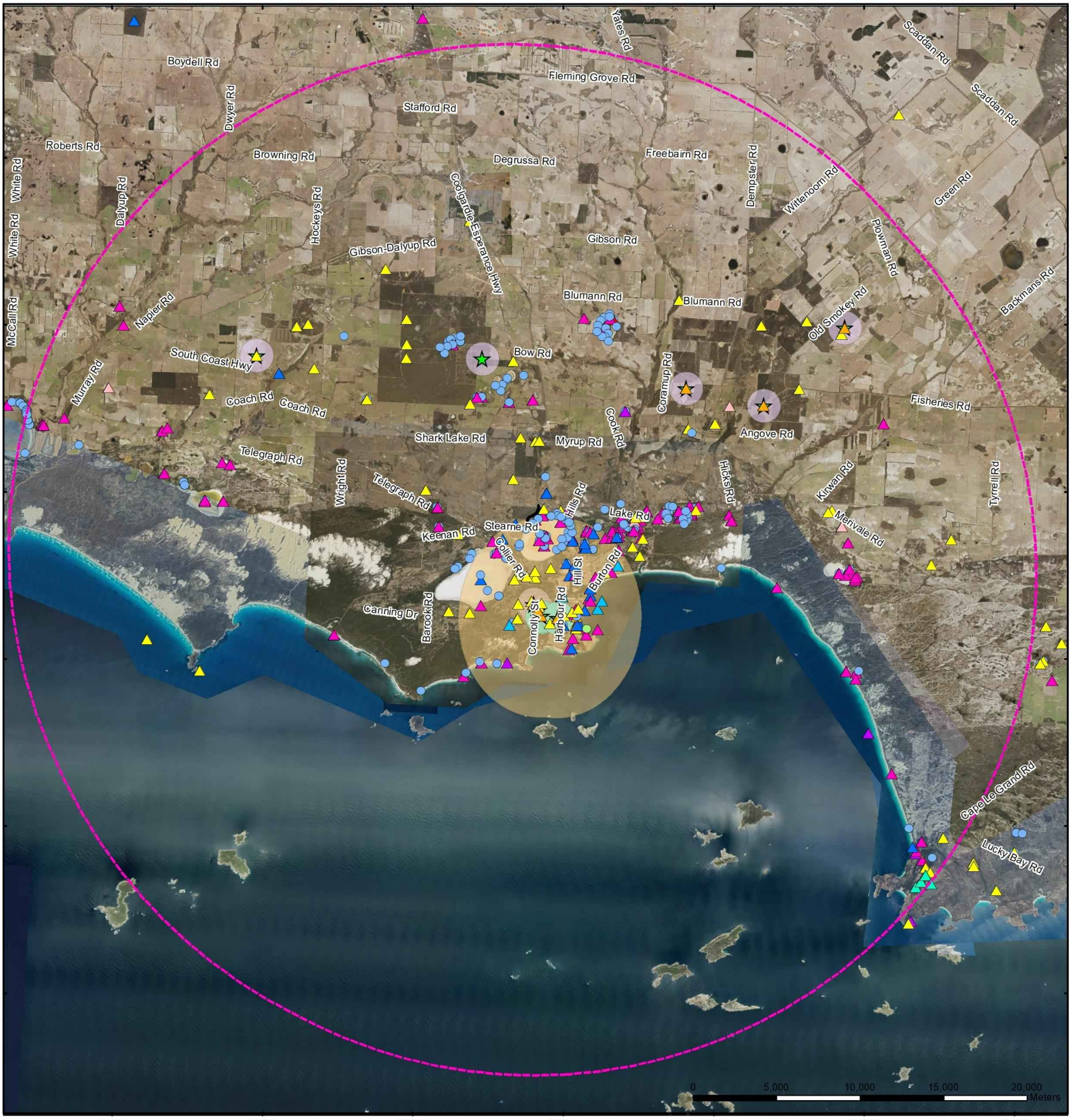
4.3. Fauna

The desktop assessment identified 88 species of conservation significance within 30 km of the survey area. Of these, 47 were Threatened taxa under the *BC Act 2016* and / or *EPBC Act 1999* (critically endangered, endangered, or vulnerable), 13 were Priority listed or specially protected taxa and 28 were migratory species protected under international agreements. Of the 47 Threatened taxa and 13 Priority taxa, 24 are also migratory species protected under international agreements (Table 12, Appendix B). Of these 88 species, one was assessed to be 'Likely' and 20 species as 'Possible' to occur in the pre-field likelihood of occurrence (LOO) analysis (Table 12, Appendix B). Species that have previously been recorded within a 30 km radius of the survey area are shown in Figure 3. Conservation categories for Threatened and Priority fauna are presented in Tables 13 and 14 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 12, 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

There are no known confirmed breeding sites within a 30 km radius of the survey area. DBCA data supplied by Arc Infrastructure indicates that nine black cockatoo roost sites have been located within 30 km of the survey area, the closest being approximately 5 km to the southeast (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 (374.75 – 376KM), Esperance to Gibson
Section 7, Site 13 - Lake Warden Reserve
Monjingup, WA 6448

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

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-007	19/05/2022

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 125 flora species, consisting of 41 families and 97 genera were found. The most commonly occurring families were Cyperaceae and Myrtaceae. The list includes 101 native species (refer to Table A10 Appendix D), and 24 introduced / alien species.

Plant identification was undertaken through the most relevant, current and available taxonomic literature, keys and herbarium reference specimens available (Blake, 2021; Brophy *et al.* 2013; Brundrett, 2014; Holliday, 2004; Hollister & Thiele, n.d.; ICPS, 2021; JSTOR, 2000-; Rye, 2013; WAH 1998 -; Young, 2021). All resources used were the most current to knowledge. Nomenclature used through this report follows the most recent scientific names through the Western Australian Herbarium (WAH, 1998-).

5.2. Vegetation Units

Seven vegetation units were identified during the survey period, with the descriptions below and relevé data presented in Appendix D. Refer to Figure 5 to 10 for photographs of vegetation units and Figure 11 for extent.

A large area of the survey area (1.04 ha, 52% of the survey area) was also historically cleared, consisting of bare ground or entirely non-native invasive species (mostly agricultural grasslands).

1. Vegetation unit: Coastal Shrubland [Coastal SL]

Vegetation Unit 1: Coastal SL is the typical coastal shrubland occurring across the Esperance Plains IBRA region. It is dominated by mixed Acacia species, such as *Acacia cyclops* and *Acacia saligna* with various other mixed shrublands, such as *Taxandria callistachys, Leucopogon obovatus* and *Hibbertia racemosa.* A dense sedgeland is also present, dominated bay *Hypolaena exsulca,* with scattered *Loxocarya striata* and *Mesomelaena tetragona.* This vegetation unit is typically highly variable and transient, often forming an alternate state post disturbance. It is located on deep grey sand with good drainage.

Vegetation Description (NVIS; DoEE, 2017): U ^^*Acacia saligna*, *Acacia cyclops*, +/- *Taxandria callistachys*\shrub\3\i; M ^^*Leucopogon obovatus*, *Hibbertia racemosa*, +/-*Taxandria spathulata*\shrub\3,2\c; G+ ^*Hypolaena exsulca*, +/-*Loxocarya striata*, *Mesomelaena tetragona* \sedge, grass\d

Vegetation Description (Muirs, 1977): *Acacia saligna, Acacia cyclops, Taxandria callistachys* Scrub, over *Leucopogon obovatus, Taxandria spathulata, Hibbertia racemosa* Heath A and B, over *Mesomelaena tetragona* Tall Sedges, over *Hypolaena exsulca, Loxocarya striata* and *Mesomelaena stygia* subsp. *stygia* Dense Low Sedges, *over Eragrostis curvula* Very Open Tall Grass, over *Briza maxima* Very Open Low Grass

Area: 0.402 ha.

Site description: Gentle to flat slopes, light grey to white sands to orange-brown with sand-loam. Good drainage. No rock cover present.

Condition: Very Good, Good, Degraded.

Represented in R1 and R5 (refer to Appendix D).

Figure 5: Vegetation Unit 1: Coastal Shrubland present within the survey area.

2. Vegetation unit: *Melaleuca thymoides* and *Acacia nigricans* Shrubland [Melthy and Acanig SL]

Vegetation Unit 2: Melthy and Acanig SL is characterised by dense shrubland dominated almost entirely of *Melaleuca thymoides* and *Acacia nigricans.* The dense shrubland creates a dark, shaded environment for the understorey, is dominated by shade tolerant species, such as *Machaerina juncea* and *Hypolaena exsulca.*

Vegetation Description (NVIS; DoEE, 2017): M+ ^^*Acacia nigricans*, *Melaleuca thymoides*, +/- *Phymatocarpus maxwellii*\shrub\2\d; G ^^*Machaerina juncea*, *Hypolaena exsulca*, *Anarthria scabra*\sedge\1\c

Vegetation Description (Muirs, 1977): *Acacia saligna, Acacia cyclops, Taxandria callistachys* Scrub, over *Leucopogon obovatus, Taxandria spathulata, Hibbertia racemosa* Heath A and B, over *Mesomelaena tetragona* Tall Sedges, over *Hypolaena exsulca, Loxocarya striata* and *Mesomelaena stygia* subsp. *stygia* Dense Low Sedges, over *Eragrostis curvula* Very Open Tall Grass, over *Briza maxima* Very Open Low Grass

Area: 0.015 ha.

Site description: Gentle slopes on flat Sandplain. Light grey sand. No rock cover present.

Condition: Very Good, Good.

Represented in R2 (refer to Appendix D).

Figure 6: Vegetation Unit 2: *Melaleuca thymoides* and *Acacia nigricans* Shrubland present within the survey area.

Figure 6 continued.

3. Vegetation unit: *Melaleuca cuticularis* Shrubland [Melcut SL]

Vegetation Unit 3: Melcut SL was located within an artificial drainage channel from the adjacent railway line. This creates a higher level of surface water, with semi-ephemeral standing water occurring. The Saltwater Paperbark, *Melaleuca cuticularis* dominates the overstorey, with scattered shrubs of *Melaleuca rigidifolia, Acacia saligna* and *Spyridium globulosum* and a sedgeland of *Machaerina juncea* and *Hypolaena exsulca.* Species present indicate that there is a higher access of water available, and could be considered as characteristic of riparian vegetation.

Vegetation Description (NVIS; DoEE, 2017): U+ ^*Melaleuca cuticularis*, *+/-Acacia cyclops*\shrub\4\c; M ^^*Melaleuca rigidifolia*, *Acacia saligna*, *+/-Spyridium globulosum*\shrub\2\i; G ^^*Machaerina juncea*, *Hypolaena exsulca*, *Eragrostis curvula*\sedge, grass\1\c

Vegetation Description (Muirs, 1977): *Melaleuca cuticularis* and *Acacia cyclops Thicket,* over *Melaleuca rigidifolia* and *Acacia saligna* Heath A and B, over *Hypolaena exsulca* and *Machaerina juncea* Very Open Low Sedges, over *Eragrostis curvula* Open Tall Grass, over *Briza maxima* Open Low Grass

Area: 0.031 ha.

Site description: Yellow/grey clay-sand. Drainage depression, that is seasonally wet. No rock cover present.

Condition: Degraded, Good.

Represented in R3 (refer to Appendix D).

Figure 7: Vegetation Unit 3: *Melaleuca cuticularis* Shrubland present within the survey area.

4. Vegetation unit: *Eucalyptus pleurocarpa* and Mixed Shrubland [Eucple MSL]

Vegetation Unit 4: Eucple MSL is characterised by the scattered presence of *Eucalyptus pleurocarpa* Mallee within the overstorey, and associated mixed Shrubland. This vegetation unit is typically highly diverse at both an alpha and beta level, with small areas present within the survey area unlikely to comprehensively represent the diversity or ecological community. Shrubs formed an open midstorey, including species such as *Leucopogon obovatus, Hakea trifurcata, Spyridium globulosum, Xanthorrhoea platyphylla, Allocasuarina humilis, Micromyrtus elobata* subsp. *elobata* and *Hibbertia racemosa.* A sparse understorey is present, with various sedges and herbs present. Overall, the vegetation structure is relatively open. Vegetation Unit 4: Eucple MSL was located on the lower slopes of the sandplain. Vegetation Unit 4: Eucple MSL had the potential to be Kwongkan TEC/PEC, but was not formally analysed via quadrat analysis. Section 3.1 provides further detail.

Vegetation Description (NVIS; DoEE, 2017): U ^*Eucalyptus pleurocarpa*, +/-*Nuytsia floribunda*\mallee\4\i; M+ ^^*Leucopogon obovatus*, *Hakea trifurcata, Spyridium globulosum*\shrub\3\i; G ^^*Neurachne alopecuroidea*, *Chamaescilla corymbosa*, *Mesomelaena tetragona*\grass, herb, sedge\1\bc.

Vegetation Description (Muirs, 1977): *Nuytsia floribunda* Low Woodland B, over *Eucalyptus pleurocarpa* Open Tree Mallee, over *Leucopogon obovatus, Hakea trifurcata* and *Spyridium globulosum* Scrub, over *Xanthorrhoea platyphylla* and *Allocasuarina humilis* Low Scrub A and B, over *Micromyrtus elobata* subsp. *elobata* and *Hibbertia racemosa* Dwarf Scrub D, over *Neurachne alopecuroidea* and *Briza maxima* Open Low Grass.

Area: 0.043 ha.

Site description: Orange to brown sand, with good drainage. Located within lower slopes of sandplain.

Condition: Very Good.

Represented in R4 (refer to Appendix D).

Figure 8: Vegetation Unit 4: *Eucalyptus pleurocarpa* and Mixed Shrubland present within the survey area.

5. Vegetation unit: *Nuytsia floribunda* and Mixed SL [Nuyflo MSL]

Vegetation Unit 5: Nuyflo MSL is characterised by the scattered presence of *Nuytsia floribunda* within the overstorey, and associated mixed Shrubland. This vegetation unit is typically highly diverse at both an alpha and beta level, with small areas present within the survey area unlikely to comprehensively represent the diversity or ecological community. A dense shrubland formed the midstorey and a dense sedgeland formed the understorey. Common shrub species present included *Leptospermum oligandrum, Adenanthos cuneatus* and *Hakea trifurcata.* Sedges present included *Lomandra hastilis, Caustis dioica* and *Lepidosperma squamatum.* Vegetation Unit 5: Eucple MSL was located within the transition zone between Vegetation Unit 4 sandplains in the lower slopes of the sandplain and the upper ridges. Vegetation Unit 5: Nuyflo MSL had the potential to be Kwongkan TEC/PEC, but was not formally analysed via quadrat analysis. Section 3.1 provides further detail. Additionally, there was incidental evidence of *Phytophthora cinnamomi* Dieback within this Vegetation Unit, observed through dead Proteaceae and *Xanthorrhoea platyphylla* plants.

Vegetation Description (NVIS; DoEE, 2017): U ^*Nuytsia floribunda*\tree\4\bc; M+ ^^*Leptospermum oligandrum*, *Adenanthos cuneatus*, *Hakea trifurcata* \shrub\3\d; G ^^*Caustis dioica*, +/- *Lepidosperma squamatum, Lomandra hastilis*\sedge\1,2\r.

Vegetation Description (Muirs, 1977): *Nuytsia floribunda* Open Low Woodland B, over *Leptospermum oligandrum, Adenanthos cuneatus* and *Hakea trifurcata* Dense Heath A and B, over *Lomandra hastilis* Very Open Tall Sedges, over *Caustis dioica* and *Lepidosperma squamatum* Very Open Low Sedges.

Area: 0.109 ha.

Site description: Yellow sand on sandplain ridge. Good drainage, soil moist. Gentle slope present.

Condition: Excellent, Very Good, Good.

Represented in R6 and 7 (refer to Appendix D).

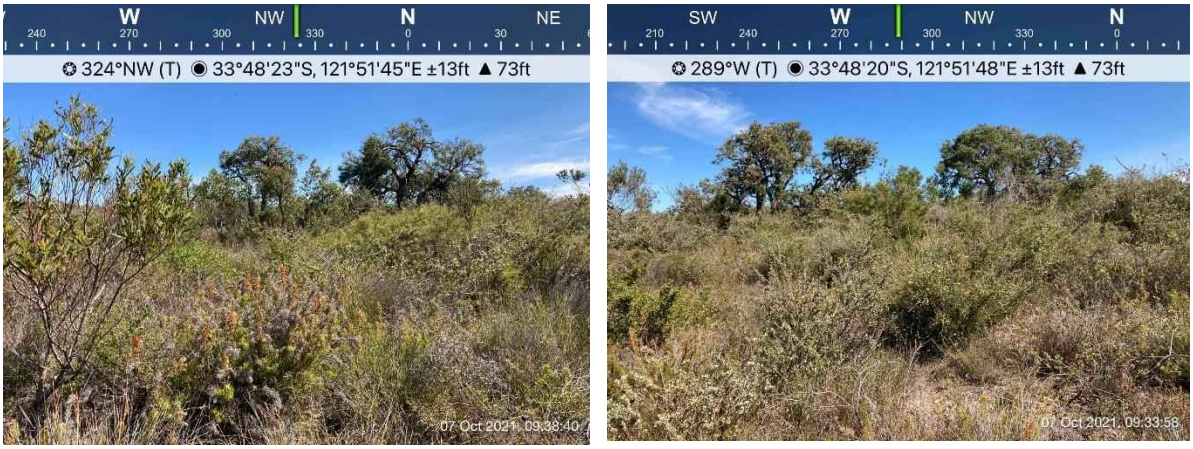


Figure 9: Vegetation Unit 5: *Nuytsia floribunda* and Mixed SL present within the survey area.

Figure 9 continued.

6. Vegetation Unit: Invasive Grassland and Shrubland [Invasive GL SL]

Vegetation Unit 6: Invasive GL SL consists of a novel ecosystem, dominated by invasive species within historically disturbed areas. Disturbance opportunists or clonal native species are scattered throughout, but have likely regenerated following clearing. Within the survey area, this primarily occurs directly adjacent to access tracks or where slashing has occurred, for the purpose of sight-lines. Common novel ecosystem complexes are listed below:

- Invasive *Eragrostis curvula* (African Lovegrass) dominated grassland. Scattered natives present include *Hypolaena exsulca* and *Hypolaena fastigiata.*
- Invasive *Pelargonium capitatum* (Rose Pelargonium) low shrubland and *Ehrharta longifolia* (Annual Veldt Grass) grassland. Scattered natives present include *Acacia cyclops* and *Spyridium globulosum.*
- Invasive *Leptospermum laevigatum* (Victorian Tea Tree) dominated shrubland. Common scattered natives include *Acacia cyclops, Acacia saligna* and *Hypolaena exsulca.*

Area: 0.352 ha.

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

Condition: Completely Degraded.

a) b)

Figure 10: Vegetation Unit 6: Invasive Grassland and Shrubland present within the survey area.
a) Novel ecosystem dominated by *Eragrostis curvula* with scattered Hypolaena sp. b) Invasive species dominating, *Pelargonium capitatum* and *Ehrharta longifolia* with scattered *Acacia cyclops.* c) *Eragrostis curvula* dominating within an existing cleared access railway track. d) Shrubland dominated by *Leptospermum laevigatum*

c)

d)

Figure 10 continued.

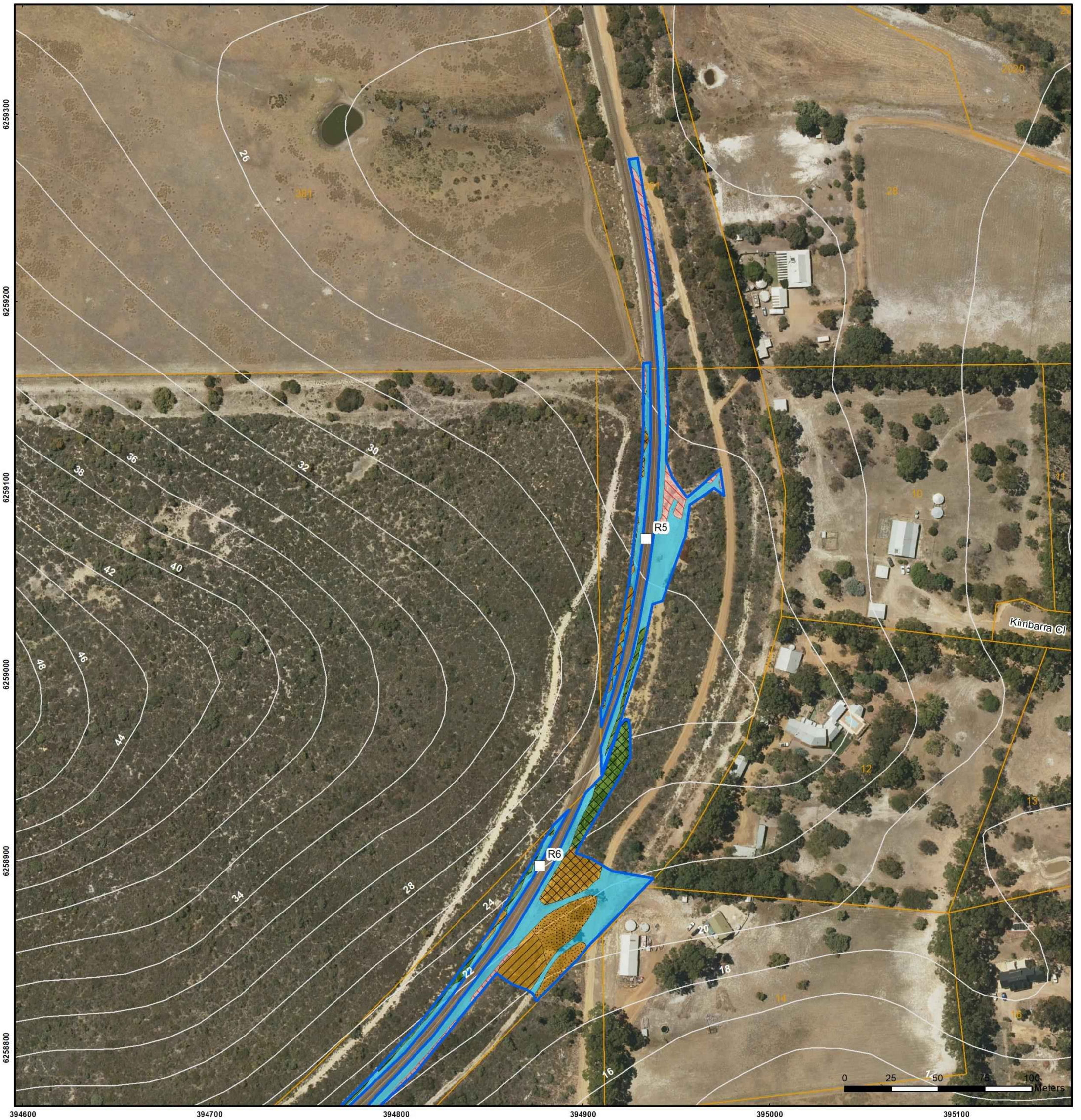
5.3. Vegetation Condition

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).

The native vegetation present within the survey area ranged from Completely Degraded to Excellent condition. These classification levels are related to degradation of structure and vegetation integrity by processes such as clearing, fire, weeds, grazing, Phytophthora Dieback and vehicle tracks. Scattered rubbish of railway materials and house-hold waste was also present throughout the area. Specific conditions present per vegetation unit are presented in Table 7. Incidental observations of *P. cinnamomi* Dieback was observed within Vegetation Unit 5: Nuyflo MSL.

Table 7: Vegetation condition rating.

Vegetation Unit	Condition rating	Area (ha)
1: Coastal Shrubland	Very Good	0.078
	Good	0.125
	Degraded	0.199
2: *Melaleuca thymoides* and *Acacia nigricans* Shrubland	Very Good	0.002
	Good	0.013
3: *Melaleuca cuticularis* Shrubland	Good	0.029
	Degraded	0.002
4: *Eucalyptus pleurocarpa* Mixed Shrubland	Very Good	0.043
	Good	0.003
5: *Nuytsia floribunda* Mixed Shrubland	Excellent	0.003
	Very Good	0.05
	Good	0.056
6: Invasive Grassland and Shrubland	Completely Degraded	0.352
Cleared		1.04
	Total	**1.995**



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BIO DIVERSE SOLUTIONS

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

Legend

- Survey Area
- Cadastre
- 2m Contours
- Releve

Vegetation Condition

- Very Good
- Good
- Degraded
- Completely Degraded

Vegetation Units

- 1: Coastal SL
- 5: Nuyflo MSL
- 6: Invasive GL SL
- Cleared

Overview Map Scale 1:100,000

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

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Figure 11A: Vegetation Units & Condition.

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-004**	**16/05/2022**

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BIO DIVERSE SOLUTIONS

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

Legend

- Survey Area
- Cadastre
- 2m Contours
- Releve

Vegetation Condition

- Very Good
- Good
- Degraded
- Completely Degraded

Vegetation Units

- 1: Coastal SL
- 2: Melthy and Acanig SL
- 3: Melcut SL
- 4: Eucple MSL
- 5: Nuyflo MSL
- 6: Invasive GL SL
- Cleared

Overview Map Scale 1:100,000

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

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Figure 11B: Vegetation Units & Condition.

	QA Check	Drawn by
	MLH	**BMT**
STATUS	FILE	DATE
FINAL	**AI005-004**	**16/05/2022**

5.4. Invasive Plants

Of the 125 flora species recorded within the survey area, 24 species are introduced. The full suite of weed species recorded is listed below in Table 8, with their corresponding ratings under the WA Weed Strategy (CALM, 1999), *BAM Act 2007* and the Australian Weeds Strategy (IPAC, 2017). 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 except Bridal Creeper (*Asparagus asparagoides*) are classed as 'Permitted – s11', while Bridal Creeper is rated as higher risk classed as a 'Declared Pest – s22(2) under the *BAM Act 2007* and as a Weed of National Significance (IPAC, 2017). Under the Environmental Weeds Strategy for Western Australia (CALM, 1999) Bridal Creeper, Rose Pelargonium, Victorian Tea Tree, African Lovegrass, and Hare's Tail Grass are listed as 'High', while Cape Weed, Smooth Cats Ears, Jersey Cudweed, Ursinia Cape Bluebell, Storksbill, Pine Tree, Wild Oats, Blowfly Grass and Annual Veldt Grass 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 in pristine to excellent condition.

Table 8: Weed species recorded from the survey area.

Family	Species	Vernacular	WA Weed Strategy rating (CALM 1999)	BAM Act 2007	Australian Weed Strategy (IPAC, 2017)
Asparagaceae	*Asparagus asparagoides*	Bridal Creeper	High	Declared Pest – s22(2)	Weed of National Significance
Asteraceae	*Arctotheca calendula*	Cape Weed	Moderate	Permitted (s11)	-
Asteraceae	*Erigeron sp.*	Fleabane	-	Permitted (s11)	-
Asteraceae	*Hypochaeris glabra*	Smooth Cats Ears	Moderate	Permitted (s11)	-
Asteraceae	*Hypochaeris radicata*	Flatweed	-	Permitted (s11)	-
Asteraceae	*Pseudognaphalium luteoalbum*	Jersey Cudweed	Moderate	Permitted (s11)	-
Asteraceae	*Sonchus sp.*	Daisy	-	Permitted (s11)	-
Asteraceae	*Ursinia anthemoides*	Ursinia	Moderate	Permitted (s11)	-
Campanulaceae	*Wahlenbergia capensis*	Cape Bluebell	Moderate	Permitted (s11)	-
Geraniaceae	*Erodium cicutarium*	Storksbill	Moderate	Permitted (s11)	-
Geraniaceae	*Pelargonium capitatum*	Rose Pelargonium	High	Permitted (s11)	-
Myrtaceae	*Agonis flexuosa*	Peppermint	-	Permitted (s11)	-
Myrtaceae	*Eucalyptus gomphocephala*	Tuart	-	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)	-

Table 8 continued.

Family	Species	Vernacular	WA Weed Strategy rating (CALM 1999)	BAM Act 2007	Australian Weed Strategy (IPAC, 2017)
Poaceae	*Avena fatua*	Wild Oats	Moderate	Permitted (s11)	-
Poaceae	*Briza maxima*	Blowfly Grass	Moderate	Permitted (s11)	-
Poaceae	*Eragrostis curvula*	African Lovegrass	High	Permitted (s11)	-
Poaceae	*Ehrharta longifolia*	Annual Veldt Grass	Moderate	-	-
Poaceae	*Lagurus ovatus*	Hare's Tail Grass	High	Permitted (s11)	-
Poaceae	*Lolium perenne*	Rye Grass	Low	Permitted (s11)	-
Primulaceae	*Lysimachia anagallis*	Pimpernel	-	-	-
Solanaceae	*Atropa belladonna*	Deadly Nightshade	-	Permitted (s11)	-

5.5. Presence of Conservation Significant Flora

No flora species of Priority or Threatened conservation status were identified within the survey area, with all species present identified as non-Threatened and common.

Additionally, numerous non-Threatened species were identified with close similarities to conservation listed species that were identified in the 30 km radius survey. Key rationale behind identification as non-Threatened are listed below, and are further expanded in Table 10 of Appendix B:

- *Astartea astarteoides* – Bears similarities to P3 *Astartea reticulata* and P2 *Astartea eobalta*, identified as 'Possible' in the desktop assessment. Was determined as non-Threatened *A. astarteoides* by the level of branching, flowers <6mm in length and leaves being too small.
- *Melaleuca viminea* subsp. *demissa* – Bears similarities to P2 *Melaleuca viminea* subsp. *adpressa*. Was determined as non-Threatened *M. viminea* subsp. *demissa* due to leaf arrangement.
- *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.
- *Conostylis seorsiflora* subsp. *seorsiflora* – Bears similarities to P2 *Conostylis seorsiflora* subsp. *longissima.* Was determined as being the non-Threatened subspecies due to the leaf size being too small, 2-9 cm opposed to 8-16cm of *C. seorsiflora* subsp. *longissima.*

5.6. Threatened and Priority Ecological Communities

One Threatened (TEC) and Priority (PEC) Ecological Community was identified as 'Likely' to occur in the 30 km desktop assessment, 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongkan)' (Section 4.2; Table 11, Appendix B).

Two vegetation units had the potential to meet Kwongkan TEC/PEC criteria, namely Vegetation Unit 4: Eucple MSL and 5: Nuyflo MSL. Analysis of proposed works and impact to the location and distribution of each of these vegetation units indicated that were present within linear corridors along the railway corridor and would not meet patch of threshold size criteria. Therefore, no further quadrat analysis occurred.

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 11 above).

During the survey, fauna were observed either directly (sighted) or indirectly via calls, or signs of presence such as tracks, runnels, scats, diggings, bones, feeding remains or tree scratching. A total of 37 taxa were recorded, including 20 birds, 10 invertebrates, four reptiles and three mammals. Refer to full fauna species list in Table 19 in Appendix D. No Threatened or Priority listed species were observed, however potentially suitable habitat was identified for thirteen species. One of these species, quenda (*Isoodon fusciventer,* P4), is considered 'Likely' to occur within the survey area. Six species including the fork-tailed swift (*Apus pacificus*, MI), Carnaby's Cockatoo (*Calyptorhynchus latirostris*, EN), letter winged kite (*Elanus scriptus*, P4), dibbler (*Parantechinus apicalis*, EN), western mouse (*Pseudomys occidentalis*, P4) and heath mouse (*Pseudomys shortridgei*, VU) are considered as 'Possible' to occur. The remaining six species including the Cape Arid *Atelomastix* millipede (*Atelomastix anancita*, VU), Brennan's A*telomastix* millipede (*Atelomastix brennani*, sp. nov, VU), Le Grand *Atelomastix* millipede (*Atelomastix grandis,* VU), Moir's A*telomastix* millipede, (*Atelomastix melindae*, VU), Comer's A*telomastix* millipede (*Atelomastix sarahae*, VU) were considered 'Unlikely' to occur within the survey area, due to the lack of observation of species presence within suitable habitat and the Cape Le Grand assassin spider (*Zephyrarchaea marki,* VU) was considered 'Unlikely' to occur within the survey area but may be present in areas immediately adjoining the survey area (see Appendix B, Table 12 for full details).

Vegetation unit 1 Coastal Shrubland [Coastal SL] provides suitable habitat for quenda, in areas where the vegetation condition is in 'Good' to 'Very Good' condition. Areas of this vegetation that are 'Degraded' generally lack an understorey and therefore lose their value for this particular species. Potentially suitable habitat is also present within vegetation unit 2; *Melaleuca thymoides* and *Acacia nigricans* Shrubland [Melthy and Acanig SL], vegetation unit 3 *Melaleuca cuticularis* Shrubland [Melcut SL], vegetation unit 4 *Eucalyptus pleurocarpa* and Mixed Shrubland [Eucple MSL], and vegetation unit 5 *Nuytsia floribunda* and Mixed SL [Nuyflo MSL]. These vegetation units extend further out into the immediately surrounding vegetation, where more intact vegetation is present. However, these areas do still provide habitat for this species within survey area. Runnels of suitable size for quenda were observed for this species however, the lack of other signs of quenda presence (diggings, scats) and the presence of a high quantity of rabbit (*Oryctolagus cuniculus*) activity suggests that the runnel network is being utilised primarily by rabbits and that, if present, quenda are likely to be transient.

Vegetation unit 1 'Coastal SL', vegetation unit 4 'Eucple MSL' and vegetation unit 5 'Nuyflo MSL' provide low quality potential habitat for the western mouse (P4), heath mouse (VU) and dibbler (EN). Multiple small murid- sized runnels were observed during the survey, indicating that there are small ground dwelling mammals within the survey area. Targeted surveys would be required for these species. Refer to Figure 13 for images of murid runnels, and Figure 14 for images of potential habitat for these species.

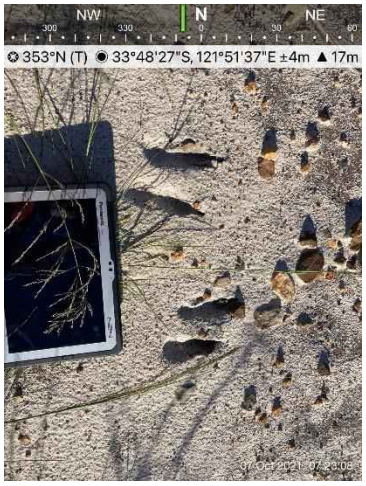
The survey area contains low-quality foraging habitat for Carnaby's Cockatoo (EN) within vegetation unit 1 'Coastal SL' and vegetation unit 4 'Eucple MSL'. No evidence of foraging was observed within these vegetation units and there is a low diversity of food species available. The survey area also contains scattered low quality feed species within other vegetation units; however these are of low quantity and are unlikely to provide an important food source for the species. Refer to section 6.2 for detailed foraging habitat assessment.

A small area of ironstone within the survey area provides potential habitat for the Cape Arid *Atelomastix* millipede (*Atelomastix anancita*, VU), Brennan's A*telomastix* millipede (*Atelomastix brennani*, sp. nov, VU), Le Grand *Atelomastix* millipede (*Atelomastix grandis,* VU), Moir's A*telomastix* millipede, (*Atelomastix melindae*, VU), Comer's A*telomastix* millipede (*Atelomastix sarahae*, VU) however there was no evidence of these species, despite intensive surveys for the species within this area.

Marginally suitable habitat was also detected for two conservation significant bird taxa including: the fork-tailed swift (MI) and letter-winged kite *(*P4). Habitat for these species occurs throughout the entire survey area, with areas of native vegetation providing daytime refuge and hunting habitat.

Activity from the introduced species fox (*Vulpes vulpes*) and rabbit were observed through diggings / scrapes, scats and tracks throughout the survey area (Figures 13 and 15).

a)



b)

c)

d)

e)

f)

g)

h)

i)

Figure 13: Photographs of evidence of fauna presence within the survey area.

a) to c) western grey kangaroo scats and tracks; d) bobtail track and fox prints e) rabbit scats / droppings; f) fresh rabbit scrapes / digging; g) murid runnel; h) and i) runnels (potential rabbit or quenda).

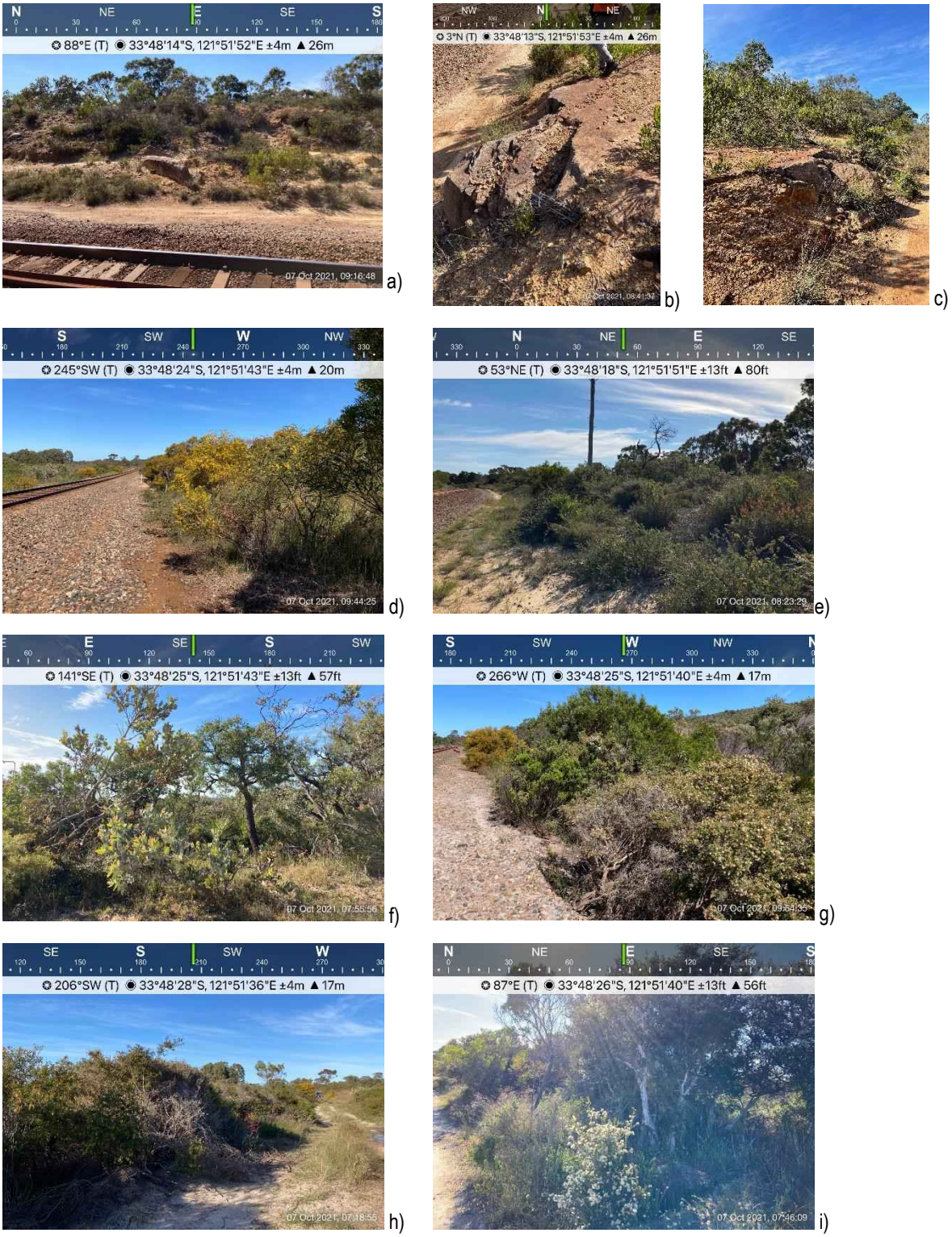


Figure 14: Photographs of suitable habitat for Threatened and Priority significant fauna within the survey area.
a) to c) small expression of ironstone within the survey area, providing low quality potential habitat for *Atelomastix* millipedes; d) and e) varying composition of 'Coastal Shrubland [Coastal SL]' vegetation unit within the survey area, providing very low quality foraging habitat for Carnaby's Cockatoo, and marginal habitat for quenda, dibbler, western mouse and heath mouse; f) and g) varying composition of *Eucalyptus pleurocarpa* and Mixed Shrubland [Eucple MSL] vegetation unit, providing low quality foraging habitat for Carnaby's Cockatoo and marginal habitat for quenda, dibbler, western mouse and heath mouse; h) Melaleuca thymoides and Acacia nigricans Shrubland [Melthy and Acanig SL] providing marginal habitat for quenda; i) Melaleuca cuticularis Shrubland [Melcut SL] providing marginal habitat for quenda.

j)

k)

Figure 14 continued.
j) Nuytsia floribunda and Mixed SL [Nuyflo MSL] providing marginal habitat for quenda, dibbler, western mouse and heath mouse.

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 evidence of foraging was observed within the survey area. The intact vegetation within Reserve 4181 adjoining the survey area visually appears to contain potential foraging habitat for Carnaby's Cockatoo and the species is more likely to feed within the Reserve. Carnaby's Cockatoo feed predominately on native shrubland, Kwongkan heathland and woodland dominated by proteaceous plant species such as *Banksia*, *Hakea*, and *Grevillea*, as well as in eucalypt woodlands and forest that contain food plants (DSEWPaC, 2012). There is low quality foraging habitat present within vegetation unit 1 'Coastal SL' and vegetation unit 4 'Eucple MSL, with some feed species scattered throughout the survey area. The lack of evidence of foraging detected within the survey area suggests that the site is not a favoured feeding area for Carnaby's Cockatoo. Overall, the survey area contains low quality foraging habitat due to the low diversity and low quantity of feed species available. The potential foraging habitat available for Carnaby's Cockatoos equates to approximately 0.450 ha which is 47.04% of mapped vegetation identified within the survey area.

No signs of roosting (accumulated scats or feathers) were observed within the survey area.

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Figure 15A: Fauna & Fauna Habitat Observed

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-007	2/06/2022

Legend

- Survey Area
- Cadastre
- 2m Contours

Vegetation Units

- 1: Coastal SL
- 5: Nuyflo MSL
- 6: Invasive GL SL
- Cleared

Fauna Habitat

- Rabbit warren
- Reptile burrow
- Rock outcrop
- Runnel
- Carnaby's Cockatoo Foraging Habitat - Marginal

Fauna Observed

- *Anthochaera lunulata*
- *Barnardius zonarius*
- *Cacomantis flabelliformis*
- *Cracticus torquatus*
- *Ctenotus labillardieri*
- *Eopsaltria griseogularis*
- *Gymnorhina tibicen*
- *Macropus fuliginosus*
- *Manorina flavigula*
- *Oryctolagus cuniculus*
- *Pseudonaja affinis affinis*
- *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

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Esperance Office:
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BIO DIVERSE SOLUTIONS

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

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

Figure 15B: Fauna & Fauna Habitat Observed

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-007	2/06/2022

Legend

- Survey Area
- Cadastre
- 2m Contours

Vegetation Units

- 1: Coastal SL
- 2: Melthy and Acanig SL
- 3: Melcut SL
- 4: Eucple MSL
- 5: Nuyflo MSL
- 6: Invasive GL SL
- Cleared

Fauna Habitat

- *Banksia speciosa*
- Murid runnel
- Rabbit warren
- Runnel
- Snake burrow
- Carnaby's Cockatoo Foraging Habitat - Marginal

Fauna Observed

- *Anas castanea*
- *Anas superciliosa*
- *Anthochaera carunculata*
- *Anthochaera lunulata*
- *Cacomantis flabelliformis*
- *Chrysococcyx basalis*
- *Cracticus torquatus*
- *Ctenotus labillardieri*
- *Macropus fuliginosus*
- *Notechis scutatus*
- *Oryctolagus cuniculus*
- *Phylidonyris novaehollandiae*
- *Rhipidura albiscapa*
- *Rhipidura leucophrys*
- *Tiliqua rugosa*
- *Vulpes Vulpes*
- *Zosterops lateralis*

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 survey area, as well as Threatened/Priority ecological communities, and to provide an assessment on vegetation types and their general condition. Six vegetation units were recorded within the survey area, namely 1: Coastal Shrubland, 2: *Melaleuca thymoides* and *Acacia nigricans* Shrubland, 3: *Melaleuca cuticularis* Shrubland, 4: *Eucalyptus pleurocarpa* Mixed Shrubland, 5: *Nuytsia floribunda* Mixed Shrubland, and 6: Invasive Grassland and Shrubland. These vegetation units broadly align with different habitat types, and at a local level are primarily driven by position within the topographical landscape, soil type, hydrological regimes and historical disturbance resulting in degradation and novel ecosystems (as represented in Vegetation Unit 7: Invasive GL and SL). Incidental observations of *Phytophthora cinnamomi* Dieback was observed within Vegetation Unit 5: Nuyflo MSL.. It is recommended that biosecurity principles and strict clean down occurs to present the spread of invasive species and plant pathogens.

A total of 64 significant flora species were identified in the desktop assessment, consisting of 7 Threatened and 57 Priority species. Of these, 5 species were identified as 'Likely' to occur and 29 as 'Possible' to occur. Numerous minor limitations were present for a number of species identified as 'Likely' or 'Possible' to occur in the Likelihood of Occurrence assessment, mainly relating to species flowering outside of the spring season, limited information on undescribed or poorly understood species and fire ephemeral species.

A total of 125 species of flora were recorded, consisting of 101 native species and 24 introduced/non-native species. This indicates the extremely high level of biodiversity recorded within the area, as is typical for the Esperance Sandplain bioregion. Of the 24 invasive species, one species was identified that is listed as 'Declared Pest – s22(2) under the *BAM Act 2007* and is a Weed of National Significance (IPAC, 2017); *Asparagus asparagoides*, Bridal Creeper. No species identified within the survey area were listed as Priority or Threatened, and are all considered common and non-Threatened.

Two Threatened/Priority Ecological Communities were identified in the desktop assessment, namely 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province (Kwongan)' TEC/PEC and 'Subtropical and Temperate Coastal Saltmarsh (CSM)' TEC/PEC. Of these, Kwongkan had the potential to occur within two vegetation units, namely Vegetation Unit 4: Eucple MSL and 5: Nuyflor MSL. Analysis of proposed works and impact to the location and distribution of each of these vegetation units indicated that were present within linear corridors along the railway corridor and would not meet patch of threshold size criteria. Therefore, no further quadrat analysis occurred.

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 moderate level of fauna diversity was detected with a total of 37 taxa recorded, including 20 birds, 10 invertebrates, four reptiles and three mammals. No Threatened or Priority listed species were observed. Potential habitat was identified for thirteen species, one of which quenda (P4), is considered 'Likely' to occur within the survey area. Six species including the fork-tailed swift (MI), Carnaby's Cockatoo (EN), letter winged kite (P4), dibbler (EN), western mouse (P4) and heath mouse (VU) are considered to have a possible likelihood of occurrence. The remaining six species including the Cape Arid *Atelomastix* millipede (*Atelomastix anancita*, VU), Brennan's A*telomastix* millipede (*Atelomastix brennani*, sp. nov, VU), Le Grand *Atelomastix* millipede (*Atelomastix grandis,* VU), Moir's A*telomastix* millipede, (*Atelomastix melindae*, VU), Comer's A*telomastix* millipede (*Atelomastix sarahae*, VU) were considered 'Unlikely' to occur within the survey area, due to the lack of observation of species presence within suitable habitat and the Cape Le Grand assassin spider (*Zephyrarchaea marki,* VU) was considered 'Unlikely' to occur within the survey area but may be present in areas immediately adjoining the survey area (see Appendix B, Table 12 for full details).

Quenda prefer areas of dense heath and coastal scrub vegetation that is often swampy. Suitable vegetation / habitat was identified within vegetation unit 1: Coastal SL in areas in 'Good' to 'Very Good' condition. Other suitable habitat is also present within vegetation units 2: Melthy and Acanig SL, 3: Melcut SL, 4: Eucple MSL, and 5: Nuyflo MSL. The lack of other signs of quenda presence (diggings, scats) and the presence of a high quantity of rabbit activity suggests that the runnel network is being utilised primarily by rabbits and that, if present, quenda are likely to be transient. Although there is suitable habitat within the survey area, the vegetation immediately adjacent to the survey area is likely to hold more value as it appears to be more intact, and continuous in nature. The proposed clearing of the railway vegetation is unlikely to significantly impact the ability of this species to move throughout the immediate landscape.

There is marginally suitable habitat present for the western mouse, heath mouse and dibbler within vegetation units 1: Coastal SL, 4: Eucple MSL and 5: Nuyflo MSL. These species 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 and there are small patches of dense vegetation that meet the habitat requirements for these species. Given murid sized runnels and some mounds (expression of underground tunnels) were observed within the survey area, these species may be present. However, vegetation adjoining the survey area visually appears to contain higher quality and more continuous habitat for these three species and these areas are continuous with the small patches within the survey area that may be affected by the proposed railway clearing.

There is a low diversity and quantity of potential feed species within the survey area for Carnaby's Cockatoo, and the lack of foraging evidence suggests that the survey area is not a favoured feeding area. The *EPBC Act 1999* referral guidelines for the three Threatened black cockatoo species stipulates that a proposal should be referred for assessment if more than 1ha of high-quality habitat is to be removed. Given the habitat present is less than 1 ha and is not of high-quality, it is unlikely that works at this location alone would need to be referred for assessment under the EPBC Act 1999. However, the cumulative 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 daytime refuge and hunting habitat. Proposed clearing is unlikely to detrimentally affect these species.

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9. Appendices

Appendix A – Maps

Appendix B – Conservation Significant Values Likelihood of Occurrence Analysis

Appendix C – Conservation Status Definitions and Condition Scale

Appendix D – Species Lists and Relevé Data

Appendix E - NatureMap and EPBC Act PMST reports

Appendix A

Maps

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BIO DIVERSE SOLUTIONS

Scale
1:4,000 @ A3
GDA MGA 94 Zone 51

Legend

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

Pre European Vegetation (DPIRD_006)

- FANNY COVE_7048
- FANNY COVE_125

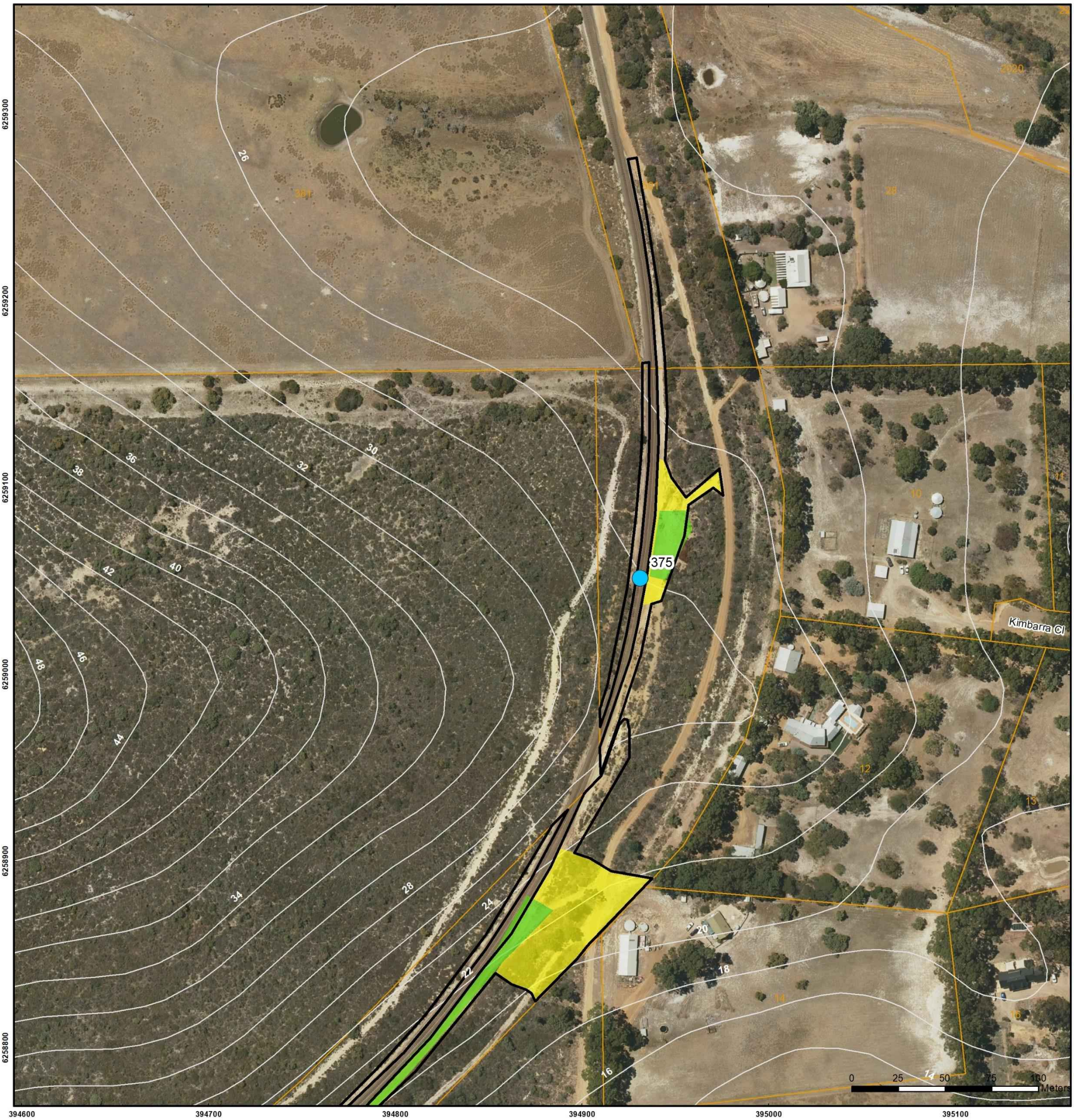
Overview Map Scale 1:100,000

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

Figure 16: Desktop Historical Vegetation

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS **FINAL**	*FILE* **AI005-007**	*DATE* **19/05/2022**



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GDA MGA 94 Zone 51

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Figure 17A: Environmental Risk Assessment Maps

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-007	19/05/2022

Legend

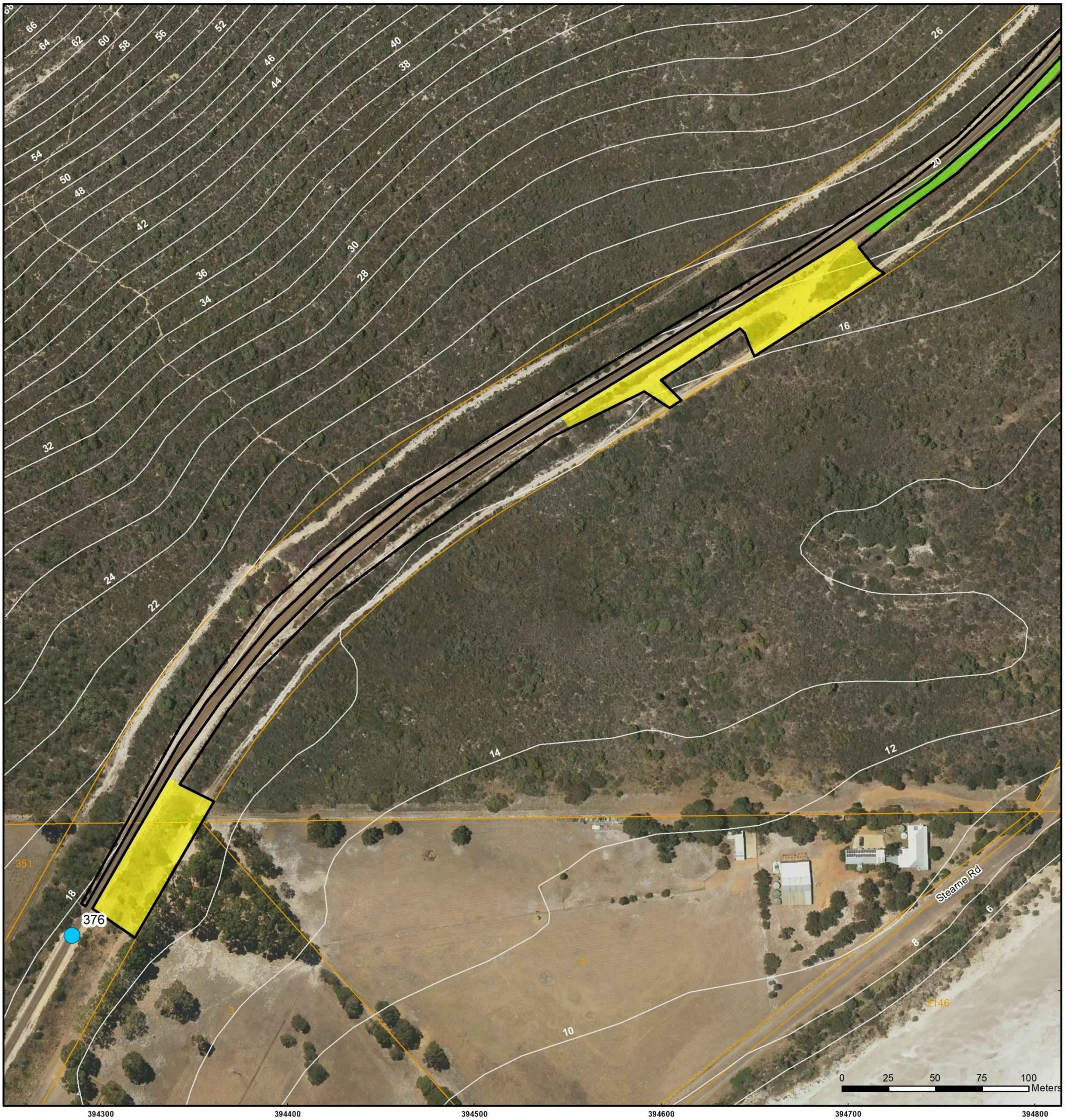
- Survey Area
- Cadastre
- Railway KM

Environmental Risk Assessment

- Green
- Red
- Yellow

Overview Map Scale 1:100,000

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



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BIO DIVERSE SOLUTIONS

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

Legend

- Survey Area
- Cadastre
- Railway KM

Environmental Risk Assessment

- Green
- Red
- Yellow

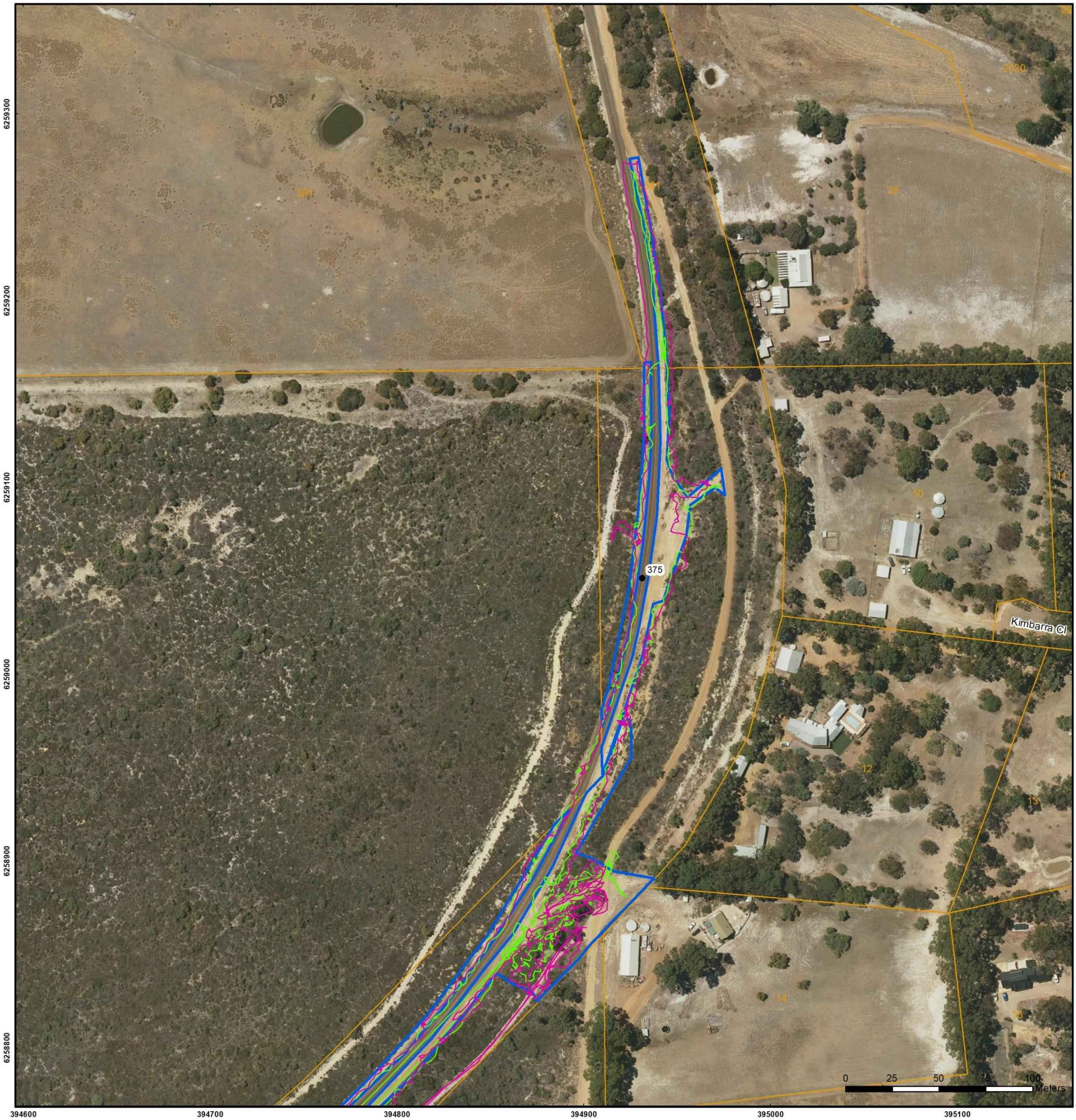
Overview Map Scale 1:100,000

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

Figure 17B: Environmental Risk Assessment Maps

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-007	19/05/2022

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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BIO DIVERSE SOLUTIONS

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

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

Figure 18A: Survey Effort

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-007	19/05/2022

Legend

- Survey Area
- Rail Kilometer Points
- Cadastre

Survey Effort

- Terrestrial Flora and Vegetation
- Terrestrial Vertebrate Fauna

Overview Map Scale 1:100,000

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

Albany Office:
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Denmark, WA 6333
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BIO DIVERSE SOLUTIONS

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

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

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

Figure 18B: Survey Effort

	QA Check	Drawn by
	MLH	**BMT**
STATUS **FINAL**	*FILE* **AI005-007**	*DATE* **19/05/2022**

Appendix B

Conservation Significant Values Likelihood of Occurrence Analysis

Table 9: 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 10: Potential conservation significant flora located within 30 km of the survey area and likelihood of occurrence analysis.
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; Euclid, n.d.; Gilmore, 2012; Hislop, 2014; JSTOR, 2000 - ; Rye, 2013; WAH, 1998 - ; WANOSCG, 1974 -).

Family	Species	Vernacular	Status (WA)	Nature Map	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Pre-Survey Likelihood d of Occurrence Analysis	Post-Survey Likelihood of Occurrence and Flora Survey Outcomes
Dilleniaceae	*Hibbertia turleyana*		P2	X		X	Procumbent shrub to 0.2 m high, to 0.35 m wide. Flowers yellow.	Dry white sand. Flats, seasonally wet areas.	August	Possible	Possible – limitation that survey conducted outside of flowering time. Due to being a shrub, possible was detected.
Ericaceae	*Styphelia rotundifolia*		P3	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	Possible – limitation that survey conducted outside of flowering time. Due to being a shrub, possible was detected.
Campanulaceae	*Lobelia archeri*		P1	X		X	Annual herb, small flower. Growing to around 40 cm (16") in height, it usually has a thin unbranched stem with several small pale blue flowers near the summit.	Upper slopes of tall non-calcareous sand hills, although odd plants can be found lower down after fire.	Post fire	Possible	Possible – significant limitations of detection due to species being fire ephemeral species.
Loganiaceae	*Adelphacme minima*		P3	X		X	Annual.	Small post fire.	Sept -Oct; Nov-Jan	Possible	Possible – significant limitations of detection due to species being fire ephemeral species.
Fabroniaceae	*Fabronia hampeana*		P2	X		X	Moss species. Silver green species.	Often growing on Macrozamia species. Mixed woodlands.		Outside of expertise of surveyors - don't cover moss.	Unlikely - lack of suitable habitat.
Orchidaceae	*Paracaleana parvula*	Esperance Duck Orchid	P2	X		X	Perennial, herb to 0.18 m high. Flowers yellow/green.	Deep white sands, plains. Distribution clustered towards Cape Arid and only single record in Esperance townsite vicinity.	Oct to Nov	Likely	Unlikely - Not detected; noted survey intensities and methodologies not consistent with CoA (2013).
Ericaceae	*Leucopogon corymbiformis*		P2	X		X	Open or erect low shrub with white flowers. <0.5 m high.	Associated with *Banksia speciosa* woodland and deep white sands.	Aug to Sept	Likely - suitable habitat present of deep sands and Banksia woodlands.	Unlikely – not detected. Minor limitation that survey on periphery of flowering time.
Orchidaceae	*Pterostylis faceta*	Esperance Bird Orchid	P3			X	Annual herb. Flowers green.	Mallee dominated shrubland, dense low heath. Mixed soil types.	Aug to Sept	Likely	Unlikely - Not detected; noted survey intensities and methodologies not consistent with CoA (2013). Minor limitation that survey on periphery of flowering time.
Ericaceae	*Leucopogon interruptus*		P3	X		X	Open or erect low shrub with white flowers. <0.5 m high.	associated with *Banksia speciosa* woodland and deep white sands.	Aug to Sept	Likely - suitable habitat present of deep sands and Banksia woodlands.	Unlikely – not detected. Minor limitation that survey on periphery of flowering time.
Goodeniaceae	*Dampiera sericantha*		P3	X		X	Erect, slender perennial, herb, 0.05-0.3(-0.6) m high, stems with blunt angles. Fl. Blue.	Sand, sometimes with gravel. Plains. Associated with disturbance.	May or Aug to Dec.	Likely - suitable habitat and often associated with disturbance.	Unlikely – not detected
Haemodoraceae	*Anigozanthos bicolor* subsp. *minor*	Small Two-coloured Kangaroo Paw	T - En	X	X	X	Rhizomatous, perennial, herb, 0.05-0.2 m high. Fl. Green & red.	Sand. Well-watered sites. Subcoastal freshwater sumps, off granite.	Aug to Oct	Possible - granite present within vicinity.	Unlikely – not detected
Cyperaceae	*Schoenus* sp. Grey Rhizome (K.L. Wilson 2922)		P1	X		X	Grass-like or herb (sedge), 0.06-0.08 m high.	Sandy clay, sand. Scattered subcoastal (<30 km of coastline) from Cape Arid to Albany.	Unknown - limited information	Possible	Unlikely – not detected
Ericaceae	*Styphelia coelophylla*		P1	X			Erect shrub, 0.3-0.6 m high. Flowers pink/white.	Gravelly sandy soils.	Sep to Nov.	Possible	Unlikely – not detected
Iridaceae	*Patersonia inaequalis*		P2	X		X	Rhizomatous, tufted perennial, herb, 0.2-0.4 m high. Fl. White.	Sandy clay, lateritic or granitic sand.	Aug to Oct.	Possible	Unlikely – not detected

Table 10 continued.

Family	Species	Vernacular	Status (WA)	Nature Map	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Pre-Survey Likelihood d of Occurrence Analysis	Post-Survey Likelihood of Occurrence and Flora Survey Outcomes
Polygalaceae	*Comesperma griffinii*		P2	X		X	Annual or perennial herb to 0.15 m high. Flowers white.	Yellow or grey sands, plains. Very wide and scattered distribution from Geraldton to Esperance.	Oct	Possible	Unlikely – not detected
Polygalaceae	*Comesperma lanceolatum*		P2	X			Upright, spreading shrub. 0.1-0.33 nm high. Flowers blue.	White sand, marine plains, sand dunes, quartzite ridges.	Nov	Possible	Unlikely – not detected
Rhamnaceae	*Spyridium mucronatum* subsp. *multiflorum*		P2	X		X	Erect or spreading shrub, 0.15-0.6 m high. Fl. white-cream-yellow.	Gravelly loam or clay.	Oct to Dec or Jan	Possible	Unlikely – not detected
Proteaceae	*Isopogon alcicornis*	Elkhorn Coneflower	P3	X		X	Low, lignotuberous shrub, 0.3-0.5 m high to 0.6 m wide. Flowers yellow, white, pink. Distinctive shaped leaves forming cluster. No distinct stems.	Sandy soils, skeletal loam, sandhills, sandplains.	Oct to Dec or Feb	Possible	Unlikely – not detected
Lamiaceae	*Pityrodia chrysocalyx*		P3	X		X	Erect, branched shrub, 0.3-0.75(-1) m high. Fl. White.	Sandy soils.	Aug to Oct	Possible	Unlikely – not detected
Malvaceae	*Commersonia rotundifolia*	Round Leaved Rulingia	P3	X		X	Shrub to 1.5 m high. Semi-erect. Cream flowers, white calyx with green base. Petals cream, ligule on green base, staminodes white. Dull green leaves.	Open Eucalyptus woodland and shrubs, with *Eucalyptus platypus* or other Mallee or Mallet species. Well drained grey brown loams.	Oct to Dec	Possible	Unlikely – not detected
Myrtaceae	*Eucalyptus semiglobosa*		P3	X		X	Mallee to 6 m, bark smooth grey over tan. Flowers cream-white-yellow.	White sand over laterite, silty sand on edge of granite shelf, limestone. Hillslopes, gullies, cliffs.	June and Oct to Dec	Possible	Unlikely – not detected
Proteaceae	*Persoonia scabra*		P3	X		X	Clumped, spreading shrub. Fl. Yellow.	Gravelly loam, sandy soils. Slopes. Mixed soil types. Eucalyptus, Allocasuarina or Agonis woodlands.	Sep to Nov	Possible	Unlikely – not detected
Brassicaceae	*Lepidium fasciculatum*	Bundled Peppercress	P3	X		X	Erect annual, herb, (0.1-)0.3-0.6 m high.	Widespread but scattered. Across southern Australia.	Flowers mostly spring.	Possible	Unlikely – not detected
Centrolepidaceae	*Centrolepis cephaloformis* subsp *murrayi*		P3	X		X	Annual herb forming dense, rounded tufts 4-25 mm across to 0.01 n high.	Moss, salt flats, sand, granite.	Aug to Oct	Possible	Unlikely – not detected
Ericaceae	*Leucopogon apiculatus*		P3	X		X	Erect, open-branched shrub, 0.3-2 m high. Fl. white/pink.	Skeletal sandy or stony soils over quartzite or granite. Granite outcrops & hills, quartzite ridges, rocky slopes.	Jul to Nov	Possible	Unlikely – not detected
Fabaceae	*Daviesia pauciflora*		P3	X		X	Diffuse, many stemmed, sprawling shrub. 0.3-0.8 m high. Lacking formal leaves. Flowers 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
Poaceae	*Austrostipa mundula*		P3	X		X	Perennial caespitose grass to 0.5 m.	Sandy to clay loams and limestone in grassland, heathland, shrubland and Mallee.		Possible	Unlikely – not detected
Haloragaceae	*Gonocarpus pycnostachyus*		P3	X		X	Erect annual herb, 0.1-0.15 m high. Flowers green-red.	Sand or clay soils. Wet depressions, granite rock.	Oct	Possible - granite present within vicinity.	Unlikely – not detected
Myrtaceae	*Astartea reticulata*		P3	X		X	Single-stemmed or basally branched shrub 0.7–1.5 m tall. Fl. pale pink or white.	Occurs in winter-wet depressions or near watercourses along the coastal plain, commonly associated with the paperbark species *Melaleuca cuticularis.*	late November to January.	Possible - likely to be freshwater lens off granite and north of lakes.	Unlikely – not detected. Similar non-Threatened *Astartea astarteoides* determined to be present due to branching structure and size of leaves and flowers.
Boraginaceae	*Myosotis australis*	Southern Forget me not	P4	X			Erect or procumbent annual, herb, up to 0.3 m high. Fl. white/blue.	Grey sand over limestone.	Aug to Nov	Possible	Unlikely – not detected

Table 10 continued.

Family	Species	Vernacular	Status (WA)	Nature Map	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Pre-Survey Likelihood of Occurrence Analysis	Post-Survey Likelihood of Occurrence and Flora Survey Outcomes
Myrtaceae	*Eucalyptus preissiana* subsp. *lobata*	Lobe Fruit Mallee	P4	X		X	Mallee to 2.5 m high. Bark smooth. Flowers yellow.	Sand. Coastal limestone rises and sand dunes.	Nov	Possible	Unlikely – not detected
Myrtaceae	*Eucalyptus x missilis*		P4	X		X		Sand over limestone or granite. Coastal sites.	Jan-Apr	Possible	Unlikely – not detected
Proteaceae	*Grevillea baxteri*	Cape Arid Grevillea	P4	X		X	Erect to spreading shrub. 0.8-4 m high. Large and bushy form. Toothbrush grevillea form, flower colour yellow-orange-brown-red.	Sand, sandplains. Wide associated vegetation type. Often associated with gravel.	Feb or May to Jul or Sept to Dec	Possible	Unlikely – not detected
Anarthriaceae	*Hopkinsia adscendens*		P3	X		X	Rhizomatous, perennial, herb to 0.4 m high.	Sand. Dry or seasonally damp habitats along streams.	Oct	Possible - possible freshwater lens or depression in general surrounding the two lakes.	Unlikely - lack of suitable habitat
Haloragaceae	*Myriophyllum muelleri*	Hooded Water Milfoil	P1	X		X	Slender, aquatic annual, herb. Stems to 0.6 m long. Flowers red.	Lagoons. Two records - Nambung River near Gingin and pond off South Coast Hwy.		Possible	Unlikely - lack of suitable habitat
Euphorbiaceae	*Ricinocarpos trichophorus*	Barrens Wedding Bush	T - En		X		Erect, openly branching shrub, 0.3-1 m high. Fl. White.	Sandy clay, loam. Breakaways, among sandstone rocks.	May or Aug to Sep	Unlikely	Unlikely
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
Proteaceae	*Lambertia echinata* subsp. *echinata*	Prickly Honeysuckle	T - En	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 Grand, and lack of suitable habitat without granite or rise present.	Unlikely
Myrtaceae	*Eucalyptus insularis* subsp. *continentalis*	Twin Peak Island Mallee	T - En	X	X		Slender stemmed tree to 2m. Smooth bark.	Known from four populations east of Esperance in Cape Le Grand.	May to June and August	Unlikely - entirely restricted around Cape Le Grand.	Unlikely
Myrtaceae	*Eucalyptus merrickiae*		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 - lack of suitable habitat of inland Scaddan saltlakes, coastal salt lakes not suitable habitat.	Unlikely
Euphorbiaceae	*Beyeria physaphylla*		P1	X		X	Shrub, to 0.5 m high. Scraggly. Flowers axial, separate male and female flowers.	Restricted to Scaddan. Grows in Mallee Eucalypt with Melaleuca, Hakea and Leptospermum sp. On grey sandy soil on edge of salt lakes.	Sept	Unlikely - lack of suitable habitat of inland saltlakes and distribution significantly further north in Scaddan area.	Unlikely
Myrtaceae	*Cyathostemon* sp. Esperance (A. Fairall 2431)		P1	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	Unlikely - lack of suitable habitat of inland Scaddan saltlakes, coastal salt lakes not suitable habitat.	Unlikely
Myrtaceae	*Darwinia* sp. Gibson (R.D. Royce 3569)		P1	X		X	Compact shrub to 0.4 m high. Flowers yellow/orange. Small succulent looking shrub.	Grey-brown sandy clay and white sand on margins of salt lake.	Jun to July	Unlikely - lack of suitable habitat of inland Scaddan saltlakes, coastal salt lakes not suitable habitat.	Unlikely
Goodeniaceae	*Goodenia quadrilocularis*		P2	X		X	Erect, slender, woody perennial, herb, 0.3-1 m high. Fl. Yellow.	Sand. Sand dunes, granite slope & outcrops.	Sep to Dec	Unlikely - distribution restricted to Cape Le Grand and Cape Arid on granite and coastal. Lack of suitable habitat.	Unlikely

Table 10 continued.

Family	Species	Vernacular	Status (WA)	Nature Map	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Pre-Survey Likelihood of Occurrence Analysis	Post-Survey Likelihood of Occurrence and Flora Survey Outcomes
Goodeniaceae	*Dampiera decurrens*		P2	X		X	Stiff, robust perennial, herb, 0.1-1 m high. Fl. Blue.	Sandy soils. Granite rocks.	Sep to Dec or Jan	Unlikely - distribution restricted to Cape Le Grand on granite and coastal. Lack of suitable habitat.	Unlikely
Fabaceae	*Acacia incanicarpa*		P2				Shrub, 1-2 (to 2.5) m high. Flower yellow.	Loamy sand, granitic slopes and ridges.	Nov to Dec or Jan or Apr	Unlikely - entirely restricted around Cape Le Grand.	Unlikely
Chenopodiaceae	*Tecticornia indefessa*		P2	X		X	Prostrate, perennial shrub, 0.05-0.15 m high.	White to brown-grey sand. Near the edges of salt lakes.		Unlikely - lack of suitable habitat of inland Scaddan saltlakes, coastal salt lakes not suitable habitat.	Unlikely
Ericaceae	*Astroloma* sp. Grass Patch (A.J.G Wilson 110)		P2	X		X	Multi-stemmed, domed shrub. 0.2-0.4 m high. Red flowers. Flowers facing upwards, very skinny leaves.	White/grey sand, edge of salt lake in Melaleuca thickets.	June to August	Unlikely - lack of suitable habitat of inland Scaddan saltlakes, coastal salt lakes not suitable habitat.	Unlikely
Goodeniaceae	*Goodenia exigua*		P2	X		X	Perennial, prostrate, compact and rhizomatous shrub. 3 cm high x 4 cm wide. Yellow flowers. Perennial herb, ground hugging, flowers white with purplish brown markings.	Edge of salt lakes or seasonally inundated plains. Grey clay. Occurs in the Stirling Ra. and at Moirs Inlet, W.A. Grows in saline clays.	Jan, Oct to Nov	Unlikely - lack of suitable habitat of inland Scaddan saltlakes, coastal salt lakes not suitable habitat.	Unlikely
Proteaceae	*Conospermum quadripetalum*		P2	X				Sandy clay, grey sand. Flats behind coastal hills.	Sept-Nov	Highly unlikely - recorded in the Albany and Augusta-Margret River region, distribution significantly far away from subject site.	Unlikely
Goodeniaceae	*Dampiera triloba*		P3	X		X	Erect, perennial herb or shrub to 0.5 m high. Flowers blue.	Lowlands or semi-wet areas, slopes on edge of lakes.	Aug to Dec	Unlikely - lack of suitable habitat of inland Scaddan saltlakes, coastal salt lakes not suitable habitat.	Unlikely
Ericaceae	*Conostephium marchantiorum*		P3	X		X	Erect, much branched shrub. 0.4-1.8 m high. Red, purple, brown and yellow flower. Bright green and hairy leaves.	White/grey sand. Plains on edges of salt lakes.	Mar or Jul or Nov	Unlikely - lack of suitable habitat of inland Scaddan saltlakes, coastal salt lakes not suitable habitat.	Unlikely
Ericaceae	*Brachyloma mogin*		P3	X		X	Compact shrub, 0.4 m high. Flowers red/pink/white.	Grey clayey sand. Swamp flat.	Jun	Unlikely - lack of suitable habitat of inland saltlakes.	Unlikely
Myrtaceae	*Eucalyptus foliosa*		P3	X		X	Mallee to 4 m high, bark smooth.	Grey/white sandy clay. Flats adjacent to salt lake. Distribution between Grass Patch and Gibson.	Recorded in Mar, Jun, Nov and Dec	Unlikely - lack of suitable habitat of inland Scaddan saltlakes, coastal salt lakes not suitable habitat.	Unlikely
Myrtaceae	*Kunzea salina*		P3	X		X	Low shrub <1 m. Very small leaves. Spreading shrub. Flowers white.	Adjacent to salt lake periphery in low shrub margin. Winter wet lowlands with grey sands. Saline water bodies.	Dec to Jan	Unlikely - lack of suitable habitat of inland Scaddan saltlakes, coastal salt lakes not suitable habitat.	Unlikely
Myrtaceae	*Melaleuca dempta*		P3	X		X	Shrub, 0.2-0.6 m high. White cream flowers. Rounder and more circular leaves to similar non-Threatened *Melaleuca calycina.*	Shrubland and mallee. White clayey soils. Sometimes recorded on salt lakes.	Aug	Unlikely - lack of suitable habitat of inland Scaddan saltlakes, coastal salt lakes not suitable habitat.	Unlikely
Rutaceae	*Boronia scabra* subsp *attenuata*		P3	X		X	Erect shrub, 0.3-0.6 m high, flowers 4- and 5-merous, sepals strongly hirsute, staminal filaments smooth. Fl. pink/red.	Sandy skeletal soils over granite. Among granite rocks.	Sept to Nov	Unlikely - only recorded in Cape Le Grand and on granite.	Unlikely

Table 10 continued.

Family	Species	Vernacular	Status (WA)	Nature Map	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Pre-Survey Likelihood of Occurrence Analysis	Post-Survey Likelihood of Occurrence and Flora Survey Outcomes
Polygalaceae	*Comesperma calcicola*		P3	X		X	Soft perennial herb, to 0.3 m high. Flowers pink.	Calcareous or semi-saline clay loams, limestone. Areas around saline water.	Oct to Dec or Jan	Unlikely - lack of suitable habitat of inland Scaddan saltlakes, coastal salt lakes not suitable habitat.	Unlikely
Myrtaceae	*Eucalyptus dolichorhyncha*	Fuchsia Mallee	P4	X		X	Mallee or tree, 1-5 m high. Flowers yellow. Distinct elongated operculum bud caps, differentiating from non-Threatened *Eucalyptus forrestiana.*	Sandy clay or clay. Flats. Mallee Woodlands.	Jan to Mar or May	Unlikely	Unlikely
Myrtaceae	*Eucalyptus aquilina*	Mt Le Grand Mallee	P4	X		X	Mallee or tree, 2-7 (to 10m) high, bark smooth, white and grey. Flowers white-cream.	Shallow soils over granite. Shallow valleys, creek beds and hillsides.	Apr to June or Oct	Unlikely - entirely restricted around Cape Le Grand.	Unlikely
Proteaceae	*Banksia prolata subsp. calcicola*		P4	X			Non-lignotuberous shrub, 0.4-1 m high. Fl. Yellow.	White sand over limestone. Coastal areas.	Jul to Sep.	Unlikely - lack of limestone as suitable habitat.	Unlikely
Frankeniaceae	*Frankenia glomerata*	Cluster Head Frankenia	P4			X	Prostrate shrub. Fl. pink-white.	White sand.	Nov	Unlikely - lack of suitable habitat of inland Scaddan saltlakes, coastal salt lakes not suitable habitat.	Unlikely
Fabaceae	*Kennedia beckxiana*	Cape Arid Kennedia	P4	X		X	Prostrate or twining shrub or climber. Fl. Red.	Sand, loam. Granite hills & outcrops.	Sep to Dec.	Unlikely - outside of known distribution in Cape Arid region.	Unlikely
Fabaceae	*Kennedia glabrata*	Northcliffe Kennedia	T - Vu		X		Prostrate shrub, 0.05-0.5 m high, to 5 m wide. Fl. Red.	Soil pockets, sandy soils. Granite outcrops.	Aug to Nov.	Highly unlikely - recorded west of Albany, over 500km. Lack of suitable habitat.	Unlikely

Table 11: Potential conservation significant ecological communities within 30 km of the survey area and likelihood of occurrence analysis (post survey).

Community Name	Status		Description	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence and Survey Outcome
	EPBC Act 1999	BC Act 2016			
Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia	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 Kwongan of the Esperance Sandplains, however particular species have been identified as common dominant species in each of its ecodistricts (DBCA, 2015b).	Likely	Possible – specifically Vegetation Unit 4: Eucple MSL and 5: Nuyflo MSL. Due to proposed impact only occurring on periphery linear corridors, no further quadrat analysis was conducted.
Subtropical and temperate coastal saltmarsh (synonymous with the Subtropical and Temperate Coastal Saltmarsh EPBC-listed 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). It occurs on the coastal margin, along estuaries and coastal embayment's and on low wave energy coast in places with at least some tidal connection, including rarely-inundated supratidal areas, intermittently opened or closed lagoons, and groundwater tidal influences. The community occurs on sandy or muddy substrate and may include coastal clay pans and similar habitats. It consists of dense to patchy areas of characteristic coastal saltmarsh plant species that include salt- tolerant herbs, succulent shrubs or grasses, and may also include bare sediment as part of the mosaic. It can occur where the proportional cover by tree canopy such as Mangroves, Melaleucas or Casuarinas or Seagrass is not greater than 50%. The description, area and condition thresholds that apply to the EPBC-listed TEC of the same name, also apply to this Priority ecological community (DoE, 2015a).	Unlikely - Survey area 10km from the coastline and no tidal interaction occurs.	Unlikely

Table 12: Potential Threatened and Priority 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	Likelihood of Detection if Present	Species Present	Comment
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.	Likely	Likely	Yes	High	Possible	Potential habitat available across entire survey area (with some variance in more degraded areas), within all vegetation types.
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	No	Potential diurnal refuge and foraging habitat across the 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	No	Marginal, (low quality) foraging habitat within the Coastal Shrubland [Coastal SL] and *Eucalyptus pleurocarpa* and Mixed Shrubland [Eucple MSL] vegetation units.
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	No	Potential diurnal refuge and hunting habitat across the survey area.
Dasyuridae	*Parantechinus apicalis*	Dibbler	EN / EN	Old-growth mallee heath. Prefer vegetation with a dense canopy greater than 1 m high which has been unburnt for at least 10 years or more.	Possible	Possible	Yes	Low	Possible	Marginal habitat available in the Nuytsia floribunda and Mixed SL [Nuyflo MSL], Eucalyptus pleurocarpa and Mixed Shrubland [Eucple MSL] and Coastal Shrubland [Coastal SL].
Muridae	*Pseudomys occidentalis*	Western Mouse	P4 / -	Historical distribution. Preference for long unburnt habitat (between 30 and 50 yrs) on sandy clay loam or sandy loam. Vegetation in suitable habitats is variable and includes sparse low shrubland, tall dense shrubland, sparse to dense shrub mallee and mid-dense woodland. All sites where the western mouse has been collected have had patches of extremely dense vegetation	Possible	Possible	Yes	Low	Possible	Marginal habitat available in the Nuytsia floribunda and Mixed SL [Nuyflo MSL], Eucalyptus pleurocarpa and Mixed Shrubland [Eucple MSL] and Coastal Shrubland [Coastal 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	Possible	Marginal habitat available in the Nuytsia floribunda and Mixed SL [Nuyflo MSL], Eucalyptus pleurocarpa and Mixed Shrubland [Eucple MSL] and Coastal Shrubland [Coastal SL].
Elapidae	*Acanthophis antarcticus*	Southern Death Adder	P3 / -	Mallee and coastal vegetation. Prefers sites with deep fixed leaf litter	Possible	Unlikely	No	Low	No	Although coastal habitat and areas of mallee are present, the lack of deep litter is a likely limiting factor for this species.
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	No	
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	No	

Table 12 continued.

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Pre Survey)	Likelihood of Occurrence (Post Survey)	Habitat Present	Likelihood of Detection if Present	Species Present	Comment
Iulomorphidae	*Atelomastix anancita*	Cape Arid atelomastix millipede	VU/-	Currently known from Le Grand National Park within the soil and beneath rocks in montane habitat	Unlikely	Unlikely	Yes	Moderate	No	Minimal rocky habitat within the survey area with the exception of a small expression of lowland ironstone. Rocky areas searched more intensely; species not identified.
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	Yes	Moderate	No	Minimal rocky habitat within the survey area with the exception of a small expression of lowland ironstone. Rocky areas searched more intensely; species not identified.
Iulomorphidae	*Atelomastix dendritica*	Recherche Atelomastix millipede	VU / -	This species is only known from two males collected from damp leaf litter on Woody Island in the Recherche Archipelago (Edward, K. L., and Harvey M. S. (2010).	Unlikely	Unlikely	No	High	No	
Iulomorphidae	*Atelomastix grandis*	Le Grand atelomastix millipede	VU/-	Currently known from from Le Grand National Park under rocks or in soil on granite outcrops and within Agonis heath	Unlikely	Unlikely	Yes	Moderate	Possible	Minimal rocky habitat within the survey area with the exception of a small expression of lowland ironstone. Rocky areas searched more intensely; species not identified.
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	Yes	Moderate	No	Minimal rocky habitat within the survey area with the exception of a small expression of lowland ironstone. Rocky areas searched more intensely; species not identified.
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	Yes	Moderate	No	Minimal rocky habitat within the survey area with the exception of a small expression of lowland ironstone. Rocky areas searched more intensely; species not identified.
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	Possible	Unlikely	No	High	No	
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	No	
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	Unlikely	No	High	No	
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.	Highly Unlikely	Unlikely	No	High	No	

Table 12 continued.

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Pre Survey)	Likelihood of Occurrence (Post Survey)	Habitat Present	Likelihood of Detection if Present	Species Present	Comment
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	No	
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	No	
Scolopacidae	*Calidris melanotos*	Pectoral Sandpiper	MI / MI	Shallow fresh to saline wetlands.	Unlikely	Unlikely	No	High	No	
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	No	
Scolopacidae	*Calidris tenuirostris*	Great Knot	CR / CR & MI	Intertidal mudflats and sandflats in sheltered coasts, including bays harbours and estuaries.	Unlikely	Unlikely	No	High	No	
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.	Possible	Unlikely	No	High	No	
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.	Possible	Unlikely	No	High	No	
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.	Possible	Unlikely	No	High	No	
Charadriidae	*Charadrius leschenaultii*	Greater Sand Plover	VU / VU & MI	Almost entirely coastal, inhabiting littoral and estuarine habitats. Mainly occur on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons. Seldom occur at shallow freshwater wetlands.	Unlikely	Unlikely	No	High	No	
Charadriidae	*Charadrius mongolus*	Lesser Sand Plover	EN / EN & MI	Inhabits large intertidal sandflats or mudflats in sheltered bays, harbours and estuaries, and occasionally sandy ocean beaches, coral reefs, wave-cut rock platforms and rocky outcrops.	Unlikely	Unlikely	No	High	No	
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	No	
Falconidae	*Falco hypoleucos*	Grey Falcon	VU / -	Usually in lightly timbered country, especially stony plains and lightly timbered acacia shrublands.	Possible	Unlikely	No	High	No	
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	No	
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	No	
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	No	
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	No	
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	High	No	

Table 12 continued.

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Pre Survey)	Likelihood of Occurrence (Post Survey)	Habitat Present	Likelihood of Detection if Present	Species Present	Comment
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	No	
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.	Highly Unlikely	Unlikely	No	High	No	
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	No	
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	No	
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.	Unlikely	Unlikely	No	High	No	
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	No	
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.	Possible	Unlikely	No	High	No	
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	No	
Anatidae	*Oxyura australis*	Blue-billed Duck	P4 / -	Prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation.	Unlikely	Unlikely	No	High	No	
Accipitridae	*Pandion cristatus*	Osprey, Eastern 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	No	
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	No	
Macropodidae	*Petrogale lateralis lateralis*	Black-flanked Rock-wallaby	EN / EN	Varies depending on distributional location. Habitat critical to their survivial is rocky substrates which have extensive development of multi-entranced caves, rock-piles and crevices that provide cool refuges from extremes of heat and protection from predators (DPaW, 2013).	Unlikely	Unlikely	No	High	No	
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	No	
Dasyuridae	*Phascogale calura*	Red Tailed Phascogale, Kenngoor	CD / VU	Inhabits Wandoo (Eucalyptus wandoo) and Sheoak (Allocasuarina huegeliana) woodland associations, with populations being most dense in the latter vegetation type. They show a preference for long unburnt habitat with a continuous canopy, as well as tree hollows.	Possible	Unlikely	No	High	No	
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	No	

Table 12 continued.

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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.	Possible	Unlikely	No	High	No	
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	No	
Elapidae	*Pseudonaja affinis* subsp. *tanneri*	Pygmy Dugite	P4 / -	Occurs on Boxer Island and Figure of Eight Island in the Recherche Archipelago. Similar habitat to mainland P. affinis including coastal dunes, heathlands, shrublands, woodlands and forests.	Highly Unlikely	Unlikely	No	High	No	
Laridae	*Sternula nereis nereis*	Australian Fairy Tern	VU / VU	Coastal areas and embayments of a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands and mainland coastline.	Unlikely	Unlikely	No	High	No	
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.	Unlikely	Unlikely	No	High	No	
Charadriidae	*Thinornis rubricollis*	Hooded Plover, Hooded Dotterel	P4 / -	Ocean sandy beaches and coastal lakes.	Highly Unlikely	Unlikely	No	High	No	
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.	Unlikely	Unlikely	No	High	No	
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	No	
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	No	
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	No	
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.	Unlikely	Unlikely	No	High	No	
Archaeidae	*Zephyrarchaea marki*	Cape Le Grand Assassin Spider	VU/-	Elevated leaf litter in *Banksia speciosa* thickets. Currently known from Cape Le Grand.	Possible	Unlikely	Yes	Low	Unlikely	Potential habitat immediately adjacent to the survey area in *Banksia speciosa* thickets
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	No	
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	No	
Procellariidae	*Ardenna tenuirostris*	Short-tailed Shearwater	MI / MI	Found in coastal waters.	Highly Unlikely	Highly Unlikely	No	High	No	
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	No	
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	No	
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	No	
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	No	
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	No	

Table 12 continued.

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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	High	No	
Procellariidae	*Halobaena caerulea*	Blue Petrel	- / VU	Pelagic, occasionally over shallow waters.	Highly Unlikely	Highly Unlikely	No	High	No	
Procellariidae	*Macronectes giganteus*	Southern Giant-Petrel	MI / VU & MI	Marine; Antarctic to subtropical waters.	Highly Unlikely	Highly Unlikely	No	High	No	
Procellariidae	*Macronectes halli*	Northern Giant Petrel	MI / EN & MI	Marine, oceanic; mainly in subantarctic waters.	Highly Unlikely	Highly Unlikely	No	High	No	
Procellariidae	*Pachyptila turtur subantarctica*	Fairy Prion (southern)	- / VU	Sub-antartic seas and islands while breeding. Subtropical seas non breeding time; rarely inshore expect when sheltering from storms.	Highly Unlikely	Highly Unlikely	No	High	No	
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	High	No	
Procellariidae	*Pterodroma mollis*	Soft-plumaged Petrel	- / VU	Is a marine, oceanic species.	Highly Unlikely	Highly Unlikely	No	High	No	
Stercorariidae	*Stercorarius antarcticus*	Brown Skua	P4 / -	Marine, oceanic species.	Highly Unlikely	Highly Unlikely	No	High	No	
Stercorariidae	*Stercorarius antarcticus lonnbergi*	Brown skua, Subantarctic skua	P4 / -	Marine, oceanic species.	Highly Unlikely	Highly Unlikely	No	High	No	
Stercorariidae	*Stercorarius parasiticus*	Parasitic jaeger	MI / MI	Nin nonbreeding months subtropical and sub-Antarctic seas, inshore waters, shallow waters of the continental shelf and into bays estuaries and harbours.	Highly Unlikely	Highly Unlikely	No	High	No	
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	No	
Diomedeidae	*Thalassarche cauta cauta*	Shy Albatross	VU / VU & MI	Marine species. Breeds on rock islands.	Highly Unlikely	Highly Unlikely	No	High	No	
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	No	
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	No	
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	No	
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	No	

Appendix C

Conservation Status Definitions and Condition Scale

Table 13: 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 14: 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 15: 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 16: 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 17: 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 18: Flora Species List recorded within survey area.

Family	Genus	Species	Subspecies	Common Name	Invasive	1 - Coastal SL	2 - Melthy and Acanig SL	3 - Melcut SL	4 - Eucple SL	5 - Nuyflo MSL
Aizoaceae	*Carpobrotus*	*virescens*		Coastal Pig Face		X				
Anarthriaceae	*Anarthria*	*scabra*				X	X			X
Araliaceae	*Trachymene*	*pilosa*		Native Parsnip		X	X		X	X
Asparagaceae	*Asparagus*	*asparagoides*		Bridal Creeper	X	X				X
Asparagaceae	*Lomandra*	*hastilis*				X	X		X	X
Asparagaceae	*Thysanotus*	*patersonii*		Twining Fringe Lilly						X
Asteraceae	*Arctotheca*	*calendula*		Cape Weed	X	X				
Asteraceae	*Erigeron*	sp.		Fleabane	X	X				
Asteraceae	*Hypochaeris*	*glabra*		Silky Cat Ears	X	X				
Asteraceae	*Hypochaeris*	*radiata*		Flatweed	X	X		X		
Asteraceae	*Pseudognaphalium*	*luteoalbum*		Jersey Cudweed	X	X				X
Asteraceae	*Rhodanthe*	*citrina*		Esperance everlasting		X				
Asteraceae	*Sonchus*	sp.		Daisy	X					
Asteraceae	*Ursinia*	*anthemoides*		Ursinia	X	X	X			X
Brassicaceae	*Raphanus*	sp.		Wild Radish				X		
Campanulaceae	*Wahlenbergia*	*capensis*		Capetown Blue Bell	X	X				
Casuarinaceae	*Allocasuarina*	*humilis*		Dwarf Sheoak		X			X	
Centrolepidaceae	*Centrolepis*	*polygyna*		Wiry Centrolepis				X		
Centrolepidaceae	*Centrolepis*	*strigosa*	*strigosa*	Hairy Centrolepis		X				
Crassulaceae	*Crassula*	*tetramera*				X			X	
Cupressaceae	*Callitris*	sp.				X				
Cyperaceae	*Caustis*	*dioica*		Puzzle Grass		X				X
Cyperaceae	*Chaetospora*	*curvifolia*				X		X		
Cyperaceae	*Cyathochaeta*	*equitans*		Tibetan Flag		X				
Cyperaceae	*Ficinia*	*nodosa*		Knotted Club Rush		X		X		
Cyperaceae	*Gahnia*	*trifida*		Coastal Saw Sedge		X				

Table 18 continued

Family	Genus	Species	Subspecies	Common Name	Invasive	1 - Coastal SL	2 - Melthy and Acanig SL	3 - Melcut SL	4 - Eucple SL	5 - Nuyflo MSL
Cyperaceae	*Isolepis*	*cernua*	var *cernua*					X		X
Cyperaceae	*Lepidosperma*	*squamatum*				X			X	X
Cyperaceae	*Lyginia*	*imberbis*				X	X			
Cyperaceae	*Machaerina*	*juncea*		Bare Twigrush		X	X	X		
Cyperaceae	*Mesomelaena*	*stygia*	*stygia*			X				
Cyperaceae	*Mesomelaena*	*tetragona*		Semaphore Sedge		X	X		X	X
Cyperaceae	*Schoenus*	*obtusifolius*								
Cyperaceae	*Schoenus*	*pleiostemoneus*								
Cyperaceae	sp.					X	X			
Cyperaceae	*Tricostularia*	*aphylla*		Medusa sedge						X
Dilleniaceae	*Hibbertia*	*andrewsiana*					X			X
Dilleniaceae	*Hibbertia*	*gracilipes*		Australian Buttercup		X				X
Dilleniaceae	*Hibbertia*	*racemosa*		Cut Leaf Hibbertia		X			X	X
Droseraceae	*Drosera*	*sargentii*		Pygmy Drosera				X		
Ericaceae	*Leucopogon*	*obovatus*				X	X	X	X	X
Ericaceae	*Leucopogon*	Sp. Coujinup (M. A. Burgman 1085)				X	X			X
Ericaceae	*Lysinema*	sp.		Curry Flower		X			X	X
Fabaceae	*Acacia*	*cochlearis*		Rigid Wattle				X		X
Fabaceae	*Acacia*	*cyclops*		Coastal Wattle		X				X
Fabaceae	*Acacia*	*nigricans*				X	X		X	
Fabaceae	*Acacia*	*saligna*		Orange Wattle		X		X		
Fabaceae	*Gompholobium*	*tomentosum*		Hairy Yellow Pea			X	X		X
Fabaceae	*Jacksonia*	*spinosa*				X	X			X
Fabaceae	*Jacksonia*	*viscosa*				X				

Table 18 continued

Family	Genus	Species	Subspecies	Common Name	Invasive	1 - Coastal SL	2 - Melthy and Acanig SL	3 - Melcut SL	4 - Eucple SL	5 - Nuyflo MSL
Gentianaceae	*Centaurium*	*erythraea*		Common Centaury		X				
Geraniaceae	*Erodium*	*cicutarium*		Storksbill	X	X				
Geraniaceae	*Pelargonium*	*capitatum*		Rose Pelargonium	X	X		X		
Goodeniaceae	*Dampiera*	*alata*		Winged Stem Dampiera						X
Haemodoraceae	*Anigozanthos*	*rufus*		Esperance Kangaroo Paw		X	X			
Haemodoraceae	*Conostylis*	*bealiana*		Angel Trumpet		X			X	
Haemodoraceae	*Conostylis*	*breviscapa*				X		X		
Haemodoraceae	*Conostylis*	*seorsiflora*	subsp. *seorsiflora*			X				X
Hemerocallidaceae	*Agrostocrinum*	*scabrum*		Blue Grass Lilly		X	X			
Hemerocallidaceae	*Chamaescilla*	*corymbosa*		Blue Squill					X	X
Hemerocallidaceae	*Dianella*	*brevicaulis*		Flax Lilly		X		X		
Hemerocallidaceae	*Dianella*	*revoluta*		Flax Lilly				X		
Iridaceae	*Patersonia*	*occidentalis*		Purple Flag					X	
Juncaceae	*Juncus*	sp.								
Lauraceae	*Cassytha*	sp.						X		
Loranthaceae	*Nuytsia*	*floribunda*		Munji; Christmas Tree		X			X	X
Malvaceae	*Alyogyne*	*hakeifolia*		Native Hibiscus				X		
Malvaceae	*Thomasia*	*angustifolia*		Narrow Leaved Thomasia		X				
Myrtaceae	*Agonis*	*flexuosa*		Peppermint	X	X				
Myrtaceae	*Astartea*	*astarteoides*				X	X		X	X
Myrtaceae	*Conothamnus*	*aureus*				X				X
Myrtaceae	*Eucalyptus*	*gomphocephala*		Tuart	X					X
Myrtaceae	*Eucalyptus*	*pleurocarpa*		Tallerack, Blue Mallee					X	

Table 18 continued

Family	Genus	Species	Subspecies	Common Name	Invasive	1 - Coastal SL	2 - Melthy and Acanig SL	3 - Melcut SL	4 - Eucple SL	5 - Nuyflo MSL
Myrtaceae	*Leptospermum*	*laevigatum*		Victorian Tea Tree	X	X		X		X
Myrtaceae	*Leptospermum*	*oligandrum*				X				X
Myrtaceae	*Melaleuca*	*brevifolia*				X				
Myrtaceae	*Melaleuca*	*cuticularis*		Saltwater Paperbark				X		
Myrtaceae	*Melaleuca*	*pentagona*						X		
Myrtaceae	*Melaleuca*	*pulchella*		Crab Claw Melaleuca				X		
Myrtaceae	*Melaleuca*	*rigidifolia*				X				
Myrtaceae	*Melaleuca*	*scabra*		Rough Honey Myrtle					X	
Myrtaceae	*Melaleuca*	*striata*				X			X	
Myrtaceae	*Melaleuca*	*thymoides*					X			
Myrtaceae	*Melaleuca*	*viminea*	*demissa*					X		
Myrtaceae	*Micromyrtus*	*elobata*	*elobata*			X	X		X	
Myrtaceae	*Oxymyrrhine*	*gracilis*								
Myrtaceae	*Phymatocarpus*	*maxwellii*					X			
Myrtaceae	*Taxandria*	*callistachys*				X		X		
Myrtaceae	*Taxandria*	*spathulata*				X			X	X
Orchidaceae	*Disa*	*bracteata*		South African Orchid	X	X				
Orchidaceae	*Diuris*	*laxiflora*		Bee Orchid			X			
Orchidaceae	*Microtis*	*familiaris*				X				
Orchidaceae	*Microtis*	*media*	*media*	Common Mignonette Orchid		X				
Phyllanthaceae	*Phyllanthus*	*calycinus*		False Boronia		X				
Pinaceae	*Pinus*	*radiata*		Pine Tree	X	X				
Pittosporaceae	*Billardiera*	*fusiformis*		Annual Blue Bell		X	X	X		X
Poaceae	*Austrostipa*	*elegantissima*				X				
Poaceae	*Avena*	*fatua*		Wild Oats	X	X				

Table 18 continued

Family	Genus	Species	Subspecies	Common Name	Invasive	1 - Coastal SL	2 - Melthy and Acanig SL	3 - Melcut SL	4 - Eucple SL	5 - Nuyflo MSL
Poaceae	*Briza*	*maxima*		Blowfly Grass	X	X			X	
Poaceae	*Eragrostis*	*curvula*		African Lovegrass	X	X	X			
Poaceae	*Ehrharta*	*longifolia*		Annual Veldt Grass	X	X	X			X
Poaceae	*Lagurus*	*ovatus*		Pussy Tails; Hare's Tail Grass	X	X				
Poaceae	*Lolium*	*perenne*		Ryegrass	X	X				
Poaceae	*Neurachne*	*alopecuroidea*		Mulga Foxtail		X			X	
Poaceae	*Rytidosperma*	*setaceum*				X				
Polygalaceae	*Comesperma*	*virgatum*		Milkwort		X	X	X		
Polygonaceae	*Muehlenbeckia*	*adpressa*		Climbing Lignum		X				
Primulaceae	*Lysimachia*	*anagallis*		Pimpernel	X	X				
Proteaceae	*Adenanthos*	*cuneatus*		Jug Flower		X	X		X	X
Proteaceae	*Banksia*	*obovata*		Wedge Leaved Dryandra		X				X
Proteaceae	*Banksia*	*speciosa*		Showy Banksia						
Proteaceae	*Hakea*	*ruscifolia*		Candle Hakea						X
Proteaceae	*Hakea*	*trifurcata*		Two Leaf Hakea		X		X	X	X
Proteaceae	*Lambertia*	*inermis*		Chiddick; Native Honeysuckle		X				
Proteaceae	*Synaphea*	*oligantha*				X				
Restionaceae	*Hypolaena*	*exsulca*				X	X		X	X
Restionaceae	*Leptocarpus*	*crebriculmis*				X		X		
Restionaceae	*Loxocarya*	*striata*				X	X	X		X
Rhamnaceae	*Spyridium*	*globulosum*		Basket Bush		X			X	
Rutaceae	*Cyanothamnus*	*ramosus*	*anethifolius*			X	X			X
Solanaceae	*Atropa*	*belladonna*		Deadly Nightshade	X			X		
Stylidiaceae	*Levenhookia*	*pusilla*		Midget Stylewort			X	X	X	

Table 18 continued

Family	Genus	Species	Subspecies	Common Name	Invasive	1 - Coastal SL	2 - Melthy and Acanig SL	3 - Melcut SL	4 - Eucple SL	5 - Nuyflo MSL
Stylidiaceae	*Stylidium*	*breviscapum*		Boomerang Triggerplant			X			X
Stylidiaceae	*Stylidium*	*rupestre*		Rock Triggerplant				X		
Xanthorrhoeaceae	*Xanthorrhoea*	*platyphylla*		Grass Tree		X			X	

Relevé	R1	**Veg Code**	1: Coastal SL	**Date Surveyed**	07/10/2021
Location	375.778KM. South-western area of the survey area.				
GPS (Lat, Long)	121.8592755000, -33.8083823344				
Landform and Slope	Slope middle, Gentle				
Soils	Sand, Light Grey				
Hydrology	Good Drainage				
Vegetation description	Vegetation Description (NVIS; DoEE, 2017): U ^^*Acacia saligna*, *Acacia cyclops*, +/- *Taxandria callistachys*\shrub\3\i; M ^^*Leucopogon obovatus*, *Hibbertia racemosa*, +/-*Taxandria spathulata*\shrub\3,2\c; G+ ^*Hypolaena exsulca*, +/-*Loxocarya striata*, *Mesomelaena tetragona* \sedge, grass\d Vegetation Description (Muirs, 1977): *Acacia saligna, Acacia cyclops, Taxandria callistachys* Scrub, over *Leucopogon obovatus, Taxandria spathulata, Hibbertia racemosa* Heath A and B, over *Mesomelaena tetragona* Tall Sedges, over *Hypolaena exsulca, Loxocarya striata* and *Mesomelaena stygia* subsp *stygia* Dense Low Sedges, *over Eragrostis curvula* Very Open Tall Grass, over *Briza maxima* Very Open Low Grass				
Condition	Very Good				
Comments	-				

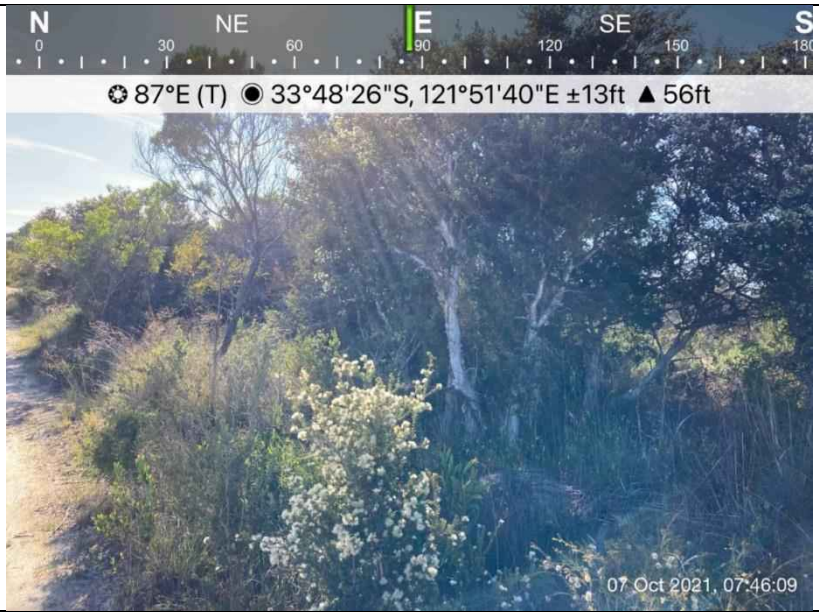
Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m			
Trees 10-30m			
Shrub >2m	*Acacia saligna, Acacia cyclops, Taxandria callistachys*		S 10-30%
Shrub 1-2m	*Adenanthos cuneatus, Leucopogon obovatus, Billardiera fusiformis*		M 30-70%
Shrub 0.5-1m			
Shrub <0.5m	*Hibbertia racemosa, Lysinema ciliatum*		E <5%
Sedge	*Hypolaena exsulca, Loxocarya striata*		D > 70%
Herb			
Grass	**Eragrostis curvula, *Briza maxima*		V 2-10%

Relevé	R2	**Veg Code**	2: Melthy and Acanig SL	**Date Surveyed**	07/10/2021
Location	375.675. South-western corner of survey area				
GPS (Lat, Long)	121.8601386554, -33.8078365306				
Landform and Slope	Gentle				
Soils	Sand, Light Grey				
Hydrology	Good Drainage				
Vegetation description	Vegetation Description (NVIS; DoEE, 2017): M+ ^^*Acacia nigricans*, *Melaleuca thymoides*, +/- *Phymatocarpus maxwellii*\shrub\2\d; G ^^*Machaerina juncea*, *Hypolaena exsulca*, *Anarthria scabra*\sedge\1\c Vegetation Description (Muirs, 1977): *Acacia saligna, Acacia cyclops, Taxandria callistachys* Scrub, over *Leucopogon obovatus, Taxandria spathulata, Hibbertia racemosa* Heath A and B, over *Mesomelaena tetragona* Tall Sedges, over *Hypolaena exsulca, Loxocarya striata* and *Mesomelaena stygia* subsp *stygia* Dense Low Sedges, over *Eragrostis curvula* Very Open Tall Grass, over *Briza maxima* Very Open Low Grass				
Condition	Very Good				
Comments	-				

Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m			
Trees 10-30m			
Shrub >2m			
Shrub 1-2m	*Acacia nigricans, Melaleuca thymoides, Phymatocarpus maxwellii*		D > 70%
Shrub 0.5-1m	*Anigozanthos rufus, Billardiera fusiformis*		E <5%
Shrub <0.5m			
Sedge	*Machaerina juncea, Hypolaena exsulca, Anarthria scabra*		M 30-70%
Herb	*Trachymene pilosa*		E <5%
Grass	**Eragrostis curvula*		V 2-10%

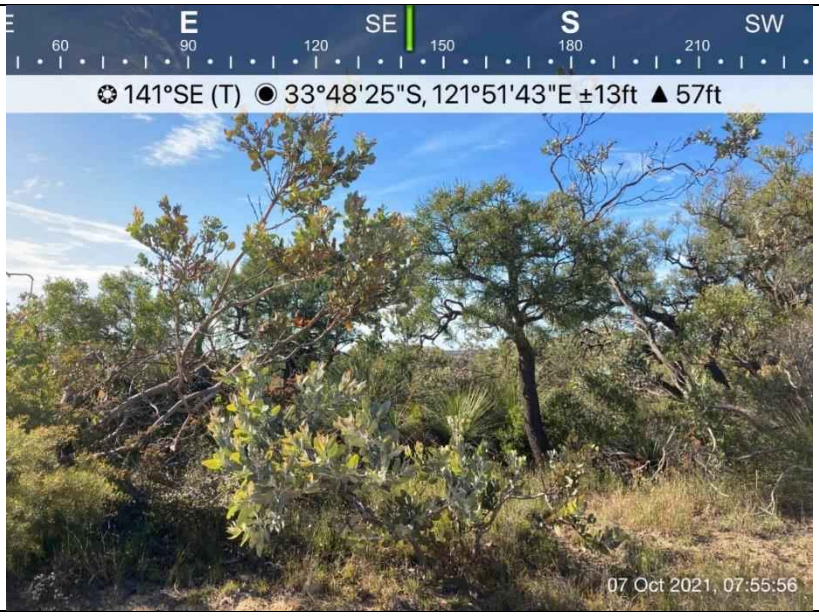
Relevé	R3	**Veg Code**	3: Melcut SL	**Date Surveyed**	07/10/2021
Location	375.554KM. Located south-central area of survey area.				
GPS (Lat, Long)	121.861287004, -33.8072545013				
Landform and Slope	Drainage Depression, Slope				
Soils	Clay Sand, Yellow/Grey				
Hydrology	Seasonal Wet				
Vegetation description	Vegetation Description (NVIS; DoEE, 2017): U+ ^*Melaleuca cuticularis*, *+/-Acacia cyclops*\shrub\4\c; M ^^*Melaleuca rigidifolia*, *Acacia saligna*, *+/-Spyridium globulosum*\shrub\2\i; G ^^*Machaerina juncea*, *Hypolaena exsulca*, *Eragrostis curvula*\sedge, grass\1\c Vegetation Description (Muirs, 1977): *Melaleuca cuticularis* and *Acacia cyclops Thicket,* over *Melaleuca rigidifolia* and *Acacia saligna* Heath A and B, over *Hypolaena exsulca* and *Machaerina juncea* Very Open Low Sedges, over *Eragrostis curvula* Open Tall Grass, over *Briza maxima* Open Low Grass				
Condition	Good				
Comments	-				

Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m			
Trees 10-30m			
Shrub >2m	*Melaleuca cuticularis, Acacia cyclops*		M 30-70%
Shrub 1-2m	*Melaleuca rigidifolia, Acacia saligna*		S 10-30%
Shrub 0.5-1m	*Leucopogon obovatus, Spyridium globulosum*		E <5%
Shrub <0.5m			
Sedge	*Hypolaena exsulca, Various, Baumea juncea*		V 2-10%
Herb	**Lysimachia anagallis*		E <5%
Grass	**Eragrostis curvula, *Briza maxima*		S 10-30%



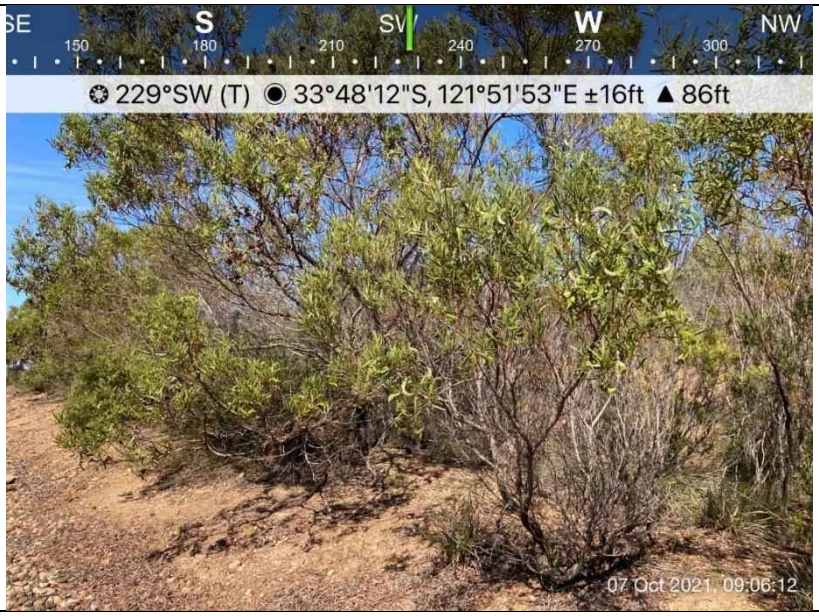
Relevé	R4	**Veg Code**	4: Eucple SL	**Date Surveyed**	07/10/2021
Location	375.488KM. Southern-central area of survey area				
GPS (Lat, Long)	121.8620706151, -33.8070389807				
Landform and Slope	Plain				
Soils	Sand, Orange/Brown				
Hydrology	Good Drainage				
Vegetation description	Vegetation Description (NVIS; DoEE, 2017): U ^*Eucalyptus pleurocarpa*, +/-*Nuytsia floribunda*\mallee\4\i; M+ ^^*Leucopogon obovatus*, *Hakea trifurcata, Spyridium globulosum*\shrub\3\i; G ^^*Neurachne alopecuroidea*, *Chamaescilla corymbosa*, *Mesomelaena tetragona*\grass, herb, sedge\1\bc Vegetation Description (Muirs, 1977): *Nuytsia floribunda* Low Woodland B, over *Eucalyptus pleurocarpa* Open Tree Mallee, over *Leucopogon obovatus, Hakea trifurcata* and *Spyridium globulosum* Scrub, over *Xanthorrhoea platyphylla* and *Allocasuarina humilis* Low Scrub A and B, over *Micromyrtus elobata* subsp *elobata* and *Hibbertia racemosa* Dwarf Scrub D, over *Neurachne alopecuroidea* and *Briza maxima* Open Low Grass.				
Condition	Very Good				
Comments	-				

Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m			
Trees 10-30m			
M >8m			
M <8m	*Eucalyptus pleurocarpa*		S 10-30%
Shrub >2m	*Nuytsia floribunda, Leucopogon obovatus, Hakea trifurcata, Spyridium globulosum*		S 10-30%
Shrub 1-2m	*Xanthorrhoea platyphylla, Allocasuarina humilis*		S 10-30%
Shrub 0.5-1m			M 30-70%
Shrub <0.5m	*Micromyrtus elobata* subsp. *elobata, Hibbertia racemosa*		
Sedge	*Mesomelaena tetragona, Lepidosperma squamatum*		E <5%
Herb	*Chamaescilla corymbosa, Levenhookia pusilla*		E <5%
Grass	**Briza maxima, Neurachne alopecuroidea*		S 10-30%



Relevé	R5	**Veg Code**	1: Coastal SL	**Date Surveyed**	07/10/2021
Location	374.981KM. Located in the northern area of survey area.				
GPS (Lat, Long)	121.8649173337, -33.8033146676				
Landform and Slope	Gentle				
Soils	Sandy Clay, Orange/Brown				
Hydrology	Poor Drainage				
Vegetation description	Vegetation Description (NVIS; DoEE, 2017): U ^^*Acacia saligna*, *Acacia cyclops*, *+/- Taxandria callistachys*\shrub\3\i; M ^^*Leucopogon obovatus*, *Hibbertia racemosa*, *+/-Taxandria spathulata*\shrub\3,2\c; G+ ^*Hypolaena exsulca*, *+/-Loxocarya striata*, *Mesomelaena tetragona* \sedge, grass\d Vegetation Description (Muirs, 1977): *Acacia saligna, Acacia cyclops, Taxandria callistachys* Scrub, over *Leucopogon obovatus, Taxandria spathulata, Hibbertia racemosa* Heath A and B, over *Mesomelaena tetragona* Tall Sedges, over *Hypolaena exsulca, Loxocarya striata* and *Mesomelaena stygia* subsp *stygia* Dense Low Sedges, *over Eragrostis curvula* Very Open Tall Grass, over *Briza maxima* Very Open Low Grass				
Condition	Very Good				
Comments	-				

Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m			
Trees 10-30m			
Shrub >2m	*Acacia cyclops*		V 2-10%
Shrub 1-2m	*Hakea trifurcata, Acacia cyclops*		S 10-30%
Shrub 0.5-1m	*Taxandria spathulata, Leucopogon obovatus, Lysinema sp.*		M 30-70%
Shrub <0.5m	*Hibbertia racemosa, Comesperma virgatum*		E <5%
Sedge	*Mesomelaena tetragona, Mesomelaena stygia* subsp. *stygia*		M 30-70%
Herb	**Pseudognaphalium luteoalbum*		E <5%
Grass			



Relevé	R6	**Veg Code**	5: Nuyflo MSL	**Date Surveyed**	07/10/2021
Location	375.163KM. North-eastern area of the survey area.				
GPS (Lat, Long)	121.8642821669, -33.8048873346				
Landform and Slope	Ridge, Gentle				
Soils	Sand, Yellow				
Hydrology	Poor Drainage				
Vegetation description	Vegetation Description (NVIS; DoEE, 2017): U ^*Nuytsia floribunda*\tree\4\bc; M+ ^^*Leptospermum oligandrum*, *Adenanthos cuneatus*, *Hakea trifurcata* \shrub\3\d; G ^^*Caustis dioica*, +/- *Lepidosperma squamatum, Lomandra hastilis*\sedge\1,2\r Vegetation Description (Muirs, 1977): *Nuytsia floribunda* Open Low Woodland B, over *Leptospermum oligandrum, Adenanthos cuneatus* and *Hakea trifurcata* Dense Heath A and B, over *Lomandra hastilis* Very Open Tall Sedges, over *Caustis dioica* and *Lepidosperma squamatum* Very Open Low Sedges				
Condition	Very Good				
Comments	-				

Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m			
Trees 10-30m			
Shrub >2m	*Nuytsia floribunda*		E <5%
Shrub 1-2m	*Melaleuca striata*		E <5%
Shrub 0.5-1m	*Leptospermum oligandrum, Conothamnus aureus, Banksia obovata, Jacksonia spinosa, Spyridium globulosum*		D > 70%
Shrub <0.5m	*Hibbertia sp.*		E <5%
Sedge	*Caustis dioica, Lepidosperma squamatum, Lomandra hastilis*		V 2-10%
Herb			
Grass	**Ehrharta longifolia, *Briza maxima*		E <5%

Relevé	R7	**Veg Code**	5: Nuyflo MSL	**Date Surveyed**	07/10/2021
Location	375.389KM. Central area of survey area.				
GPS (Lat, Long)	121.625828332, -338064095010				
Landform and Slope	Ridge, Gentle				
Soils	Sand, Light Grey				
Hydrology	Good Drainage				
Vegetation description	Vegetation Description (NVIS; DoEE, 2017): U ^*Nuytsia floribunda*\tree\4\bc; M+ ^^*Leptospermum oligandrum*, *Adenanthos cuneatus*, *Hakea trifurcata* \shrub\3\d; G ^^*Caustis dioica*, +/- *Lepidosperma squamatum, Lomandra hastilis*\sedge\1,2\r Vegetation Description (Muirs, 1977): *Nuytsia floribunda* Open Low Woodland B, over *Leptospermum oligandrum, Adenanthos cuneatus* and *Hakea trifurcata* Dense Heath A and B, over *Lomandra hastilis* Very Open Tall Sedges, over *Caustis dioica* and *Lepidosperma squamatum* Very Open Low Sedges				
Condition	Excellent				
Comments	-				

Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m			
Trees 10-30m			
Shrub >2m	*Nuytsia floribunda*		E <5%
Shrub 1-2m	*Acacia cyclops*		E <5%
Shrub 0.5-1m	*Hakea trifurcata, Jacksonia spinosa, Taxandria spathulata, Adenanthos cuneatus, Leptospermum oligandrum*		D > 70%
Shrub <0.5m			
Sedge	*Caustis dioica, Mesomelaena tetragona*		M 30-70%
Herb			
Grass			

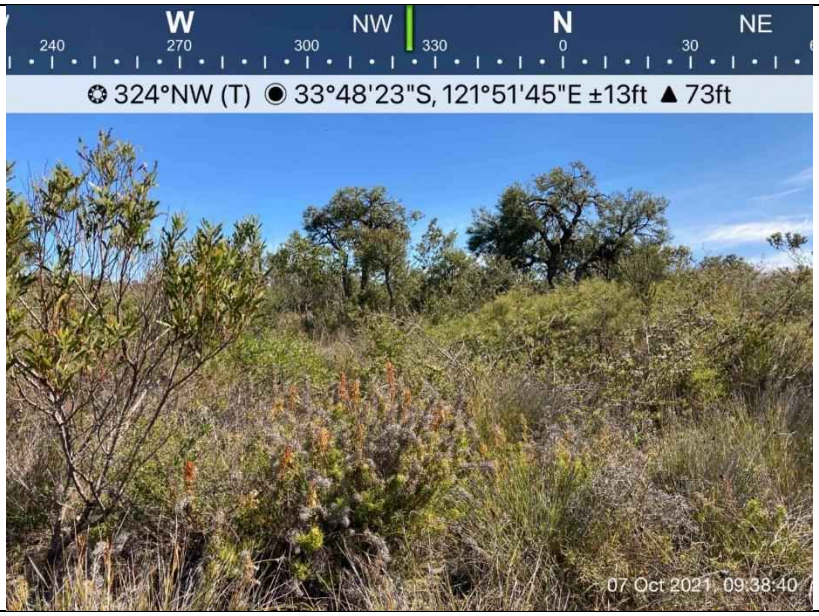


Table 19: Fauna species recorded within survey area.

Family	Species	Common Name	Conservation Code
Birds			
Anatidae	*Anas castanea*	Chestnut Teal	
Anatidae	*Anas superciliosa*	Pacific Black Duck	
Meliphagidae	*Anthochaera carunculata*	Red Wattlebird	
Meliphagidae	*Anthochaera lunulata*	Western Wattlebird	
Psittaculidae	*Barnardius zonarius*	Australian Ringneck	
Cuculidae	*Cacomantis flabelliformis*	Fan-tailed Cuckoo	
Cuculidae	*Cacomantis pallidus*	Pallid Cuckoo	
Cuculidae	*Chrysococcyx basalis*	Horsefield's Bronze Cuckoo	
Covidae	*Corvus coronoides*	Australian Raven	
Artamidae	*Cracticus torquatus*	Grey Butcherbird	
Ardeidae	*Egretta garzetta*	Little Egret	
Petroicidae	*Eopsaltria griseogularis*	Western Yellow Robin	
Artamidae	*Gymnorhina tibicen*	Australian Magpie	
Meliphagidae	*Manorina flavigula*	Yellow-throated Miner	
Pachycephalidae	*Pachycephala pectoralis*	Golden Whistler	
Meliphagidae	*Phylidonyris novaehollandiae*	New Holland Honeyeater	
Rhipiduridae	*Rhipidura albiscapa*	Grey Fantail	
Rhipiduridae	*Rhipidura leucophrys*	Willy Wagtail	
Acanthizidae	*Sericornis frontalis*	White-browed Scrubwren	
Zosteropidae	*Zosterops lateralis*	Silvereye	
Invertebrates			
Ixodidae	*Amblyomma triguttatum*	Kangaroo Tick	
Apidae	*Apis mellifera*	European Honey Bee	
Araneidae	*Austracantha minax*	Christmas Spider	
Pentatomidae	*Cuspicona sp.*	Green Shield Bug	
Nymphalidae	*Danaus plexippus*	Monarch Butterfly	
Geometridae	*Ectropis excursaria*	Twig Looper Moth Caterpillar	
Julidae	*Ommatoiulus moreletii*	Portuguese millipede (black morph and light tan morph. black legged and red legged individuals within black morph)	
Pieridae	*Pieris rapae*	Cabbage White	
Syrphidae	*Simosyrphus grandicornis*	Hoverfly	
Helicidae	*Theba pisana*	Mediterranean coastal snail	
Reptiles			
Scincidae	*Ctenotus labillardieri*	Red-legged Ctenotus	
Elapidae	*Notechis scutatus*	Tigersnake	
Elapidae	*Pseudonaja affinis*	Dugite	
Scincidae	*Tiliqua rugosa*	Bobtail Skink	

Table 19 continued.

Family	Species	Common Name	Conservation Code
Mammals			
Macropodidae	*Macropus fuliginosus*	Western Grey Kangaroo	
Leporidae	*Oryctolagus cuniculus*	Rabbit	Introduced
Canidae	*Vulpes*	Fox	Introduced

Appendix E

NatureMap and EPBC Act PMST reports

NatureMap
Mapping Western Australia's biodiversity

AI005-007 NatureMap 30km Species Report

Created By Guest user on 21/09/2021

Current Names Only	Yes
Core Datasets Only	Yes
Method	'By Circle'
Centre	121° 51' 47" E,33° 48' 22" S
Buffer	30km
Group By	Kingdom

Kingdom	Species	Records
Animalia	786	13214
Chromista	49	116
Fungi	54	145
Plantae	1363	4554
TOTAL	**2252**	**18029**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Animalia					
1.		*? ?*			
2.	24559	*Acanthagenys rufogularis (Spiny-cheeked Honeyeater)*			
3.		*Acanthaluteres vittiger*			
4.		*Acanthistius serratus*			
5.	24260	*Acanthiza apicalis (Broad-tailed Thornbill, Inland Thornbill)*			
6.	24261	*Acanthiza chrysorrhoa (Yellow-rumped Thornbill)*			
7.	24265	*Acanthiza uropygialis (Chestnut-rumped Thornbill)*			
8.		*Acanthopagrus butcheri*			
9.	25242	*Acanthophis antarcticus (Southern Death Adder)*		P3	
10.	24560	*Acanthorhynchus superciliosus (Western Spinebill)*			
11.		*Acariformes sp.*			
12.	25535	*Accipiter cirrocephalus (Collared Sparrowhawk)*			
13.	25536	*Accipiter fasciatus (Brown Goshawk)*			
14.		*Acercella falcipes*			
15.	42368	*Acritoscincus trilineatus (Western Three-lined Skink)*			
16.	25755	*Acrocephalus australis (Australian Reed Warbler)*			
17.	41323	*Actitis hypoleucos (Common Sandpiper)*		IA	
18.		*Adversaeschna brevistyla*			
19.		*Aedes (Och.) sp. 1 (nr. nigrithorax) (SAP)*			
20.		*Aedes camptorhynchus*			
21.		*Aedes sp.*			
22.	25544	*Aegotheles cristatus (Australian Owlet-nightjar)*			
23.		*Aetapcus maculatus*			
24.		*Agaue similis*			Y
25.		*Agaue tenuipes*			
26.		*Agauopsis calidictyota*			Y
27.		*Agauopsis miliaris*			
28.		*Agraptocorixa eurynome*			
29.		*Agraptocorixa sp.*			
30.		*Alabes occidentalis*			
31.		*Alboa worooa*			
32.		*Aldrichetta forsteri*			
33.		*Allodessus bistrigatus*			
34.		*Allomycterus pilatus*			
35.		*Ammotretis elongatus*			
36.	25647	*Amytornis striatus (Striated Grasswren)*			
37.		*Aname mainae*			
38.		*Aname tepperi*			
39.	24310	*Anas castanea (Chestnut Teal)*			
40.	24312	*Anas gracilis (Grey Teal)*			
41.	24313	*Anas platyrhynchos (Mallard)*			
42.		*Anas platyrhynchos subsp. domesticus*			
43.	24315	*Anas rhynchotis (Australasian Shoveler)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
44.	24316	*Anas superciliosa (Pacific Black Duck)*			
45.		*Anax papuensis*			
46.	47414	*Anhinga novaehollandiae (Australasian Darter)*			
47.		*Anisops baylii*			
48.		*Anisops hackeri*			
49.		*Anisops hyperion*			
50.		*Anisops sp.*			
51.		*Anisops thienemanni*			
52.		*Anoplodactylus angulatus*			Y
53.		*Anoplodactylus cribellatus*			Y
54.	24561	*Anthochaera carunculata (Red Wattlebird)*			
55.	24562	*Anthochaera lunulata (Western Little Wattlebird)*			
56.	25670	*Anthus australis (Australian Pipit)*			
57.	24599	*Anthus australis subsp. australis (Australian Pipit)*			
58.		*Antiporus occidentalis*			
59.		*Apocyclops dengizicus*			
60.	24991	*Aprasia repens (Sand-plain Worm-lizard)*			
61.	24994	*Aprasia striolata (Lined Worm-lizard)*			
62.	25554	*Apus pacificus (Fork-tailed Swift, Pacific Swift)*		IA	
63.	24285	*Aquila audax (Wedge-tailed Eagle)*			
64.		*Aracana aurita*			
65.		*Aracana ornata*			
66.		*Araneus necopinus*			
67.		*Araneus senicaudatus*			
68.		*Arcella discoides*			
69.		*Arcella hemisphaerica*			
70.	24208	*Arctocephalus forsteri (New Zealand Fur Seal, long-nosed fur-seal)*		S	
71.	25558	*Ardea ibis (Cattle Egret)*			
72.	41324	*Ardea modesta (great egret, white egret)*			
73.	24340	*Ardea novaehollandiae (White-faced Heron)*			
74.	24341	*Ardea pacifica (White-necked Heron)*			
75.	41326	*Ardenna carneipes (Flesh-footed Shearwater, Fleshy-footed Shearwater)*		T	
76.	41328	*Ardenna tenuirostris (Short-tailed Shearwater)*		IA	
77.	24610	*Ardeotis australis (Australian Bustard)*			
78.	25736	*Arenaria interpres (Ruddy Turnstone)*		IA	
79.		*Argiope trifasciata*			
80.		*Arrenurus (Truncaturus) sp. (SAP)*			
81.		*Arripis truttaceus*			Y
82.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
83.	24353	*Artamus cyanopterus (Dusky Woodswallow)*			
84.		*Artoria cingulipes*			
85.		*Artoria flavimana*			
86.		*Artoriopsis eccentrica*			
87.		*Artoriopsis expolita*			
88.		*Artoriopsis joergi*			
89.		*Ascorhis occidua*			
90.		*Aspasmogaster occidentalis*			
91.		*Aspasmogaster tasmaniensis*			
92.		*Asplanchna brightwelli*			
93.		*Asymbolus vincenti*			
94.	41383	*Atelomastix dendritica (Recherche Atelomastix millipede)*		T	Y
95.		*Atherinosoma elongata*			
96.		*Atherinosoma wallacei*			
97.		*Aulopus purpurissatus*			
98.		*Austracantha minax*			
99.		*Australocypris insularis*			
100.		*Australomedusa ?baylii (SAP)*			
101.		*Austroagrion cyane*			
102.		*Austrochiltonia sp.*			
103.		*Austrochiltonia subtenuis*			
104.		*Austrodecus staplesi*			Y
105.		*Austrolabrus maculatus*			
106.		*Austrolestes analis*			
107.		*Austrolestes annulosus*			
108.		*Austrolestes aridus*			
109.		*Austrolestes io*			
110.		*Austrolestes sp.*			
111.	24318	*Aythya australis (Hardhead)*			
112.		*Barnardius zonarius*			
113.		*Bdelloidea med-large contracted of RJS (SAP)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
114.		*Bdelloidea sp.*			
115.		*Bdelloidea sp. 2:2*			
116.		*Beliops xanthokrossos*			
117.		*Bennelongia barangaroo lineage*			
118.		*Bennelongia frumenta*			
119.		*Berosus discolor*			
120.		*Berosus munitipennis*			
121.		*Berosus sp.*			
122.		*Bezzia sp. (not 1 or 2)*			
123.		*Bivalvia sp.*			
124.	24319	*Biziura lobata (Musk Duck)*			
125.		*Boeckella triarticulata*			
126.		*Bostockia porosa*			
127.		*Brachaluteres jacksonianus*			
128.		*Brachionus angularis*			
129.		*Brachionus cf. nilsoni (SAP)*			
130.		*Brachionus cf. plicatilis (SAP)*			
131.		*Brachionus leydigii*			
132.		*Brachionus plicatilis complex ("towerinninensis" form)*			Y
133.		*Brachionus plicatilis s.l.*			
134.		*Brachionus quadridentatus cluniorbicularis*			
135.		*Brachionus rotundiformis*			
136.		*Brachionus sp.*			
137.		*Brachionus urceolaris s.l.*			
138.		*Brachynectes fasciatus*			
139.		*Bradyagaue exilis*			Y
140.		*Branchipodidae sp.*			
141.		*Brentidae sp.*			
142.	24359	*Burhinus grallarius (Bush Stone-curlew)*			
143.		*Caboncypris kondininensis*			
144.	25598	*Cacomantis flabelliformis (Fan-tailed Cuckoo)*			
145.	24427	*Cacomantis flabelliformis subsp. flabelliformis (Fan-tailed Cuckoo)*			
146.	42307	*Cacomantis pallidus (Pallid Cuckoo)*			
147.		*Caesioperca rasor*			
148.	24269	*Calamanthus campestris (Rufous Fieldwren)*			
149.		*Calamoecia clitellata*			
150.		*Calamoecia sp. 342 (ampulla variant) (CB)*			
151.		*Calanoida sp.*			
152.	24779	*Calidris acuminata (Sharp-tailed Sandpiper)*		IA	
153.	24780	*Calidris alba (Sanderling)*		IA	
154.	25738	*Calidris canutus (Red Knot, knot)*		IA	
155.	24783	*Calidris canutus subsp. rogersi (Red Knot (north-eastern Siberia))*		T	
156.	24784	*Calidris ferruginea (Curlew Sandpiper)*		T	
157.	24786	*Calidris melanotos (Pectoral Sandpiper)*		IA	
158.	24788	*Calidris ruficollis (Red-necked Stint)*		IA	
159.	24790	*Calidris tenuirostris (Great Knot)*		T	
160.		*Callogobius mucosus*			
161.	24734	*Calyptorhynchus latirostris (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)*		T	
162.	48400	*Calyptorhynchus sp. (white-tailed black cockatoo)*		T	
163.		*Candonocypris novaezelandiae*			
164.		*Capitella sp.*			
165.		*Capitellidae sp.*			
166.	24253	*Capra hircus (Goat)*	Y		
167.		*Caprichthys gymnura*			
168.		*Capropygia unistriata*			
169.		*Carabidae sp.*			
170.		*Carcharhinus brachyurus*			
171.	34034	*Carcharias taurus (Grey Nurse Shark)*		T	
172.	34031	*Carcharodon carcharias (Great White Shark)*		T	
173.	25335	*Caretta caretta (Loggerhead Turtle)*		T	
174.		*Ceinidae sp.*			
175.		*Centropyxis aculeata*			
176.		*Centropyxis cassis*			Y
177.		*Centropyxis sp. b (SAP)*			
178.		*Ceratopogonidae sp.*			
179.		*Ceratopogonidae sp. A (SAP)*			
180.	24086	*Cercartetus concinnus (Western Pygmy-possum, Mundarda)*			
181.		*Cercophonius granulosus*			
182.	25551	*Cereopsis novaehollandiae (Cape Barren Goose)*		T	

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
183.	24320	*Cereopsis novaehollandiae subsp. grisea (Recherche Cape Barren Goose, Cape Barren Goose)*		T	
184.		*Ceriodaphnia n. sp. c (Berner sp.#1) (SAP)*			
185.	25573	*Charadrius bicinctus (Double-banded Plover)*		IA	
186.	25575	*Charadrius leschenaultii (Greater Sand Plover)*		T	
187.	25576	*Charadrius mongolus (Lesser Sand Plover)*		T	
188.	24377	*Charadrius ruficapillus (Red-capped Plover)*			
189.	24321	*Chenonetta jubata (Australian Wood Duck, Wood Duck)*			
190.	47909	*Cheramoeca leucosterna (White-backed Swallow)*			
191.		*Chironomidae sp.*			
192.		*Chironominae sp.*			
193.		*Chironomus aff. alternans (V24) (CB)*			
194.		*Chironomus occidentalis*			
195.		*Chironomus tepperi*			
196.	24980	*Christinus marmoratus (Marbled Gecko)*			
197.		*Chroicocephalus novaehollandiae*			
198.		*Chromis klunzingeri*			
199.	24288	*Circus approximans (Swamp Harrier)*			
200.	24289	*Circus assimilis (Spotted Harrier)*			
201.		*Cladopelma curtivalva*			
202.	24774	*Cladorhynchus leucocephalus (Banded Stilt)*			
203.		*Cladotanytarsus sp. A (SAP)*			
204.		*Cletocamptus aff deitersi*			
205.		*Clinohelea sp.*			
206.		*Clynotis albobarbatus*			
207.		*Cnidoglanis macrocephalus*			
208.		*Cochleoceps bicolor*			
209.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
210.	24399	*Columba livia (Domestic Pigeon)*	Y		
211.		*Colurella colurus*			
212.		*Colurella uncinata*			
213.		*Contusus brevicaudus*			
214.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
215.		*Cordylophora sp.*			Y
216.		*Corixidae sp.*			
217.		*Cormocephalus michaelseni*			
218.	24416	*Corvus bennetti (Little Crow)*			
219.	25592	*Corvus coronoides (Australian Raven)*			
220.	24417	*Corvus coronoides subsp. perplexus (Australian Raven)*			
221.		*Corynoneura sp. (V49) (SAP)*			
222.	24671	*Coturnix pectoralis (Stubble Quail)*			
223.	25701	*Coturnix ypsilophora (Brown Quail)*			
224.	24673	*Coturnix ypsilophora subsp. australis (Brown Quail)*			
225.		*Coxiella glabra*			
226.		*Coxiella sp.*			
227.		*Coxiella striatula*			
228.	24420	*Cracticus nigrogularis (Pied Butcherbird)*			
229.	25595	*Cracticus tibicen (Australian Magpie)*			
230.	24422	*Cracticus tibicen subsp. dorsalis (White-backed Magpie)*			
231.	25596	*Cracticus torquatus (Grey Butcherbird)*			
232.	25398	*Crinia georgiana (Quacking Frog)*			
233.	25399	*Crinia glauerti (Clicking Frog)*			
234.	25401	*Crinia pseudinsignifera (Bleating Froglet)*			
235.		*Cristiceps australis*			
236.	30888	*Cryptoblepharus pulcher subsp. clarus*			
237.		*Cryptochironomus griseidorsum*			
238.	42385	*Ctenophorus chapmani (Eastern Heath Dragon)*			
239.	24883	*Ctenophorus ornatus (Ornate Crevice-Dragon)*			
240.	25047	*Ctenotus impar*			
241.	25049	*Ctenotus labillardieri*			
242.		*Culicidae sp.*			
243.		*Culicoides sp.*			
244.		*Curculionidae sp.*			
245.	24322	*Cygnus atratus (Black Swan)*			
246.		*Cyprideis australiensis*			
247.		*Cyprididae sp.*			
248.		*Cyprinotus cingalensis*			
249.		*Cyprinotus cingalensis (ex edwardi)*			
250.		*Cytherideidae sp.*			Y
251.		*Dactylosurculus gomoni*			
252.		*Daphnia australis*			

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253.		*Daphnia carinata*			
254.		*Daphnia queenslandensis*			
255.		*Daphnia sp.*			
256.		*Daphnia truncata*			
257.	25673	*Daphoenositta chrysoptera (Varied Sittella)*			
258.		*Dasyhelea sp.*			
259.	24995	*Delma australis*			
260.	25766	*Delma fraseri (Fraser's Legless Lizard)*			
261.	24052	*Delphinus delphis (Common Dolphin)*			
262.		*Dermatopsis sp.*			
263.	25346	*Dermochelys coriacea (Leatherback Turtle)*		T	
264.		*Dero digitata*			
265.		*Diacypris compacta*			
266.		*Diacypris sp.*			
267.		*Diacypris sp. 581 (n. sp.) (SAP)*			Y
268.		*Diacypris spinosa*			
269.		*Diaprepocoris barycephala*			
270.		*Diaprepocoris sp.*			
271.		*Dicrotendipes conjunctus*			
272.		*Dicrotendipes pseudoconjunctus*			
273.		*Dicrotendipes sp.*			
274.		*Dicrotendipes sp. A (V47) (SAP)*			
275.		*Diodon sp.*			
276.	25618	*Diomedea exulans (Wandering Albatross)*		T	
277.	41403	*Diplodactylus calcicolus (South Coast Gecko)*			
278.		*Dolichopodidae sp.*			
279.		*Dolichopodidae sp. B (SAP)*			
280.	24470	*Dromaius novaehollandiae (Emu)*			
281.		*Dytiscidae sp.*			
282.	25251	*Echiopsis curta (Bardick)*			
283.		*Ecnomidae sp.*			
284.		*Ecnomus pansus/turgidus*			
285.	25096	*Egernia kingii (King's Skink)*			
286.	25100	*Egernia napoleonis*			
287.		*Egretta garzetta*			
288.		*Egretta novaehollandiae*			
289.		*Elanus axillaris*			
290.	25250	*Elapognathus coronatus (Crowned Snake)*			
291.	47937	*Elseyornis melanops (Black-fronted Dotterel)*			
292.		*Emertonella maga*			
293.		*Empididae sp.*			
294.		*Enchytraeidae sp.*			
295.		*Encoptarthria serventyi*			Y
296.		*Enochrus eyrensis*			
297.		*Enochrus sp.*			
298.		*Eodelena lapidicola*			
299.		*Eolophus roseicapillus*			
300.		*Ephydridae sp.*			
301.		*Ephydridae sp. 3 (SAP)*			
302.		*Ephydridae sp. 6 (SAP)*			
303.		*Ephydridae sp. 7(SAP)*			
304.	24567	*Epthianura albifrons (White-fronted Chat)*			
305.	24379	*Erythrogonys cinctus (Red-kneed Dotterel)*			
306.	47938	*Esacus magnirostris (Beach Stone-curlew, Beach Thick-knee)*			
307.	24043	*Eubalaena australis (Southern Right Whale)*		T	
308.		*Eubalichthys bucephalus*			
309.		*Eubalichthys cyanoura*			
310.		*Eubalichthys mosaicus*			
311.		*Euchlanis dilatata*			
312.		*Eucyclops australiensis*			
313.	25744	*Eudyptes chrysocome (Rockhopper Penguin)*			
314.	24816	*Eudyptes pachyrhynchus (Fiordland Penguin)*			
315.	24817	*Eudyptes sclateri (Erect-crested Penguin)*			Y
316.	25746	*Eudyptula minor (Little Penguin)*			
317.	24818	*Eudyptula minor subsp. novaehollandiae (Little Penguin)*			
318.		*Exosphaeroma sp.*			
319.		*Eylais sp.*			
320.	25621	*Falco berigora (Brown Falcon)*			
321.	25622	*Falco cenchroides (Australian Kestrel, Nankeen Kestrel)*			
322.	24472	*Falco cenchroides subsp. cenchroides (Australian Kestrel, Nankeen Kestrel)*			

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323.	25623	*Falco longipennis (Australian Hobby)*			
324.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
325.		*Favonigobius lateralis*			
326.		*Ferrissia petterdi*			
327.		*Filinia longiseta*			
328.	25727	*Fulica atra (Eurasian Coot)*			
329.	24761	*Fulica atra subsp. australis (Eurasian Coot)*			
330.		*Galaxias maculatus*			
331.	39404	*Galaxias truttaceus (Trout Minnow)*			
332.	25730	*Gallirallus philippensis (Buff-banded Rail)*			
333.	42314	*Gavicalis virescens (Singing Honeyeater)*			
334.		*Gea theridioides*			
335.		*Geogarypus taylori*			
336.	34030	*Geotria australis (Pouched Lamprey)*		P3	
337.	25530	*Gerygone fusca (Western Gerygone)*			
338.		*Gianius sp. WA9 (SAP)*			Y
339.		*Girella tephraeops*			
340.		*Gladioferens imparipes*			
341.	47962	*Glyciphila melanops (Tawny-crowned Honeyeater)*			
342.		*Glyptophysa cf. gibbosa (SAP)*			
343.		*Gobiesocid sp.*			
344.		*Gonorynchus greyi*			
345.	24443	*Grallina cyanoleuca (Magpie-lark)*			
346.	24056	*Grampus griseus (Risso's Dolphin)*			
347.		*Gymnocthebius sp. 1 (SAP)*			
348.		*Gymnometriocnemus sp. B (=V45=sp. A&2=ortho sp. O)*			
349.		*Gymnometriocnemus spp. (not V44 or V45)*			
350.	25627	*Haematopus fuliginosus (Sooty Oystercatcher)*			
351.	24485	*Haematopus fuliginosus subsp. fuliginosus (Sooty Oystercatcher)*			
352.	24487	*Haematopus longirostris (Pied Oystercatcher)*			
353.	24293	*Haliaeetus leucogaster (White-bellied Sea-Eagle)*			
354.	24295	*Haliastur sphenurus (Whistling Kite)*			
355.		*Halichoeres brownfieldi*			
356.		*Halicyclops sp. 1 (nr ambiguus) (SAP)*			
357.		*Haliplus fuscatus*			
358.		*Haliplus sp.*			
359.		*Haloniscus searlei*			
360.		*Haloniscus sp.*			
361.		*Harpacticoida sp*			
362.		*Helcogramma decurrens*			
363.	25410	*Heleioporus eyrei (Moaning Frog)*			
364.	25412	*Heleioporus psammophilus (Sand Frog)*			
365.		*Hellyethira litua*			
366.		*Helochares tenuistriatus*			
367.		*Hemicordulia tau*			
368.	25117	*Hemiergis peronii subsp. peronii*			
369.		*Heteroceridae sp.*			
370.		*Heteroclinus adelaidae*			
371.		*Heteroclinus kuiteri*			
372.		*Heteroclinus roseus*			
373.		*Heteroclinus sp.*			
374.		*Hexarthra fennica*			
375.		*Hexarthra n. sp.a (cf. fennica with 7/7 unci teeth) (SAP)*			
376.	47965	*Hieraaetus morphnoides (Little Eagle)*			
377.	25734	*Himantopus himantopus (Black-winged Stilt)*			
378.		*Hirudinea sp.*			
379.	24491	*Hirundo neoxena (Welcome Swallow)*			
380.		*Histiogamphelus cristatus*			
381.		*Histiophryne cryptacanthus*			
382.		*Hogna crispipes*			
383.		*Holasteron esperance*			Y
384.		*Hyderodes crassus*			
385.		*Hydra sp.*			
386.		*Hydrachnidae sp.*			
387.		*Hydrobiidae sp.*			
388.		*Hydrophilidae sp.*			
389.	48587	*Hydroprogne caspia (Caspian Tern)*		IA	
390.		*Hydryphantes meridianus*			
391.		*Hyphydrus elegans*			
392.		*Ilyocryptus cf. timmsi (SAP)*			Y

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393.		*Ilyocypris australiensis*			
394.		*Ilyodromus sp.*			
395.		*Ischnura heterosticta heterosticta*			
396.	48588	*Isoodon fusciventer (Quenda, southwestern brown bandicoot)*		P4	
397.		*Isopeda leishmanni*			
398.		*Karaops francesae*			
399.		*Kathetostoma laeve*			
400.		*Kennethia cristata*			
401.		*Keratella australis*			
402.		*Keratella cf. quadrata (SAP)*			
403.		*Keratella procurva*			
404.		*Keratella quadrata*			
405.		*Kiefferulus intertinctus*			
406.		*Kiefferulus martini*			
407.		*Koenikea nr australica (=verrucosa)*			
408.	24070	*Kogia breviceps (Pygmy Sperm Whale)*			
409.		*Lampona cylindrata*			
410.		*Lancetes lanceolatus*			
411.		*Lancetes sp.*			
412.	24510	*Larus dominicanus (Kelp Gull)*			
413.	24511	*Larus novaehollandiae subsp. novaehollandiae (Silver Gull)*			
414.	25638	*Larus pacificus (Pacific Gull)*			
415.	24512	*Larus pacificus subsp. georgii (Pacific Gull)*			
416.		*Lecane (M) sp. A (ESP023)*			Y
417.		*Lecane [M] sp.*			
418.		*Lecane bulla*			
419.		*Lecane luna*			
420.		*Lecane sp. s.str.*			
421.	24557	*Leipoa ocellata (Malleefowl)*		T	
422.		*Lepadella discoidea*			
423.		*Lepadella patella*			
424.		*Lepidoblennius marmoratus*			
425.		*Lepidoptera (non-pyralid)*			
426.		*Lepidoptera (non-pyralid) sp. 3 (SAP)*			
427.		*Lepidoptera (non-pyralid) sp. 9 (SAP) (nr Pilbara sp. 3)*			
428.		*Leptatherina presbyteroides*			
429.		*Leptoceridae sp.*			
430.		*Leptocythere lacustris*			
431.		*Leptoichthys fistularius*			
432.	25131	*Lerista distinguenda*			
433.		*Lesquereusia sp.*			
434.		*Leydigia cf. leydigii (SAP)*			
435.	25659	*Lichenostomus leucotis (White-eared Honeyeater)*			
436.	25661	*Lichmera indistincta (Brown Honeyeater)*			
437.	25739	*Limicola falcinellus (Broad-billed Sandpiper)*		IA	
438.		*Limnesia dentifera*			
439.		*Limnichidae sp.*			
440.		*Limnichthys fasciatus*			
441.		*Limnochares australica*			
442.	25415	*Limnodynastes dorsalis (Western Banjo Frog)*			
443.		*Limnophyes vestitus (V41)*			
444.	30932	*Limosa lapponica (Bar-tailed Godwit)*		IA	
445.	25378	*Litoria adelaidensis (Slender Tree Frog)*			
446.	25383	*Litoria cyclorhyncha (Spotted-thighed Frog)*			
447.		*Lohmannella pinggi*			
448.		*Lophoictinia isura*			
449.		*Lotella rhacinus*			
450.	24132	*Macropus fuliginosus (Western Grey Kangaroo)*			
451.		*Macrothrix breviseta*			
452.		*Macrothrix cf. breviseta (SAP)*			
453.		*Macrothrix sp.*			
454.		*Macrotrachela sp. a (SAP)*			Y
455.		*Makaira sp.*			Y
456.	24326	*Malacorhynchus membranaceus (Pink-eared Duck)*			
457.	25654	*Malurus splendens (Splendid Fairy-wren)*			
458.		*Manayunkia n. sp.*			
459.	24583	*Manorina flavigula (Yellow-throated Miner)*			
460.		*Maratus chrysomelas*			
461.	25758	*Megalurus gramineus (Little Grassbird)*			
462.		*Megaporus howittii*			

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463.		*Megaporus solidus*			
464.		*Megaporus sp.*			
465.		*Melita kauerti*			
466.	24736	*Melopsittacus undulatus (Budgerigar)*			
467.	25184	*Menetia greyii*			
468.		*Meridiecyclops baylyi*			
469.	24598	*Merops ornatus (Rainbow Bee-eater)*			
470.		*Mesochra baylyi*			
471.		*Mesochra nr flava*			
472.		*Mesocyclops brooksi*			
473.		*Mesostigmata sp.*			
474.		*Meuschenia hippocrepis*			
475.		*Microcarbo melanoleucos*			
476.		*Micronecta robusta*			
477.		*Micronecta sp.*			
478.	24213	*Mirounga leonina (Southern Elephant Seal)*			
479.		*Missulena granulosa*			
480.		*Missulena hoggi*			
481.		*Miturga severa*			
482.		*Molycria quadricauda*			
483.		*Monohelea sp. 3 (SAP)*			
484.	25192	*Morethia obscura*			
485.	48008	*Morus serrator (Australasian Gannet)*			
486.		*Muraenichthys breviceps*			
487.	24223	*Mus musculus (House Mouse)*	Y		
488.		*Muscidae sp.*			
489.		*Muscidae sp. A (SAP)*			
490.		*Muscidae sp. D (SAP)*			
491.		*Myandra bicincta*			
492.	25610	*Myiagra inquieta (Restless Flycatcher)*			
493.		*Mytilocypris ambiguosa*			
494.		*Mytilocypris mytiloides*			
495.		*Mytilocypris sp.*			
496.		*Naididae (ex Tubificidae)*			
497.		*Necterosoma penicillatus*			
498.		*Necterosoma sp.*			
499.		*Nemadactylus valenciennesi*			
500.		*Nematoda sp.*			
501.	25421	*Neobatrachus albipes (White-footed Trilling Frog)*			
502.	25425	*Neobatrachus kunapalari (Kunapalari Frog)*			
503.	25426	*Neobatrachus pelobatoides (Humming Frog)*			
504.	24738	*Neophema elegans (Elegant Parrot)*			
505.	24739	*Neophema petrophila (Rock Parrot)*			
506.	24210	*Neophoca cinerea (Australian Sea-lion)*		T	
507.		*Neosebastes pandus*			
508.		*Nephila edulis*			
509.		*Newnhamia fenestrata*			
510.		*Nicodamus mainae*			
511.		*Nilobezzia sp.*			
512.		*Nitocra near sp. 4 (SAP)*			
513.		*Nitocra reducta*			
514.		*Nitocra sp. 4 (SAP)*			
515.		*Nitocra sp. 5 (nr reducta) (SAP)*			
516.		*No invertebrates*			
517.		*Norfolkia incisa*			Y
518.		*Norfolkia sp.*			
519.		*Notalina spira*			
520.	48022	*Notamacropus irma (Western Brush Wallaby)*		P4	
521.	25252	*Notechis scutatus (Tiger Snake)*			
522.		*Notholca salina*			
523.	24229	*Notomys mitchellii (Mitchell's Hopping-mouse)*			
524.		*Notonectidae sp.*			
525.		*Novakiella trituberculosa*			
526.		*Nunciella aspera*			
527.	25564	*Nycticorax caledonicus (Rufous Night Heron)*			
528.	24194	*Nyctophilus geoffroyi (Lesser Long-eared Bat)*			
529.		*Ochthebius sp.*			
530.		*Ochthebius sp. 4*			Y
531.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
532.		*Oecetis sp.*			

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533.		*Oecobius navus*			
534.		*Oligochaeta sp.*			
535.		*Omegophora cyanopunctata*			
536.		*Oniscidae sp.*			
537.		*Onychocamptus bengalensis*			
538.		*Ophiclinus gracilis*			
539.		*Ophiclinus pectoralis*			
540.		*Ophthalmolepis lineolatus*			
541.		*Opisthopora sp.*			
542.		*Oribatida sp.*			
543.		*Oribatida sp. 1 (PLP)*			Y
544.		*Oribatida sp. 2(PLP)*			Y
545.		*Orthetrum caledonicum*			
546.		*Orthocladiinae sp.*			
547.		*Orthocladiinae sp. G (SAP)*			
548.		*Orthocladiinae sp. I (SAP)*			
549.		*Orthocladiinae sp. J (SAP)*			
550.		*Orthocladiinae sp. P (SAP)*			
551.	24085	*Oryctolagus cuniculus (Rabbit)*	Y		
552.	34016	*Ovis aries (Sheep)*			
553.	24328	*Oxyura australis (Blue-billed Duck)*		P4	
554.	24619	*Pachycephala inornata (Gilbert's Whistler)*			
555.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
556.		*Palaemonetes australis*			
557.	48591	*Pandion cristatus (Osprey, Eastern Osprey)*		IA	
558.		*Paracyclops ?chiltoni (SAP)*			
559.		*Paralimnophyes pullulus (V42)*			
560.		*Paramatachia tubicola*			Y
561.		*Paramerina levidensis*			
562.		*Paranais litoralis*			
563.	24097	*Parantechinus apicalis (Dibbler)*		T	
564.		*Parapallene haddoni*			
565.		*Paraplesiops meleagris*			
566.		*Parartemia longicaudata*			
567.		*Parartemia sp.*			
568.		*Parascyllium variolatum*			
569.		*Parastacidae sp.*			
570.	25255	*Parasuta nigriceps*			
571.	25681	*Pardalotus punctatus (Spotted Pardalote)*			
572.	25682	*Pardalotus striatus (Striated Pardalote)*			
573.		*Parma bicolor*			
574.		*Parma mccullochi*			
575.		*Paroster niger*			
576.		*Parvicrepis sp. 3*			
577.	24642	*Passer montanus (Eurasian Tree Sparrow)*	Y		
578.	24648	*Pelecanus conspicillatus (Australian Pelican)*			
579.		*Pelsartia humeralis*			
580.		*Pempheris klunzingeri*			
581.		*Pempheris multiradiata*			
582.		*Pempheris ornata*			
583.		*Penicipelter vittiger*			Y
584.		*Pescecyclops sp. 434 (Stuart's original arnaudi sensu Sars)*			
585.		*Pescecyclops sp. 442=462=465=CB2 (salinarum in Morton)*			
586.	48060	*Petrochelidon ariel (Fairy Martin)*			
587.	48061	*Petrochelidon nigricans (Tree Martin)*			
588.	48066	*Petroica boodang (Scarlet Robin)*			
589.		*Pezidae sp.*			
590.	41348	*Pezoporus flaviventris (Western Ground Parrot)*		T	
591.	25697	*Phalacrocorax carbo (Great Cormorant)*			
592.	24665	*Phalacrocorax fuscescens (Black-faced Cormorant)*			
593.	25698	*Phalacrocorax melanoleucos (Little Pied Cormorant)*			
594.	24667	*Phalacrocorax sulcirostris (Little Black Cormorant)*			
595.	25699	*Phalacrocorax varius (Pied Cormorant)*			
596.	24409	*Phaps chalcoptera (Common Bronzewing)*			
597.	25587	*Phaps elegans (Brush Bronzewing)*			
598.		*Philodinidae sp.*			
599.		*Phycodurus eques subsp. glauerti*			Y
600.	48071	*Phylidonyris niger (White-cheeked Honeyeater)*			
601.	24596	*Phylidonyris novaehollandiae (New Holland Honeyeater)*			
602.		*Phyllophryne scortea*			

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603.		*Phyllopteryx taeniolatus*			
604.		*Physa acuta*			
605.		*Pictilabrus laticlavius*			
606.		*Pictilabrus sp.*			
607.		*Placobdelloides sp.*			
608.	24841	*Platalea flavipes (Yellow-billed Spoonbill)*			
609.	24842	*Platalea regia (Royal Spoonbill)*			
610.		*Platycephalus speculator*			
611.	25720	*Platycercus icterotis (Western Rosella)*			
612.	24747	*Platycercus spurius (Red-capped Parrot)*			
613.		*Platycypris baueri*			
614.	24843	*Plegadis falcinellus (Glossy Ibis)*		IA	
615.		*Pleuroxus inermis*			
616.		*Pleuroxus jugosus*			
617.		*Pleuroxus sp.*			
618.		*Plumatella sp.*			
619.		*Plurispina chauliodis*			
620.	24381	*Pluvialis dominica (American Golden Plover)*			
621.	24382	*Pluvialis fulva (Pacific Golden Plover)*		IA	
622.	24383	*Pluvialis squatarola (Grey Plover)*		IA	
623.	25703	*Podargus strigoides (Tawny Frogmouth)*			
624.	25704	*Podiceps cristatus (Great Crested Grebe)*			
625.	24907	*Pogona minor subsp. minor (Dwarf Bearded Dragon)*			
626.	24681	*Poliocephalus poliocephalus (Hoary-headed Grebe)*			
627.		*Polypedilum nr vespertinus (M2) (SAP)*			
628.		*Polypedilum nr. convexum (SAP)*			
629.		*Polypedilum nubifer*			
630.		*Pomatiopsidae sp.*			
631.	24683	*Pomatostomus superciliosus (White-browed Babbler)*			
632.	25731	*Porphyrio porphyrio (Purple Swamphen)*			
633.	24767	*Porphyrio porphyrio subsp. bellus (Purple Swamphen)*			
634.	24769	*Porzana fluminea (Australian Spotted Crake)*			
635.	24771	*Porzana tabuensis (Spotless Crake)*			
636.		*Posidonichthys hutchinsi*			
637.		*Pristina jenkinae*			
638.		*Pristina longiseta*			
639.		*Procladius paludicola*			
640.		*Procladius villosimanus*			
641.		*Protogarypinus giganteus*			
642.		*Protozoan sp*			
643.		*Pseudocaranx dentex*			
644.		*Pseudogobius olorum*			
645.	44625	*Pseudohydryphantes doegi (Doeg's Watermite)*		P2	
646.		*Pseudolabrus biserialis*			
647.		*Pseudolabrus parilus*			Y
648.		*Pseudolabrus sp.*			
649.	24230	*Pseudomys albocinereus (Ash-grey Mouse)*			
650.	25259	*Pseudonaja affinis subsp. affinis (Dugite)*			
651.	25260	*Pseudonaja affinis subsp. tanneri (Pygmy Dugite, Recherche Dugite)*		P4	
652.	25263	*Pseudonaja modesta (Ringed Brown Snake)*			
653.		*Pseudopallene ambigua*			
654.		*Pseudopallene dubia*			Y
655.	25433	*Pseudophryne guentheri (Crawling Toadlet)*			
656.		*Pseudophycis barbata*			
657.		*Pseudophycis breviuscula*			
658.		*Pseudorhombus jenynsii*			
659.		*Psychodidae sp.*			
660.	24711	*Puffinus assimilis subsp. assimilis (Little Shearwater)*			
661.	42344	*Purnella albifrons (White-fronted Honeyeater)*			
662.		*Purpureicephalus spurius*			
663.	25008	*Pygopus lepidopodus (Common Scaly Foot)*			
664.		*Pyralidae sp.*			
665.		*Raja sp.*			
666.	24243	*Rattus fuscipes (Western Bush Rat)*			
667.	24245	*Rattus rattus (Black Rat)*	Y		
668.		*Raveniella cirrata*			
669.	24776	*Recurvirostra novaehollandiae (Red-necked Avocet)*			
670.		*Reticypris clava*			
671.		*Reticypris sp. 557 (n. sp.) (SAP)*			
672.		*Reticypris walbu*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
673.		*Rhantus suturalis*			
674.	30818	*Rhinoplocephalus bicolor (Square-nosed Snake)*			
675.	48096	*Rhipidura albiscapa (Grey Fantail)*			
676.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
677.		*Rhombognathus delicatulus*			
678.		*Rhombognathus tener*			Y
679.		*Rhombognathus vulgaris*			
680.		*Saldula brevicornis*			
681.		*Salmo trutta*			
682.		*Sarscypridopsis aculeata*			
683.		*Scatopsidae sp.*			
684.		*Schizopera clandestina*			
685.		*Sciomyzidae sp.*			
686.		*Scirtidae sp.*			
687.		*Scobinichthys granulatus*			
688.		*Scomber australasicus*			
689.		*Scomberomorus semifasciatus*			
690.	25534	*Sericornis frontalis (White-browed Scrubwren)*			
691.	24279	*Sericornis frontalis subsp. maculatus (White-browed Scrubwren)*			
692.		*Servaea melaina*			
693.		*Sigara sp.*			
694.		*Sillago bassensis*			
695.		*Sillago sp.*			
696.		*Simocephalus elizabethae*			
697.		*Simuliidae sp.*			
698.		*Siphamia cephalotes*			
699.		*Siphonognathus argyrophanes*			
700.		*Siphonognathus radiatus*			
701.	30948	*Smicrornis brevirostris (Weebill)*			
702.	24108	*Sminthopsis crassicaudata (Fat-tailed Dunnart)*			
703.		*Sphaeriidae sp.*			
704.		*Sphaeromatidae sp.*			
705.	24645	*Stagonopleura oculata (Red-eared Firetail)*			
706.		*Staphylinidae sp.*			
707.		*Steatoda grossa*			
708.	48116	*Stercorarius antarcticus (Brown Skua)*		P4	
709.	25643	*Sterna hybrida (Whiskered Tern)*			
710.		*Sternopriscus multimaculatus*			
711.		*Sternopriscus sp.*			
712.	48594	*Sternula nereis (Fairy Tern)*			
713.	24329	*Stictonetta naevosa (Freckled Duck)*			
714.		*Stigmatopora argus*			
715.	25655	*Stipiturus malachurus (Southern Emu-wren)*			
716.	24554	*Stipiturus malachurus subsp. westernensis (Southern Emu-wren)*			
717.		*Storena fungina*			
718.		*Stratiomyidae sp.*			
719.	25597	*Strepera versicolor (Grey Currawong)*			
720.	25590	*Streptopelia senegalensis (Laughing Turtle-Dove)*	Y		
721.	25518	*Strophurus spinigerus*			
722.	24943	*Strophurus spinigerus subsp. inornatus*			
723.		*Stylopallene tubirostris*			
724.	24259	*Sus scrofa (Pig)*	Y		
725.		*Symphitoneuria wheeleri*			
726.		*Synchiropus papilio*			
727.		*Synsphyronus callus*			
728.		*Synsphyronus leo*			Y
729.		*Synsphyronus mimulus*			
730.		*Tabanidae sp.*			
731.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
732.	24331	*Tadorna tadornoides (Australian Shelduck, Mountain Duck)*			
733.		*Talitridae sp.*			
734.		*Tanypodinae sp.*			
735.		*Tanytarsus barbitarsis*			
736.		*Tanytarsus fuscithorax/semibarbitarsus*			
737.		*Tanytarsus nr bispinosus (SAP)*			
738.		*Tardigrada sp.*			
739.	24167	*Tarsipes rostratus (Honey Possum, Noolbenger)*			
740.		*Tasmanocoenis tillyardi*			
741.		*Testudinella patina*			
742.		*Tetragnatha nitens*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
743.		*Tetragnatha valida*			
744.	34007	*Thalassarche chlororhynchos (Atlantic Yellow-nosed Albatross)*		T	
745.		*Thalasseleotris adela*			
746.	48597	*Thalasseus bergii (Crested Tern)*		IA	
747.	48135	*Thinornis rubricollis (Hooded Plover, Hooded Dotterel)*		P4	
748.		*Threpterius maculosus*			
749.	24845	*Threskiornis spinicollis (Straw-necked Ibis)*			
750.	25203	*Tiliqua occipitalis (Western Bluetongue)*			
751.	25207	*Tiliqua rugosa subsp. rugosa*			
752.		*Tipulidae sp.*			
753.		*Tipulidae type F (SAP)*			
754.		*Tipulidae type J (SAP)*			Y
755.	25549	*Todiramphus sanctus (Sacred Kingfisher)*			
756.	24309	*Todiramphus sanctus subsp. sanctus (Sacred Kingfisher)*			
757.		*Trachinops sp.*			Y
758.		*Trianectes bucephalus*			
759.	48141	*Tribonyx ventralis (Black-tailed Native-hen)*			
760.		*Trichocerca sp.*			
761.	24803	*Tringa brevipes (Grey-tailed Tattler)*		P4	
762.	24806	*Tringa glareola (Wood Sandpiper)*		IA	
763.	24808	*Tringa nebularia (Common Greenshank, greenshank)*		IA	
764.	24809	*Tringa stagnatilis (Marsh Sandpiper, little greenshank)*		IA	
765.		*Triplectides australis*			
766.		*Turbellaria sp.*			
767.	48147	*Turnix varius (Painted Button-quail)*			
768.	24851	*Turnix velox (Little Button-quail)*			
769.	30954	*Tursiops aduncus (Indo-Pacific Bottlenose Dolphin)*			
770.	24069	*Tursiops truncatus (Bottlenose Dolphin)*			
771.	24983	*Underwoodisaurus milii (Barking Gecko)*			
772.		*Upeneichthys lineatus*			
773.		*Urodacus novaehollandiae*			
774.	25577	*Vanellus miles (Masked Lapwing)*			
775.	24385	*Vanellus miles subsp. novaehollandiae (Masked Lapwing)*			
776.	24386	*Vanellus tricolor (Banded Lapwing)*			
777.	25225	*Varanus rosenbergi (Heath Monitor)*			
778.		*Venatrix pullastra*			
779.	24206	*Vespadelus regulus (Southern Forest Bat)*			
780.		*Vincentia punctata*			
781.	24040	*Vulpes vulpes (Red Fox)*	Y		
782.	34113	*Westralunio carteri (Carter's Freshwater Mussel)*		T	
783.		*Xanthagrion erythroneurum*			
784.		*Zeus faber*			
785.		*Zonocypris sp BOS082*			Y
786.	25765	*Zosterops lateralis (Grey-breasted White-eye, Silvereye)*			
Chromista					
787.	26443	*Acrocarpia robusta*			
788.	26586	*Caulocystis uvifera*			
789.	35912	*Cladosiphon vermicularis*			
790.	26717	*Cystophora brownii*			
791.	26719	*Cystophora gracilis*			
792.	26722	*Cystophora monilifera*			
793.	26724	*Cystophora pectinata*			
794.	26726	*Cystophora racemosa*			
795.	26727	*Cystophora retorta*			
796.	26729	*Cystophora subfarcinata*			
797.	26764	*Dictyopteris australis*			
798.	26765	*Dictyopteris gracilis*			
799.	26766	*Dictyopteris muelleri*			
800.	26767	*Dictyopteris plagiogramma*			
801.	26776	*Dictyota dichotoma*			
802.	27392	*Dictyota dichotoma var. intricata*			
803.	29537	*Dictyota fastigiata*			
804.	26778	*Dictyota furcellata*			
805.	35218	*Dictyota nigricans*			
806.	35216	*Dictyota paniculata*			
807.	35223	*Dictyota polyclada*			
808.	29536	*Dictyota robusta*			
809.		*Dilophus marginatus*			Y
810.	26791	*Distromium flabellatum*			
811.	26792	*Distromium multifidum*			

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812.	26805	*Ecklonia radiata*			
813.	26810	*Encyothalia cliftonii*			
814.	26947	*Hormosira banksii*			
815.	26949	*Hydroclathrus clathratus*			
816.	27043	*Lobophora variegata*			
817.	27044	*Lobospira bicuspidata*			
818.	27087	*Myriodesma integrifolium*			
819.	27090	*Myriodesma quercifolium*			
820.	27092	*Myriodesma tuberosum*			
821.	27105	*Notheia anomala*			
822.	27152	*Platythalia quercifolia*			
823.	27164	*Polycerea zostericola*			
824.	27239	*Sargassum fallax*			
825.	27246	*Sargassum lacerifolium*			
826.	27254	*Sargassum podacanthum*			
827.	27264	*Scaberia agardhii*			
828.	27271	*Scoresbyella profunda*			
829.	27273	*Scytothalia dorycarpa*			
830.	27304	*Sporochnus comosus*			
831.	27305	*Sporochnus radiciformis*			
832.	36138	*Zonaria angustata*			
833.	27371	*Zonaria crenata*			
834.	27372	*Zonaria spiralis*			
835.	27373	*Zonaria turneriana*			

Fungi

836.		*Agaricus sp.*			
837.	38754	*Amanita conicobulbosa*			
838.	38758	*Anthracophyllum archeri*			
839.		*Armillaria luteobubalina*			
840.	38762	*Auriscalpium barbatum*			
841.	42106	*Austroparmelina conlabrosa*			
842.	38848	*Bolbitius titubans*			
843.		*Boletus sp.*			
844.	27597	*Buellia disciformis*			
845.		*Caloplaca sp.*			
846.	27663	*Cladia aggregata*			
847.	48177	*Cladia muelleri*			
848.	28208	*Cladonia cervicornis subsp. verticillata*			
849.		*Claviceps purpurea*			
850.		*Coltricia cinnamomea*			
851.		*Coprinus comatus*			
852.	27726	*Diplotomma alboatrum*			
853.	27744	*Flavoparmelia ferax*			
854.	27748	*Flavoparmelia rutidota*			
855.	27750	*Flavoparmelia secalonica*			
856.		*Fusarium avenaceum*			
857.		*Geastrum sp.*			
858.	38789	*Gymnopilus junonius*			
859.	27777	*Heterodermia obscurata*			
860.	28219	*Hypogymnia subphysodes var. subphysodes*			
861.	45301	*Jackelixia ligulata*			
862.	38802	*Laccocephalum tumulosum*			
863.		*Lecidea sp.*			
864.	46454	*Leucoagaricus leucothites*			
865.	38808	*Limacella pitereka*			
866.	49003	*Macrolepiota turbinata*			
867.	38816	*Omphalotus nidiformis*			
868.	49073	*Peziza austrogeaster*			
869.		*Physcia sp.*			
870.		*Phytophthora cinnamomi*			
871.		*Pisolithus sp.*			
872.		*Placoasterella baileyi*			
873.	38824	*Pleurotus australis*			
874.	48835	*Pycnoporus coccineus*			
875.	28027	*Ramalina celastri*			
876.	28224	*Ramalina inflata subsp. australis*			
877.	28034	*Ramboldia crassithallina*			
878.		*Rhizopogon luteolus*			
879.		*Schizophyllum commune*			
880.	28065	*Teloschistes chrysophthalmus*			

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881.	28066	*Teloschistes sieberianus*			
882.	28069	*Thelotrema lepadinum*			
883.	45838	*Tilletia ehrhartae*			
884.		*Uromycladium tepperianum*			
885.	28086	*Usnea dasaea*			
886.	28087	*Usnea inermis*			
887.	45909	*Ustilago tritici*			
888.		*Verrucaria sp.*			
889.	29970	*Xanthoparmelia conranensis*			
Plantae					
890.	14608	*Acacia aemula subsp. aemula*			
891.	3239	*Acacia biflora*			
892.	3244	*Acacia brachyclada*			
893.	3262	*Acacia cochlearis (Rigid Wattle)*			
894.	3268	*Acacia conniana*			
895.	3276	*Acacia crassuloides*			
896.	3277	*Acacia crispula*			
897.	12672	*Acacia cupularis*			
898.	3282	*Acacia cyclops (Coastal Wattle)*			
899.	3289	*Acacia delphina*			
900.	3296	*Acacia dermatophylla*			
901.	16123	*Acacia evenulosa*			
902.	3349	*Acacia glaucoptera (Flat Wattle)*			
903.	3353	*Acacia gonophylla*			
904.	3368	*Acacia heteroclita*			
905.	15475	*Acacia heteroclita subsp. heteroclita*			
906.	14119	*Acacia incanicarpa*		P2	
907.	3408	*Acacia lasiocalyx (Silver Wattle, Wilyurwur)*			
908.	11519	*Acacia lasiocarpa var. bracteolata*			
909.	15476	*Acacia latipes subsp. latipes*			
910.	3453	*Acacia myrtifolia*			
911.	3457	*Acacia nigricans*			
912.	16138	*Acacia pachyphylla*			
913.	12265	*Acacia patagiata*			
914.	16139	*Acacia pinguiculosa subsp. teretifolia*			
915.	16141	*Acacia pravifolia*			
916.	3496	*Acacia preissiana*			
917.	3498	*Acacia pritzeliana*			
918.	15482	*Acacia pulchella var. goadbyi*			
919.	3504	*Acacia pycnantha (Golden Wattle)*	Y		
920.	3525	*Acacia rostellifera (Summer-scented Wattle)*			
921.	3527	*Acacia saligna (Orange Wattle, Kudjong)*			
922.	30034	*Acacia saligna subsp. pruinescens*			
923.	30032	*Acacia saligna subsp. saligna*			
924.	3548	*Acacia sorophylla*			
925.	3564	*Acacia subcaerulea*			
926.	13505	*Acacia sulcata var. planoconvexa*			
927.	3582	*Acacia triptycha*			
928.	15715	*Acacia varia var. parviflora*			
929.	7812	*Achillea millefolium (Yarrow, Milfoil)*	Y		
930.	6295	*Acrotriche cordata (Coast Ground Berry)*			
931.	6203	*Actinotus glomeratus*			
932.	26449	*Adelophycus corneus*			
933.	43201	*Adelphacme minima*		P3	
934.	1773	*Adenanthos cuneatus (Coastal Jugflower)*			
935.	11685	*Adenanthos sericeus subsp. sericeus (Coastal Woollybush)*			
936.	4582	*Adriana quadripartita (Bitter Bush)*			
937.	20331	*Aeonium arboreum*	Y		
938.	20330	*Agonis baxteri*			
939.	23501	*Agrostocrinum scabrum subsp. scabrum*			
940.	184	*Aira caryophyllea (Silvery Hairgrass)*	Y		
941.	185	*Aira cupaniana (Silvery Hairgrass)*	Y		
942.	187	*Aira praecox (Early Hairgrass)*	Y		
943.	1719	*Allocasuarina acuaria*			
944.	1730	*Allocasuarina helmsii*			
945.	1731	*Allocasuarina huegeliana (Rock Sheoak, Kwowl)*			
946.	1732	*Allocasuarina humilis (Dwarf Sheoak)*			
947.	13907	*Allocasuarina lehmanniana subsp. ecarinata*			
948.	1739	*Allocasuarina thuyoides (Horned Sheoak)*			
949.	1740	*Allocasuarina trichodon*			

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950.	48624	*Althenia cylindrocarpa*			
951.	48620	*Althenia preissii*			
952.	4905	*Alyogyne hakeifolia*			
953.	35909	*Amansia pinnatifida*			
954.	2655	*Amaranthus albus (Tumbleweed)*	Y		
955.	37280	*Amaranthus muricatus*	Y		Y
956.	2669	*Amaranthus retroflexus (Redroot Amaranth)*	Y		
957.	126	*Amphibolis antarctica (Sea Nymph)*			
958.	127	*Amphibolis griffithii*			
959.	13380	*Amphibromus nervosus*			
960.	195	*Amphipogon avenaceus*			
961.	199	*Amphipogon strictus (Greybeard Grass)*			
962.	200	*Amphipogon turbinatus*			
963.	26458	*Amphiroa anceps*			
964.	1058	*Anarthria gracilis*			
965.	1059	*Anarthria humilis*			
966.	1060	*Anarthria laevis*			
967.	1061	*Anarthria polyphylla*			
968.	1062	*Anarthria prolifera*			
969.	1063	*Anarthria scabra*			
970.	6316	*Andersonia macranthera*			
971.	6318	*Andersonia parvifolia*			
972.	29108	*Andersonia sp. Kulin (J.M. Powell 2588)*			
973.	6321	*Andersonia sprengelioides*			
974.	40903	*Androcalva aphrix*			
975.	7833	*Angianthus preissianus*			
976.	12102	*Anigozanthos bicolor subsp. minor*		T	
977.	1415	*Anigozanthos rufus (Red Kangaroo Paw)*			
978.	6949	*Anthocercis littorea (Yellow Tailflower)*			
979.	6950	*Anthocercis viscosa (Sticky Tailflower)*			
980.	11555	*Anthocercis viscosa subsp. caudata*			
981.	7411	*Anthotium humile (Dwarf Anthotium)*			
982.	26475	*Antithamnion hanovioides*			
983.	19627	*Aotus sp. Esperance (P.G. Wilson 7904)*			
984.	43548	*Aphelia sp. Albany (B.G. Briggs 596)*			
985.	6210	*Apium annuum*			
986.	6211	*Apium prostratum (Sea Celery)*			
987.	12040	*Apium prostratum subsp. prostratum var. prostratum (Sea Celery)*			
988.	7838	*Arctotheca calendula (Cape Weed, African Marigold)*	Y		
989.	7839	*Arctotheca populifolia (Dune Arctotheca, Beach Pumpkin, Coast Capeweed, Beach Daisy)*	Y		
990.	26483	*Areschougia congesta*			
991.	26484	*Areschougia ligulata*			
992.	13327	*Argentipallium niveum*			
993.	13329	*Argentipallium tephrodes*			
994.	26485	*Asparagopsis armata*			
995.	8779	*Asparagus asparagoides (Bridal Creeper)*	Y		
996.	1364	*Asphodelus fistulosus (Onion Weed)*	Y		
997.	20347	*Astartea astarteoides*			
998.	5330	*Astartea fascicularis (Recherche Astartea)*			
999.	42787	*Astartea reticulata*		P3	
1000.	7850	*Asteridea nivea*			
1001.	6326	*Astroloma epacridis*			
1002.	6335	*Astroloma prostratum (Cranberry Heath)*			
1003.	14503	*Astroloma sp. Grass Patch (A.J.G. Wilson 110)*		P2	
1004.	6338	*Astroloma tectum*			
1005.	20725	*Astus tetragonus*			
1006.	2457	*Atriplex exilifolia*			
1007.	2471	*Atriplex prostrata (Hastate Orache)*	Y		
1008.	2475	*Atriplex semibaccata (Berry Saltbush)*			
1009.	17231	*Austrostipa acrociliata*			
1010.	17236	*Austrostipa drummondii*			
1011.	17240	*Austrostipa flavescens*			
1012.	17241	*Austrostipa hemipogon*			
1013.	17242	*Austrostipa juncifolia*			
1014.	17244	*Austrostipa macalpinei*			
1015.	35317	*Austrostipa mundula*		P3	
1016.	17253	*Austrostipa semibarbata*			
1017.	231	*Avellinia michelii*	Y		
1018.	233	*Avena barbata (Bearded Oat)*	Y		

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1019.	234	*Avena fatua (Wild Oat)*	Y		
1020.	5352	*Baeckea latens*			
1021.	20674	*Baeckea sp. Esperance (A.G. Gunness AG 2435)*			
1022.	5373	*Baeckea uncinella*			
1023.	32682	*Banksia armata var. armata*			
1024.	32683	*Banksia armata var. ignicida*			
1025.	1805	*Banksia blechnifolia*			
1026.	32621	*Banksia cirsioides*			
1027.	1832	*Banksia media (Southern Plains Banksia)*			
1028.	32203	*Banksia nivea subsp. nivea*			
1029.	1836	*Banksia nutans (Nodding Banksia)*			
1030.	11360	*Banksia nutans var. nutans (Nodding Banksia)*			
1031.	32198	*Banksia obovata (Wedge-leaved Dryandra)*			
1032.	32197	*Banksia obtusa (Shining Honeypot)*			
1033.	1837	*Banksia occidentalis (Red Swamp Banksia)*			
1034.	1839	*Banksia petiolaris*			
1035.	1840	*Banksia pilostylis*			
1036.	32143	*Banksia prolata*			
1037.	32145	*Banksia prolata subsp. calcicola*		P4	
1038.	1843	*Banksia pulchella (Teasel Banksia)*			
1039.	1845	*Banksia repens (Creeping Banksia)*			
1040.	1850	*Banksia speciosa (Showy Banksia)*			
1041.	32035	*Banksia tenuis*			
1042.	1856	*Banksia violacea (Violet Banksia)*			
1043.	32315	*Barbula calycina*			
1044.	32320	*Barbula subcalycina*			
1045.	741	*Baumea articulata (Jointed Rush)*			
1046.	743	*Baumea juncea (Bare Twigrush)*			
1047.	745	*Baumea preissii*			
1048.	5383	*Beaufortia empetrifolia (South Coast Beaufortia)*			
1049.	5388	*Beaufortia micrantha (Little Bottlebrush, Small-leaved Beaufortia)*			
1050.	5391	*Beaufortia schaueri (Pink Beaufortia, Pink Bottlebrush)*			
1051.	34262	*Beyeria physaphylla*		P1	
1052.	34297	*Beyeria sulcata var. gracilis*			
1053.	4601	*Beyeria viscosa (Pinkwood)*			
1054.	3154	*Billardiera coriacea*			
1055.	25798	*Billardiera fusiformis (Australian Bluebell)*			
1056.	25796	*Billardiera heterophylla (Australian Bluebell)*			
1057.	3160	*Billardiera lehmanniana (Kurup)*			
1058.	7856	*Blennospora drummondii*			
1059.	749	*Bolboschoenus caldwellii (Marsh Club-rush)*			
1060.	4403	*Boronia alata (Winged Boronia)*			
1061.	4404	*Boronia albiflora*			
1062.	16627	*Boronia baeckeacea subsp. baeckeacea*			
1063.	4409	*Boronia coerulescens*			
1064.	4411	*Boronia crassifolia*			
1065.	4416	*Boronia denticulata*			
1066.	4425	*Boronia inornata (Desert Boronia)*			
1067.	11381	*Boronia ramosa subsp. anethifolia*			
1068.	16638	*Boronia scabra subsp. attenuata*		P3	
1069.	4441	*Boronia spathulata (Boronia)*			
1070.	4446	*Boronia tetrandra (Yellow Boronia)*			
1071.	1267	*Borya constricta*			
1072.	1271	*Borya nitida (Pincushions)*			
1073.	30234	*Bossiaea barbarae*			
1074.	3707	*Bossiaea dentata*			
1075.	3716	*Bossiaea preissii*			
1076.	3718	*Bossiaea rufa*			
1077.	26518	*Botryocladia sonderi*			
1078.	30138	*Brachyloma geissoloma*			
1079.	17922	*Brachyloma mogin*		P3	
1080.	7871	*Brachyscome ciliaris*			
1081.	7874	*Brachyscome eyrensis*			
1082.	11187	*Brassica barrelieri subsp. oxyrrhina (Smooth-stem Turnip)*	Y		
1083.	2999	*Brassica rapa*	Y		
1084.	3000	*Brassica tournefortii (Mediterranean Turnip)*	Y		
1085.	2995	*Brassica x napus*	Y		
1086.	244	*Briza maxima (Blowfly Grass)*	Y		
1087.	245	*Briza minor (Shivery Grass)*	Y		
1088.	248	*Bromus catharticus (Prairie Grass)*	Y		

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1089.	249	*Bromus diandrus (Great Brome)*	Y		
1090.	250	*Bromus hordeaceus (Soft Brome)*	Y		
1091.	26525	*Bryopsis plumosa*			
1092.	1277	*Caesia occidentalis*			
1093.	3001	*Cakile edentula (American Sea Rocket)*	Y		
1094.	3002	*Cakile maritima (Sea Rocket)*	Y		
1095.	13853	*Caladenia arrecta*			
1096.	1580	*Caladenia cairnsiana (Zebra Orchid)*			
1097.	15343	*Caladenia decora*			
1098.	15348	*Caladenia flava subsp. flava*			
1099.	1594	*Caladenia graminifolia*			
1100.	15353	*Caladenia heberleana*			
1101.	18023	*Caladenia horistes*			
1102.	1599	*Caladenia latifolia (Pink Fairy Orchid)*			
1103.	15362	*Caladenia longicauda subsp. crassa*			
1104.	13860	*Caladenia longicauda subsp. rigidula*			
1105.	1605	*Caladenia marginata (White Fairy Orchid)*			
1106.	15374	*Caladenia pachychila*			
1107.		*Caladenia sp.*			
1108.	1589	*Caladenia x ericksoniae*			
1109.	2845	*Calandrinia brevipedata (Short-stalked Purslane)*			
1110.	2846	*Calandrinia calyptrata (Pink Purslane)*			
1111.	2848	*Calandrinia corrigioloides (Strap Purslane)*			
1112.	48569	*Calandrinia sp. Gypsum (F. Obbens & L. Hancock FO 10/14)*			
1113.	16365	*Calandrinia sp. Kenwick (G.J. Keighery 10905)*			
1114.	40827	*Calandrinia tholiformis*			
1115.	10861	*Callistachys lanceolata (Wonnich)*			
1116.	93	*Callitris drummondii (Drummond's Cypress Pine)*			
1117.	96	*Callitris preissii (Rottnest Island Pine, Maro)*			
1118.	97	*Callitris roei (Roe's Cypress Pine)*			
1119.	26534	*Callophycus dorsifer*			
1120.	26535	*Callophycus harveyanus*			
1121.	26536	*Callophycus oppositifolius*			
1122.		*Callophyllis lambertii*			
1123.	26538	*Callophyllis rangiferina*			
1124.	5407	*Calothamnus gibbosus*			
1125.	5409	*Calothamnus gracilis*			
1126.	35816	*Calothamnus quadrifidus subsp. quadrifidus*			
1127.	5434	*Calothamnus villosus*			
1128.	5449	*Calytrix decandra (Pink Starflower)*			
1129.	5450	*Calytrix depressa*			
1130.	48451	*Calytrix hirta*			
1131.	5465	*Calytrix leschenaultii*			
1132.	5483	*Calytrix tetragona (Common Fringe-myrtle)*			
1133.	3003	*Camelina sativa (False Flax)*	Y		
1134.	32461	*Campylopus bicolor var. bicolor*			
1135.	32338	*Campylopus introflexus*	Y		
1136.	43241	*Carex thecata*			
1137.	2796	*Carpobrotus modestus (Inland Pigface)*			
1138.	2798	*Carpobrotus virescens (Coastal Pigface, Kolboko, Bain)*			
1139.	26546	*Carpopeltis elata*			
1140.	26547	*Carpopeltis phyllophora*			
1141.	3008	*Carrichtera annua (Ward's Weed)*	Y		
1142.	2952	*Cassytha glabella (Tangled Dodder Laurel)*			
1143.	11211	*Cassytha glabella forma dispar*			
1144.	2957	*Cassytha racemosa (Dodder Laurel)*			
1145.	11242	*Cassytha racemosa forma pilosa*			
1146.	13685	*Catapodium rigidum (Rigid Fescue)*	Y		
1147.	26555	*Caulerpa brownii*			
1148.	26562	*Caulerpa fergusonii*			
1149.	26563	*Caulerpa flexilis*			
1150.	48455	*Caulerpa geminata*			
1151.	26564	*Caulerpa hedleyi*			
1152.	26570	*Caulerpa obscura*			
1153.	26571	*Caulerpa papillosa*			
1154.	26573	*Caulerpa racemosa*			
1155.	26574	*Caulerpa scalpelliformis*			
1156.	26583	*Caulerpa vesiculifera*			
1157.	760	*Caustis dioica*			
1158.	7915	*Centaurea calcitrapa (Star Thistle)*	Y		

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1159.	7916	*Centaurea melitensis (Maltese Cockspur, Malta Thistle)*	Y		
1160.	6539	*Centaurium erythraea (Common Centaury)*	Y		
1161.	6214	*Centella asiatica*			
1162.	35322	*Centranthus ruber subsp. ruber*	Y		
1163.	1121	*Centrolepis aristata (Pointed Centrolepis)*			
1164.	13122	*Centrolepis cephaloformis subsp. cephaloformis*			
1165.	13121	*Centrolepis cephaloformis subsp. murrayi*		P3	
1166.	1130	*Centrolepis humillima (Dwarf Centrolepis)*			
1167.	1134	*Centrolepis polygyna (Wiry Centrolepis)*			
1168.	13125	*Centrolepis strigosa subsp. strigosa*			
1169.	26599	*Ceramium puberulum*			
1170.	26604	*Ceramium tasmanicum*			
1171.	2889	*Cerastium glomeratum (Mouse Ear Chickweed)*	Y		
1172.	26607	*Chaetomorpha aerea*			
1173.	1280	*Chamaescilla corymbosa (Blue Squill)*			
1174.	11299	*Chamaescilla corymbosa var. corymbosa*			
1175.	1281	*Chamaescilla spiralis*			
1176.	5489	*Chamelaucium axillare (Esperance Waxflower)*			
1177.	5491	*Chamelaucium ciliatum*			
1178.	5495	*Chamelaucium megalopetalum (Large Waxflower)*			
1179.	26620	*Champia viridis*			Y
1180.	26621	*Champia zostericola*			
1181.	1513	*Chasmanthe floribunda (African Cornflag)*	Y		
1182.	31	*Cheilanthes austrotenuifolia*			
1183.	2490	*Chenopodium glaucum (Glaucous Goosefoot)*	Y		
1184.	2494	*Chenopodium murale (Nettle-leaf Goosefoot)*	Y		
1185.	26625	*Chiracanthia arborea*			
1186.	272	*Chloris virgata (Feathertop Rhodes Grass)*	Y		
1187.	7925	*Chondrilla juncea (Skeleton Weed)*	Y		
1188.	17689	*Chordifex laxus*			
1189.	17834	*Chordifex sphacelatus*			
1190.	763	*Chorizandra enodis (Black Bristlerush)*			
1191.	13112	*Chorizema aciculare subsp. aciculare*			
1192.	3758	*Chorizema ilicifolium (Holly Flame Pea)*			
1193.	3759	*Chorizema nervosum*			
1194.	13108	*Chorizema obtusifolium*			
1195.	3763	*Chorizema uncinatum*			
1196.	6543	*Cicendia filiformis (Slender Cicendia)*	Y		
1197.	7937	*Cirsium vulgare (Spear Thistle, Scotch Thistle)*	Y		
1198.	48668	*Cladophora subsimplex*			
1199.	26663	*Cladurus elatus*			
1200.	26664	*Claudea elegans*			
1201.	10804	*Clematis linearifolia*			
1202.	2929	*Clematis pubescens (Common Clematis)*			
1203.	26666	*Cliftonaea pectinata*			
1204.	26672	*Codium galeatum*			
1205.	26678	*Codium muelleri*			
1206.	26679	*Codium perriniae*			
1207.	26683	*Codium spongiosum*			
1208.	26685	*Coelarthrum cliftonii*			
1209.	26686	*Coelarthrum opuntia*			
1210.	6342	*Coleanthera coelophylla*		P1	
1211.	14664	*Comesperma calcicola*		P3	
1212.	4552	*Comesperma confertum*			
1213.	4553	*Comesperma drummondii (Drummond's Milkwort)*			
1214.	4554	*Comesperma flavum*			
1215.	14663	*Comesperma griffinii*		P2	
1216.	4555	*Comesperma integerrimum*			
1217.	4556	*Comesperma lanceolatum*		P2	
1218.	4564	*Comesperma virgatum (Milkwort)*			
1219.	4566	*Comesperma volubile (Love Creeper)*			
1220.	48634	*Commersonia corniculata*			
1221.	40923	*Commersonia craurophylla (Brittle Leaved Rulingia)*			
1222.	40924	*Commersonia rotundifolia (Round-leaved Rulingia)*		P3	
1223.	1868	*Conospermum distichum*			
1224.	16349	*Conospermum leianthum subsp. leianthum*			
1225.	16350	*Conospermum leianthum subsp. orientale*			
1226.	14003	*Conospermum quadripetalum*		P2	
1227.	15611	*Conospermum stoechadis subsp. stoechadis (Common Smokebush)*			
1228.	1883	*Conospermum teretifolium (Spider Smokebush)*			

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1229.	6346	*Conostephium marchantiorum*		P3	
1230.	1424	*Conostylis bealiana*			
1231.	1426	*Conostylis breviscapa*			
1232.	1439	*Conostylis lepidospermoides (Sedge Conostylis)*		T	
1233.	1445	*Conostylis phathyrantha*			
1234.	11923	*Conostylis seorsiflora subsp. seorsiflora*			
1235.	1453	*Conostylis serrulata*			
1236.	5500	*Conothamnus aureus*			
1237.	7939	*Conyza bonariensis (Flaxleaf Fleabane)*	Y		
1238.		*Conyza sp.*			
1239.	20074	*Conyza sumatrensis*	Y		
1240.	7418	*Coopernookia polygalacea*			
1241.	7419	*Coopernookia strophiolata*			
1242.	2891	*Corrigiola litoralis (Strapwort)*	Y		
1243.	1624	*Corybas despectans*			
1244.	12012	*Corynotheca micrantha var. panda*			
1245.	7943	*Cotula australis (Common Cotula)*			
1246.	7944	*Cotula bipinnata (Ferny Cotula)*	Y		
1247.	7945	*Cotula coronopifolia (Waterbuttons)*	Y		
1248.	7946	*Cotula cotuloides (Smooth Cotula)*			
1249.	26701	*Craspedocarpus blepharicarpus*			
1250.	26704	*Craspedocarpus venosus*			
1251.	3136	*Crassula alata*	Y		
1252.	3137	*Crassula colorata (Dense Stonecrop)*			
1253.	11349	*Crassula decumbens var. decumbens*			
1254.	3139	*Crassula exserta*			
1255.	20271	*Crassula extrorsa*			
1256.	3142	*Crassula natans*	Y		
1257.	15706	*Crassula natans var. minus*	Y		
1258.	16188	*Cryptandra minutifolia subsp. brevistyla*			
1259.	9076	*Cryptandra myriantha*			
1260.	4809	*Cryptandra pungens*			
1261.	26709	*Cryptonemia undulata*			
1262.	48865	*Cucumis myriocarpus subsp. myriocarpus*	Y		
1263.	26712	*Curdiea obesa*			
1264.	20717	*Cyanicula aperta*			
1265.	15114	*Cyanicula gemmata*			
1266.	769	*Cyathochaeta clandestina*			
1267.	17618	*Cyathochaeta equitans*			
1268.	42220	*Cyathostemon ambiguus*			
1269.	43962	*Cyathostemon sp. Esperance (A. Fairall 2431)*		P1	
1270.	20422	*Cyathostemon tenuifolius*			
1271.	40661	*Cycnogeton lineare*			
1272.	283	*Cynodon dactylon (Couch)*	Y		
1273.	6680	*Cynoglossum australe (Australian Hound's-tongue)*			
1274.	783	*Cyperus congestus (Dense Flat-sedge)*	Y		
1275.	801	*Cyperus laevigatus*	Y		
1276.	815	*Cyperus tenellus (Tiny Flatsedge)*	Y		
1277.	2779	*Cypselocarpus haloragoides*			
1278.	10964	*Cyrtostylis robusta*			
1279.	10942	*Cyrtostylis tenuissima*			
1280.	287	*Dactylis glomerata (Cocksfoot)*	Y		
1281.	7431	*Dampiera decurrens*		P2	
1282.	7439	*Dampiera fasciculata (Bundled-leaf Dampiera)*			
1283.	7461	*Dampiera parvifolia (Many-bracted Dampiera)*			
1284.	7471	*Dampiera sacculata (Pouched Dampiera)*			
1285.	7474	*Dampiera sericantha*		P3	
1286.	7485	*Dampiera triloba*		P3	
1287.	5510	*Darwinia diosmoides*			
1288.	20451	*Darwinia sp. Gibson (R.D. Royce 3569)*		P1	
1289.	35618	*Darwinia sp. Karonie (K. Newbey 8503)*			
1290.	18574	*Darwinia sp. Ravensthorpe (G.J. Keighery 8030)*			
1291.	5533	*Darwinia vestita (Pom-pom Darwinia)*			
1292.	26732	*Dasya baldockii*			
1293.	26734	*Dasya clavigera*			
1294.	26735	*Dasya cliftonii*			
1295.	26736	*Dasya crinita*			Y
1296.	26738	*Dasya elongata*			
1297.	26739	*Dasya extensa*			
1298.	26749	*Dasya villosa*			

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1299.	6218	*Daucus glochidiatus (Australian Carrot)*			
1300.	16736	*Daviesia apiculata*			
1301.	15507	*Daviesia incrassata subsp. reversifolia*			
1302.	3818	*Daviesia lancifolia*			
1303.	14892	*Daviesia major*			
1304.	3823	*Daviesia nematophylla*			
1305.	12817	*Daviesia pauciflora*		P3	
1306.	3844	*Daviesia teretifolia*			
1307.	26756	*Delisea hypneoides*			
1308.	26757	*Delisea pulchra*			
1309.	16595	*Desmocladus flexuosus*			
1310.	46362	*Desmocladus lateriflorus*			
1311.	299	*Deyeuxia quadriseta (Reed Bentgrass)*			
1312.	16326	*Dianella brevicaulis*			
1313.	6616	*Dichondra repens (Kidney Weed)*			
1314.	26761	*Dictyomenia harveyana*			
1315.	26762	*Dictyomenia sonderi*			
1316.	26770	*Dictyosphaeria sericea*			
1317.	32346	*Didymodon torquatus*			
1318.	38260	*Dielsiodoxa oligarrhenoides*			
1319.	3864	*Dillwynia divaricata*			
1320.	3865	*Dillwynia pungens*			
1321.	3866	*Dillwynia uncinata (Silky Parrot Pea)*			
1322.	3012	*Diplotaxis tenuifolia (Sand Rocket)*	Y		
1323.	3867	*Dipogon lignosus (Dolichos Pea)*	Y		
1324.	19649	*Disa bracteata*	Y		
1325.	7054	*Dischisma arenarium*	Y		
1326.	11681	*Disphyma crassifolium subsp. clavellatum*			
1327.	7961	*Dittrichia graveolens (Stinkwort)*	Y		
1328.	12942	*Diuris concinna*			
1329.	12941	*Diuris conspicillata*			Y
1330.	42231	*Diuris decrementa*			
1331.	33159	*Diuris immaculata*			Y
1332.	1634	*Diuris laxiflora (Bee Orchid)*			
1333.	46873	*Diuris littoralis*			
1334.	12937	*Diuris pulchella*			
1335.	4756	*Dodonaea caespitosa*			
1336.	4757	*Dodonaea ceratocarpa*			
1337.	26795	*Doxodasya bolbochaete*			
1338.	26796	*Doxodasya lanuginosa*			
1339.	1640	*Drakaea glyptodon (King-in-his-carriage)*			
1340.	48726	*Drosera australis*			
1341.	48751	*Drosera drummondii*			
1342.	3098	*Drosera glanduligera (Pimpernel Sundew)*			
1343.	3102	*Drosera huegelii (Bold Sundew)*			
1344.	3105	*Drosera leucoblasta (Wheel Sundew)*			
1345.	3109	*Drosera menziesii (Pink Rainbow)*			
1346.	3113	*Drosera neesii (Jewel Rainbow)*			
1347.	3114	*Drosera nitidula (Shining Sundew)*			
1348.	3124	*Drosera pulchella (Pretty Sundew)*			
1349.	3128	*Drosera ramellosa (Branched Sundew)*			
1350.	13227	*Drosera sargentii*			Y
1351.	3130	*Drosera scorpioides (Shaggy Sundew)*			
1352.		*Drosera sp.*			
1353.	49090	*Drosera sp. Branched styles (S.C. Coffey 193)*			
1354.	48708	*Drosera trichocaulis*			
1355.	3135	*Drosera zonaria (Painted Sundew)*			
1356.	33501	*Dysphania cristata (Crested Goosefoot)*			
1357.	33480	*Dysphania pumilio (Clammy Goosefoot)*			
1358.	32351	*Eccremidium pulchellum*			
1359.	26801	*Echinosporangium semipennatum*			
1360.	26803	*Echinothamnion hystrix*			
1361.	347	*Ehrharta calycina (Perennial Veldt Grass)*	Y		
1362.	349	*Ehrharta longiflora (Annual Veldt Grass)*	Y		
1363.		*Ehrharta sp.*			
1364.	822	*Eleocharis acuta (Common Spikerush)*			
1365.	831	*Eleocharis sphacelata (Tall Spikerush, Djabren)*			
1366.	1643	*Elythranthera brunonis (Purple Enamel Orchid)*			
1367.	1644	*Elythranthera emarginata (Pink Enamel Orchid)*			
1368.	1645	*Epiblema grandiflorum (Babe-in-a-cradle)*			

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1369.	11570	*Epilobium billardiereanum subsp. billardiereanum (Smooth Willow Herb)*			
1370.	374	*Eragrostis cilianensis (Stinkgrass)*	Y		
1371.	376	*Eragrostis curvula (African Lovegrass)*	Y		
1372.	7180	*Eremophila alternifolia (Poverty Bush)*			
1373.	7264	*Eremophila saligna (Willowy Eremophila)*			
1374.	14633	*Eremophila subfloccosa subsp. glandulosa*			
1375.	1646	*Eriochilus dilatatus (White Bunny Orchid)*			
1376.	15410	*Eriochilus dilatatus subsp. dilatatus*			
1377.	15413	*Eriochilus dilatatus subsp. undulatus*			
1378.	13866	*Eriochilus pulchellus*			
1379.	15415	*Eriochilus scaber subsp. scaber*			
1380.	4333	*Erodium cicutarium (Common Storksbill)*	Y		
1381.	4336	*Erodium moschatum (Musky Crowfoot)*	Y		
1382.	26821	*Erythroclonium muelleri*			
1383.	26823	*Erythroclonium sonderi*			
1384.	5550	*Eucalyptus angulosa (Ridge-fruited Mallee, Kwararl)*			
1385.	5554	*Eucalyptus aquilina (Mt Le Grand Mallee)*		P4	
1386.	19508	*Eucalyptus calycogona subsp. calycogona*			
1387.	13518	*Eucalyptus captiosa*			
1388.	5597	*Eucalyptus conferruminata (Bald Island Marlock)*			
1389.	33520	*Eucalyptus conferruminata subsp. recherche*			
1390.	20292	*Eucalyptus conglobata subsp. conglobata*			
1391.	20293	*Eucalyptus conglobata subsp. perata*			
1392.	5604	*Eucalyptus cooperiana (Many-flowered Mallee, Merrit)*			
1393.	5605	*Eucalyptus cornuta (Yate, Yeid)*			
1394.	5611	*Eucalyptus cylindriflora (White Mallee)*			
1395.	5616	*Eucalyptus decurva (Slender Mallee)*			
1396.	12870	*Eucalyptus densa*			
1397.	12869	*Eucalyptus densa subsp. densa*			
1398.	13517	*Eucalyptus dolichorhyncha*		P4	
1399.	5627	*Eucalyptus doratoxylon (Spearwood Mallee, Keidjngund)*			
1400.	5637	*Eucalyptus eremophila (Tall Sand Mallee)*			
1401.	12377	*Eucalyptus extensa*			
1402.	16043	*Eucalyptus famelica*		P3	
1403.	5648	*Eucalyptus flocktoniae (Merrit, Merid)*			
1404.	13022	*Eucalyptus foliosa*		P3	
1405.	5652	*Eucalyptus forrestiana (Fuchsia Gum)*			
1406.	14277	*Eucalyptus fraseri subsp. fraseri*			
1407.	18216	*Eucalyptus globulus*	Y		
1408.	5659	*Eucalyptus gomphocephala (Tuart, Duart)*			
1409.	5675	*Eucalyptus incrassata (Lerp Mallee)*			
1410.	44538	*Eucalyptus insularis subsp. continentalis*		T	
1411.	14299	*Eucalyptus kessellii*			
1412.	13065	*Eucalyptus kessellii subsp. eugnosta*			
1413.	5695	*Eucalyptus leptocalyx (Hopetoun Mallee)*			
1414.	19811	*Eucalyptus leptocalyx subsp. leptocalyx*			
1415.	12696	*Eucalyptus litorea*		P2	
1416.	5704	*Eucalyptus macrandra (Long-flowered Marlock, Dwed)*			
1417.	5712	*Eucalyptus merrickiae (Goblet Mallee)*		T	
1418.	5713	*Eucalyptus micranthera (Alexander River Mallee)*			
1419.	42063	*Eucalyptus notactites*			
1420.	5723	*Eucalyptus occidentalis (Flat-topped Yate, Moidj)*			
1421.	5745	*Eucalyptus pileata (Capped Mallee)*			
1422.	18551	*Eucalyptus platypus subsp. platypus*			
1423.	16180	*Eucalyptus pleurocarpa*			
1424.	15068	*Eucalyptus preissiana subsp. lobata*		P4	
1425.	13525	*Eucalyptus quadrans*			
1426.	12694	*Eucalyptus rigens (Saltlake Mallee)*			
1427.	5767	*Eucalyptus salubris (Gimlet)*			
1428.	10834	*Eucalyptus scyphocalyx (Goblet Mallee)*			
1429.	13014	*Eucalyptus semiglobosa*		P3	
1430.		*Eucalyptus sp.*			
1431.	41523	*Eucalyptus sp. Southern Wheatbelt (D. Nicolle & M. French DN 5507)*			
1432.	14189	*Eucalyptus sporadica*			
1433.	13030	*Eucalyptus suggrandis subsp. suggrandis*			
1434.	13027	*Eucalyptus tenera*			
1435.	5788	*Eucalyptus tetraptera (Four-winged Mallee)*			
1436.	12889	*Eucalyptus tumida*			
1437.	5796	*Eucalyptus uncinata (Hook-leaved Mallee)*			
1438.	18085	*Eucalyptus utilis*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1439.	15808	*Eucalyptus valens*			
1440.	12864	*Eucalyptus varia*			
1441.	12862	*Eucalyptus varia subsp. salsuginosa*			
1442.	12863	*Eucalyptus varia subsp. varia*			
1443.	8587	*Eucalyptus x erythrandra*			
1444.	19661	*Eucalyptus x missilis*		P4	
1445.	15137	*Euchiton sphaericus*			
1446.	4636	*Euphorbia paralias (Sea Spurge)*	Y		
1447.	4638	*Euphorbia peplus (Petty Spurge)*	Y		
1448.	4643	*Euphorbia segetalis (Shortstemmed Carnation Weed)*	Y		Y
1449.	4648	*Euphorbia terracina (Geraldton Carnation Weed)*	Y		
1450.	11271	*Euphrasia collina subsp. tetragona*			
1451.	26830	*Euptilota articulata*			
1452.	37740	*Eutaxia inuncta*			
1453.	20214	*Eutaxia myrtifolia*			
1454.	3879	*Eutaxia parvifolia*			
1455.	10765	*Exocarpos sparteus (Broom Ballart, Djuk)*			
1456.	20162	*Fabronia hampeana*		P2	
1457.	8850	*Fallopia convolvulus*	Y		
1458.	20216	*Ficinia nodosa (Knotted Club Rush)*			
1459.	5209	*Frankenia pauciflora (Seaheath)*			
1460.	5213	*Frankenia tetrapetala (Four Petaled Frankenia)*			
1461.	1944	*Franklandia fucifolia (Lanoline Bush)*			
1462.	899	*Gahnia ancistrophylla (Hooked-leaf Saw Sedge)*			
1463.	16249	*Gahnia sp. Headland (G.J. Keighery 8501)*			
1464.	43205	*Gahnia sp. South West (K.L. Wilson & K. Frank KLW 9266)*			
1465.	907	*Gahnia trifida (Coast Saw-sedge)*			
1466.	17348	*Galium aparine (Goosegrass)*	Y		
1467.	7323	*Galium murale (Small Goosegrass)*	Y		
1468.	3891	*Gastrolobium bilobum (Heart Leaf Poison)*			
1469.	19702	*Gastrolobium discolor*			
1470.	11044	*Gastrolobium heterophyllum*			
1471.	20453	*Gastrolobium latifolium*			
1472.	19725	*Gastrolobium musaceum*			
1473.	10981	*Gastrolobium parviflorum*			
1474.	20487	*Gastrolobium punctatum*			
1475.	3924	*Gastrolobium spinosum (Prickly Poison)*			
1476.	16311	*Gazania linearis*	Y		
1477.	26850	*Gelinaria ulvoidea*			
1478.	4341	*Geranium solanderi (Native Geranium)*			
1479.	1518	*Gladiolus angustus (Long Tubed Painted Lady)*	Y		
1480.	33620	*Glischrocaryon angustifolium*			
1481.	6143	*Glischrocaryon aureum (Common Popflower)*			
1482.	6145	*Glischrocaryon roei*			
1483.	26859	*Gloiocladia australe*			
1484.	26860	*Gloiocladia halymenioides*			
1485.	26864	*Gloiosaccion brownii*			
1486.	7983	*Gnaphalium indutum (Tiny Cudweed)*			
1487.	7991	*Gnephosis drummondii*			
1488.	8003	*Gnephosis tridens*			
1489.	6587	*Gomphocarpus fruticosus (Narrowleaf Cottonbush)*	Y		
1490.	3946	*Gompholobium baxteri*			
1491.	10909	*Gompholobium confertum*			
1492.	3950	*Gompholobium knightianum*			
1493.	3951	*Gompholobium marginatum*			
1494.	3954	*Gompholobium polymorphum*			
1495.	11083	*Gompholobium scabrum*			
1496.	3957	*Gompholobium tomentosum (Hairy Yellow Pea)*			
1497.	6163	*Gonocarpus pycnostachyus*		P3	
1498.	6165	*Gonocarpus scordioides*			
1499.	7499	*Goodenia concinna (Elegant Goodenia)*			
1500.	7503	*Goodenia decursiva*			
1501.	7517	*Goodenia incana (Hoary Goodenia)*			
1502.	12551	*Goodenia micrantha*			
1503.	7537	*Goodenia pterigosperma*			
1504.	7542	*Goodenia quadrilocularis*		P2	
1505.	19051	*Goodenia scapigera subsp. scapigera*			
1506.	7562	*Goodenia viscida (Viscid Goodenia)*			
1507.	26868	*Gracilaria cliftonii*			
1508.	1961	*Grevillea baxteri (Cape Arid Grevillea)*		P4	

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1509.	1991	*Grevillea disjuncta*			
1510.	2018	*Grevillea huegelii*			
1511.	2053	*Grevillea oligantha*			
1512.	2061	*Grevillea pectinata (Comb-leaved Grevillea)*			
1513.	19491	*Grevillea plurijuga subsp. superba*			
1514.	26879	*Griffithsia balara*			Y
1515.	26883	*Griffithsia monilis*			
1516.	26886	*Griffithsia teges*			
1517.	32386	*Grimmia laevigata*			
1518.	5011	*Guichenotia ledifolia*			
1519.	5013	*Guichenotia micrantha (Small Flowered Guichenotia)*			
1520.	2804	*Gunniopsis glabra*			
1521.	2787	*Gyrostemon sheathii*			
1522.	1464	*Haemodorum brevisepalum*			
1523.	1475	*Haemodorum spicatum (Mardja)*			
1524.	2126	*Hakea adnata*			
1525.	2139	*Hakea cinerea (Ashy Hakea)*			
1526.	2141	*Hakea clavata (Coastal Hakea)*			
1527.	2145	*Hakea corymbosa (Cauliflower Hakea)*			
1528.	12226	*Hakea denticulata*			
1529.	12227	*Hakea drupacea*			
1530.	2160	*Hakea ferruginea*			
1531.	2171	*Hakea laurina (Pincushion Hakea, Kodjet)*			
1532.	2175	*Hakea lissocarpha (Honey Bush)*			
1533.	2187	*Hakea nitida (Frog Hakea)*			
1534.	2188	*Hakea obliqua (Needles and Corks)*			
1535.	13335	*Hakea obliqua subsp. obliqua*			
1536.	2193	*Hakea pandanicarpa*			
1537.	16910	*Hakea pandanicarpa subsp. pandanicarpa*			
1538.	2197	*Hakea prostrata (Harsh Hakea)*			
1539.	2203	*Hakea ruscifolia (Candle Hakea)*			
1540.	2212	*Hakea sulcata (Furrowed Hakea)*			
1541.	2214	*Hakea trifurcata (Two-leaf Hakea)*			
1542.	2216	*Hakea varia (Variable-leaved Hakea)*			
1543.	2218	*Hakea victoria (Royal Hakea, Dalyongurd)*			
1544.	6684	*Halgania andromedifolia*			
1545.	161	*Halophila australis*			
1546.	164	*Halophila ovalis (Sea Wrack)*			
1547.	26900	*Haloplegma preissii*			
1548.	6171	*Haloragis digyna*			
1549.	26903	*Halydictyon arachnoideum*			
1550.	48666	*Halymenia harveyana*			
1551.	8008	*Helianthus annuus (Sunflower, Common Sunflower)*	Y		
1552.	3016	*Heliophila pusilla*	Y		
1553.	6707	*Heliotropium curassavicum (Smooth Heliotrope)*			
1554.	6710	*Heliotropium europaeum (Common Heliotrope)*	Y		
1555.	26913	*Helminthora australis*			
1556.	439	*Hemarthria uncinata (Matgrass)*			
1557.	11451	*Hemarthria uncinata var. uncinata*			
1558.	2689	*Hemichroa pentandra (Trailing Jointweed)*			
1559.	26915	*Hennedya crispa*			
1560.	26933	*Heterosiphonia gunniana*			
1561.	26936	*Heterosiphonia muelleri*			
1562.	26938	*Heterosiphonia wrangelioides*			
1563.	5108	*Hibbertia acerosa (Needle Leaved Guinea Flower)*			
1564.	5110	*Hibbertia andrewsiana*			
1565.	5117	*Hibbertia cuneiformis (Cutleaf Hibbertia)*			
1566.	20051	*Hibbertia diamesogenos*			
1567.	5122	*Hibbertia eatoniae*			
1568.	5131	*Hibbertia gracilipes*			
1569.	20059	*Hibbertia hemignosta*			
1570.	20049	*Hibbertia hibbertioides var. meridionalis*			
1571.	5143	*Hibbertia lineata*			
1572.	20417	*Hibbertia oligantha*			
1573.	20349	*Hibbertia psilocarpa*			
1574.	5162	*Hibbertia racemosa (Stalked Guinea Flower)*			
1575.		*Hibbertia sp.*			
1576.	5173	*Hibbertia subvaginata*			
1577.	20036	*Hibbertia turleyana*		P2	
1578.	19433	*Hibbertia ulicifolia*			

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1579.	13773	*Hopkinsia adscendens*		P3	
1580.	449	*Hordeum leporinum (Barley Grass)*	Y		
1581.	18137	*Hornungia procumbens*	Y		
1582.	3966	*Hovea pungens (Devil's Pins, Puyenak)*			
1583.	3968	*Hovea trisperma (Common Hovea)*			
1584.	12742	*Hyalosperma demissum*			
1585.	6223	*Hydrocotyle alata*			
1586.	6234	*Hydrocotyle medicaginoides (Trefoil Pennywort)*			
1587.	26959	*Hymenena multipartita*			
1588.	26962	*Hymenocladia dactyloides*			
1589.	26965	*Hymenocladia usnea*			
1590.	452	*Hyparrhenia hirta (Tambookie Grass)*	Y		
1591.	26971	*Hypnea ramentacea*			
1592.	26973	*Hypnea valentiae*			
1593.	5827	*Hypocalymma strictum*			
1594.	8086	*Hypochaeris glabra (Smooth Catsear)*	Y		
1595.	9352	*Hypochaeris radicata (Flat Weed, Cats-ear)*	Y		
1596.	1070	*Hypolaena exsulca*			
1597.	1071	*Hypolaena fastigiata*			
1598.	17844	*Hypolaena humilis*			
1599.	910	*Isolepis cernua (Nodding Club-rush)*			
1600.	912	*Isolepis cyperoides*			
1601.	917	*Isolepis marginata (Coarse Club-rush)*			
1602.	2220	*Isopogon alcicornis (Elkhorn Coneflower)*		P3	
1603.	16880	*Isopogon formosus subsp. formosus*			
1604.	2234	*Isopogon polycephalus (Clustered Coneflower)*			
1605.	2240	*Isopogon trilobus (Barrel Coneflower)*			
1606.	7399	*Isotoma scapigera (Long-scaped Isotome)*			
1607.	3992	*Isotropis cuneifolia (Granny Bonnets)*			
1608.	3993	*Isotropis drummondii (Lamb Poison)*			
1609.	8092	*Ixiolaena viscosa (Sticky Ixiolaena)*			
1610.	3997	*Jacksonia alata*			
1611.	4002	*Jacksonia capitata*			
1612.	4005	*Jacksonia condensata*			
1613.	4028	*Jacksonia spinosa*			
1614.	14741	*Jacksonia venosa*			
1615.	14777	*Jacksonia viscosa*			
1616.	36141	*Jania pulchella*			
1617.	1295	*Johnsonia acaulis*			
1618.	1175	*Juncus acutus (Spiny Rush)*	Y		
1619.	20454	*Juncus acutus subsp. acutus*	Y		
1620.	1178	*Juncus bufonius (Toad Rush)*	Y		
1621.	1179	*Juncus caespiticius (Grassy Rush)*			
1622.	1180	*Juncus capitatus (Capitate Rush)*	Y		
1623.	11922	*Juncus kraussii subsp. australiensis*			
1624.	1188	*Juncus pallidus (Pale Rush)*			
1625.	1194	*Juncus radula*			
1626.	4035	*Kennedia beckxiana (Cape Arid Kennedia)*		P4	
1627.	4037	*Kennedia coccinea (Coral Vine)*			
1628.	37961	*Kennedia coccinea subsp. esotera*			
1629.	4042	*Kennedia nigricans (Black Kennedia)*			
1630.	4044	*Kennedia prostrata (Scarlet Runner)*			
1631.	42680	*Kennedia sp. South coast (T.R. Lally 1576 & I.P. Lally)*			
1632.	26995	*Kuetzingia canaliculata*			
1633.	5830	*Kunzea affinis*			
1634.	5831	*Kunzea baxteri (Baxter's Kunzea)*			
1635.	5839	*Kunzea preissiana*			
1636.	38222	*Kunzea salina*		P3	
1637.	11528	*Labichea lanceolata subsp. brevifolia*			
1638.	467	*Lagurus ovatus (Hare's Tail Grass)*	Y		
1639.	13647	*Lambertia echinata subsp. echinata*		T	
1640.	2248	*Lambertia inermis (Chittick, Djidiok)*			
1641.	16870	*Lambertia inermis var. drummondii*			
1642.	16871	*Lambertia inermis var. inermis*			
1643.	5030	*Lasiopetalum discolor*			
1644.	5035	*Lasiopetalum indutum*			
1645.	5047	*Lasiopetalum rosmarinifolium*			
1646.	35642	*Lasiopetalum sp. Mt Ragged (T.E.H. Aplin 4349)*			
1647.	26997	*Laurencia arbuscula*			
1648.	26998	*Laurencia brongniartii*			

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1649.	48408	*Laurencia dendroidea*			
1650.	27000	*Laurencia elata*			
1651.	27001	*Laurencia filiformis*			
1652.	27002	*Laurencia forsteri*			
1653.	4954	*Lawrencia diffusa*			
1654.	4958	*Lawrencia spicata*			
1655.	4959	*Lawrencia squamata*			
1656.	1301	*Laxmannia brachyphylla (Stilted Paper-lily)*			
1657.	1304	*Laxmannia minor*			
1658.	1305	*Laxmannia omnifertilis*			
1659.	1307	*Laxmannia ramosa (Branching Lily)*			
1660.	12029	*Laxmannia ramosa subsp. deflexa*			
1661.	7575	*Lechenaultia formosa (Red Leschenaultia)*			
1662.	7590	*Lechenaultia tubiflora (Heath Leschenaultia)*			
1663.	1051	*Lemna disperma (Duckweed)*			
1664.	27011	*Lenormandia latifolia*			
1665.	35864	*Lenormandia muelleri*			
1666.	27013	*Lenormandia spectabilis*			
1667.	8099	*Leontodon saxatilis (Hairy Hawkbit)*	Y		
1668.	3018	*Lepidium africanum (Rubble Peppercress)*	Y		
1669.	3021	*Lepidium bonariense (Peppercress)*	Y		
1670.	3026	*Lepidium fasciculatum (Bundled Peppercress)*		P3	
1671.	3027	*Lepidium foliosum (Leafy Peppercress)*			
1672.	3044	*Lepidium rotundum (Veined Peppercress)*			
1673.	1073	*Lepidobolus chaetocephalus (Bristle-headed Chaff Rush)*			
1674.	1075	*Lepidobolus preissianus*			
1675.	930	*Lepidosperma costale*			
1676.	933	*Lepidosperma gladiatum (Coast Sword-sedge, Kerbin)*			
1677.	936	*Lepidosperma leptostachyum*			
1678.	939	*Lepidosperma pruinosum*			
1679.		*Lepidosperma sp.*			
1680.	33024	*Lepidosperma sp. Saltbush Hill (K.R. Newbey 4118)*			
1681.	945	*Lepidosperma squamatum*			
1682.	947	*Lepidosperma tenue*			
1683.	949	*Lepidosperma tuberculatum*			
1684.	1653	*Leporella fimbriata (Hare Orchid)*			
1685.	1078	*Leptocarpus coangustatus*			
1686.	46381	*Leptocarpus crebriculmis*			
1687.	2347	*Leptomeria lehmannii*			
1688.	2349	*Leptomeria pachyclada*			
1689.	2350	*Leptomeria pauciflora (Sparse-flowered Currant Bush)*			
1690.	5849	*Leptospermum incanum*			
1691.	5850	*Leptospermum laevigatum (Coast Teatree)*	Y		
1692.	5851	*Leptospermum maxwellii*			
1693.	5853	*Leptospermum oligandrum*			
1694.	5856	*Leptospermum sericeum (Silver Teatree)*			
1695.	5857	*Leptospermum spinescens*			
1696.	1088	*Lepyrodia macra (Large Scale Rush)*			
1697.	1089	*Lepyrodia monoica*			
1698.	16449	*Leucophyta brownii*			
1699.	6357	*Leucopogon apiculatus*		P3	
1700.	6358	*Leucopogon assimilis*			
1701.	6368	*Leucopogon carinatus*			
1702.	6373	*Leucopogon concinnus*			
1703.	6374	*Leucopogon conostephioides*			
1704.	44222	*Leucopogon corymbiformis*		P2	
1705.	6383	*Leucopogon cuneifolius*			
1706.	6406	*Leucopogon interruptus*		P3	
1707.	40940	*Leucopogon obovatus subsp. obovatus*			
1708.	6419	*Leucopogon obtusatus*			
1709.	6427	*Leucopogon parviflorus (Coast Beard-heath)*			
1710.	6442	*Leucopogon rotundifolius*		P3	
1711.	42480	*Leucopogon sp. Cape Le Grand (G. Byrne 2584)*			
1712.	14637	*Leucopogon sp. Coujinup (M.A. Burgman 1085)*			
1713.	14205	*Leucopogon sp. Mount Heywood (M.A. Burgman 1211)*			
1714.	34163	*Leucopogon sp. Newdegate (M. Hislop 3585)*			
1715.	6455	*Leucopogon woodsii (Nodding Beard-heath)*			
1716.	7670	*Levenhookia dubia (Hairy Stylewort)*			
1717.	7673	*Levenhookia pauciflora (Deceptive Stylewort)*			
1718.	7676	*Levenhookia pusilla (Midget Stylewort)*			

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1719.	27023	*Liagora harveyana*			
1720.	4362	*Linum marginale (Wild Flax)*			
1721.	20647	*Lissanthe rubicunda*			
1722.	9289	*Lobelia anceps (Angled Lobelia)*			
1723.	36862	*Lobelia archeri*		P1	Y
1724.	7402	*Lobelia gibbosa (Tall Lobelia)*			
1725.	7403	*Lobelia heterophylla (Wing-seeded Lobelia)*			
1726.	7405	*Lobelia rarifolia*			
1727.	3048	*Lobularia maritima (Sweet Alyssum)*	Y		
1728.	6507	*Logania fasciculata*			
1729.	6509	*Logania micrantha*			
1730.	6515	*Logania vaginalis (White Spray)*			
1731.	8682	*Lolium loliaceum (Stiff Ryegrass)*	Y		
1732.	478	*Lolium rigidum (Wimmera Ryegrass)*	Y		
1733.		*Lolium sp.*			
1734.	11384	*Lolium temulentum forma temulentum*	Y		
1735.	1224	*Lomandra collina (Pale Mat Rush)*			
1736.	1227	*Lomandra hastilis*			
1737.	14543	*Lomandra micrantha subsp. teretifolia*			
1738.	1233	*Lomandra mucronata*			
1739.	1234	*Lomandra nigricans*			
1740.	1241	*Lomandra rigida (Stiff Mat Rush)*			
1741.	15835	*Loxocarya striata*			
1742.	6968	*Lycium ferocissimum (African Boxthorn)*	Y		
1743.	1097	*Lyginia barbata*			
1744.	18049	*Lyginia imberbis*			
1745.	36375	*Lysimachia arvensis (Pimpernel)*	Y		
1746.	6456	*Lysinema ciliatum (Curry Flower)*			
1747.	34736	*Lysinema pentapetalum*			
1748.	5281	*Lythrum hyssopifolia (Lesser Loosestrife)*	Y		
1749.	2838	*Macarthuria apetala*			
1750.	27053	*Macrothamnion pellucidum*			
1751.	14366	*Macrozamia dyeri*			
1752.	2542	*Maireana erioclada*			
1753.	2553	*Maireana oppositifolia*			
1754.	36480	*Malva arborea (Tree Mallow)*	Y		
1755.	4961	*Malva parviflora (Marshmallow)*	Y		
1756.	19421	*Marianthus bicolor (Painted Marianthus)*			
1757.		*Marsilea sp.*			
1758.	4076	*Medicago lupulina (Black Medic)*	Y		
1759.	4079	*Medicago polymorpha (Burr Medic)*	Y		
1760.	4080	*Medicago sativa (Alfalfa)*	Y		
1761.	4083	*Medicago truncatula (Barrel Medic)*	Y		
1762.	5881	*Melaleuca brevifolia*			
1763.	5885	*Melaleuca calycina*			
1764.	5900	*Melaleuca cuticularis (Saltwater Paperbark)*			
1765.	15693	*Melaleuca dempta*		P3	
1766.	5909	*Melaleuca elliptica (Granite Bottlebrush, Ngow)*			
1767.	15603	*Melaleuca fulgens subsp. fulgens*			
1768.	5913	*Melaleuca glaberrima*			
1769.	5914	*Melaleuca globifera*			
1770.	5918	*Melaleuca haplantha*			
1771.	13272	*Melaleuca incana subsp. tenella*			
1772.	5922	*Melaleuca lanceolata (Rottnest Teatree, Moonah)*			
1773.	5948	*Melaleuca pentagona*			
1774.	11686	*Melaleuca pentagona var. latifolia*			
1775.	15993	*Melaleuca pentagona var. pentagona*			
1776.	19609	*Melaleuca plumea*			
1777.	5955	*Melaleuca pulchella (Claw Flower)*			
1778.	5961	*Melaleuca scabra (Rough Honeymyrtle, Wurru Bush)*			
1779.	18165	*Melaleuca societatis*			
1780.	5971	*Melaleuca striata*			
1781.	5973	*Melaleuca suberosa (Corky Honeymyrtle)*			
1782.	19399	*Melaleuca thapsina*			
1783.	5980	*Melaleuca thymoides*			
1784.	5982	*Melaleuca torquata*			
1785.	18126	*Melaleuca tuberculata var. macrophylla*			
1786.	5987	*Melaleuca viminea (Mohan)*			
1787.	15876	*Melaleuca viminea subsp. demissa*			
1788.	4084	*Melilotus albus*	Y		

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1789.	4085	*Melilotus indicus*	Y		
1790.	6883	*Mentha pulegium (Pennyroyal)*	Y		
1791.	2813	*Mesembryanthemum crystallinum (Iceplant)*	Y		
1792.	956	*Mesomelaena stygia*			
1793.	11473	*Mesomelaena stygia subsp. stygia*			
1794.	957	*Mesomelaena tetragona (Semaphore Sedge)*			
1795.	27069	*Metagoniolithon stelliferum*			
1796.	27070	*Metamastophora flabellata*			
1797.	6887	*Microcorys barbata*			
1798.	6893	*Microcorys glabra*			
1799.	6902	*Microcorys subcanescens*			
1800.	13785	*Microcybe pauciflora subsp. pauciflora*			
1801.	5993	*Micromyrtus elobata*			
1802.	20543	*Micromyrtus elobata subsp. elobata*			
1803.	5998	*Micromyrtus imbricata*			
1804.	34158	*Microtis alboviridis*			
1805.	1658	*Microtis atrata (Swamp Mignonette Orchid)*			
1806.	8814	*Microtis brownii*			
1807.	12199	*Microtis familiaris*			
1808.	10954	*Microtis media (Tall Mignonette Orchid)*			
1809.	15419	*Microtis media subsp. media*			
1810.	1660	*Microtis orbicularis (Dark Mignonette Orchid)*			
1811.	8106	*Millotia tenuifolia (Soft Millotia)*			
1812.	14344	*Millotia tenuifolia var. tenuifolia (Soft Millotia)*			
1813.	4090	*Mirbelia dilatata (Holly-leaved Mirbelia)*			
1814.	4096	*Mirbelia ovata*			
1815.	29418	*Monoculus monstrosus*	Y		
1816.	4667	*Monotaxis paxii*			
1817.	19179	*Moraea flaccida (One-leaf Cape Tulip)*	Y		
1818.	2412	*Muehlenbeckia adpressa (Climbing Lignum)*			
1819.	27077	*Mychodea aciculare*			
1820.	27079	*Mychodea carnosa*			
1821.	27080	*Mychodea disticha*			
1822.	7291	*Myoporum insulare (Blueberry Tree, boobialla)*			
1823.	7295	*Myoporum tetrandrum (Boobialla)*			
1824.	6722	*Myosotis australis (Southern Forget-me-not)*		P4	
1825.	27095	*Myriogramme gunniana*			
1826.	6196	*Myriophyllum muelleri (Hooded Water Milfoil)*		P1	
1827.	6464	*Needhamiella pumilio*			
1828.	4492	*Nematolepis phebalioides*			
1829.	492	*Neurachne alopecuroidea (Foxtail Mulga Grass)*			
1830.	4366	*Nitraria billardierei (Nitre Bush)*			
1831.	2401	*Nuytsia floribunda (Christmas Tree, Mudja)*			
1832.	6138	*Oenothera drummondii (Beach Evening Primrose)*	Y		
1833.	14292	*Oenothera stricta subsp. stricta*	Y		
1834.	2365	*Olax benthamiana*			
1835.	2366	*Olax phyllanthi*			
1836.	8127	*Olearia axillaris (Coastal Daisybush)*			
1837.	8137	*Olearia imbricata (Imbricate Daisy Bush)*			
1838.	44401	*Olearia sp. Eremicola (Diels & Pritzel s.n. PERTH 00449628)*			
1839.	6465	*Oligarrhena micrantha*			
1840.	20661	*Oncosiphon suffruticosum (Calomba Daisy)*	Y		
1841.	7346	*Opercularia echinocephala (Bristly Headed Stink Weed)*			
1842.	7348	*Opercularia hispidula (Hispid Stinkweed)*			
1843.	18256	*Opercularia spermacocea*			
1844.	18255	*Opercularia vaginata (Dog Weed)*			
1845.	46217	*Orianthera callosa*			
1846.	46255	*Orianthera campanulata*			
1847.	46316	*Orianthera serpyllifolia subsp. angustifolia*			
1848.	36181	*Ornduffia parnassifolia*			
1849.	4113	*Ornithopus compressus (Yellow Serradella)*	Y		
1850.	4115	*Ornithopus sativus (French Serradella)*	Y		
1851.	7122	*Orobanche minor (Lesser Broomrape)*	Y		
1852.	1539	*Orthrosanthus multiflorus (Morning Iris)*			
1853.	27107	*Osmundaria prolifera*			
1854.	27108	*Osmundaria spiralis*			
1855.	4349	*Oxalis corniculata (Yellow Wood Sorrel)*	Y		
1856.	30375	*Oxalis exilis*			
1857.	4355	*Oxalis perennans*			
1858.	34841	*Oxymyrrhine gracilis*			

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1859.	12645	*Ozothamnus lepidophyllus*			
1860.	502	*Panicum capillare (Witchgrass)*	Y		
1861.	2964	*Papaver hybridum (Rough Poppy)*	Y		
1862.	1667	*Paracaleana nigrita (Flying Duck Orchid)*			
1863.	23499	*Paracaleana parvula*		P2	
1864.	516	*Parapholis incurva (Coast Barbgrass)*	Y		
1865.	17114	*Paraserianthes lophantha subsp. lophantha*			
1866.	1762	*Parietaria debilis (Pellitory)*			
1867.	527	*Paspalum dilatatum*	Y		
1868.	1545	*Patersonia inaequalis (Unequal Bract Patersonia)*		P2	
1869.	1546	*Patersonia juncea (Rush Leaved Patersonia)*			
1870.	19670	*Patersonia lanata forma calvata*			
1871.	19669	*Patersonia lanata forma lanata*			
1872.	1549	*Patersonia maxwellii*			
1873.	1550	*Patersonia occidentalis (Purple Flag, Koma)*			
1874.	30472	*Patersonia occidentalis var. occidentalis*			
1875.	1552	*Patersonia rudis (Hairy Flag)*			
1876.	4342	*Pelargonium australe (Wild Geranium)*			
1877.	4343	*Pelargonium capitatum (Rose Pelargonium)*	Y		
1878.	4344	*Pelargonium drummondii*			
1879.	4346	*Pelargonium littorale*			
1880.	40423	*Pentameris airoides (False Hairgrass)*	Y		
1881.	11052	*Persicaria prostrata*			
1882.	2275	*Persoonia scabra*		P3	
1883.	2296	*Petrophile fastigiata*			
1884.	2311	*Petrophile squamata*			
1885.	20053	*Petrophile squamata subsp. northern (J. Monks 40)*			
1886.	2313	*Petrophile teretifolia*			
1887.	27129	*Peyssonnelia novae-hollandiae*			
1888.	551	*Phalaris minor (Lesser Canary Grass)*	Y		
1889.	4501	*Phebalium lepidotum*			
1890.	18536	*Philotheca fitzgeraldii*			
1891.	18532	*Philotheca nodiflora subsp. lasiocalyx*			
1892.	1173	*Philydrella pygmaea (Butterfly Flowers)*			
1893.	555	*Phragmites australis (Common Reed)*	Y		
1894.	16825	*Phyllangium divergens*			
1895.	4675	*Phyllanthus calycinus (False Boronia)*			
1896.	4685	*Phyllanthus scaber*			
1897.	4	*Phylloglossum drummondii (Pigmy Clubmoss)*			
1898.	6007	*Phymatocarpus maxwellii*			
1899.	5231	*Pimelea angustifolia (Narrow-leaved Pimelea)*			
1900.	5232	*Pimelea argentea (Silvery Leaved Pimelea)*			
1901.	5234	*Pimelea brachyphylla*			
1902.	11282	*Pimelea brevifolia subsp. brevifolia*			
1903.	5239	*Pimelea clavata*			
1904.	5241	*Pimelea drummondii*			
1905.	5242	*Pimelea erecta*			
1906.	5243	*Pimelea ferruginea*			
1907.	11402	*Pimelea imbricata var. piligera*			
1908.	5267	*Pimelea subvillifera*			
1909.	6804	*Pityrodia chrysocalyx*		P3	
1910.	7299	*Plantago debilis*			
1911.	7301	*Plantago exilis*			
1912.	7302	*Plantago hispida*			
1913.	6249	*Platysace compressa (Tapeworm Plant)*			
1914.	6252	*Platysace effusa*			
1915.	11160	*Platysace haplosciadia*			
1916.	27150	*Platysiphonia victoriae*			
1917.	27154	*Plocamium angustum*			
1918.	27156	*Plocamium mertensii*			
1919.	27157	*Plocamium preissianum*			
1920.	571	*Poa annua (Winter Grass)*	Y		
1921.	577	*Poa poiformis (Coastal Poa)*			
1922.	578	*Poa porphyroclados*			
1923.	8180	*Podolepis rugata (Pleated Podolepis)*			
1924.	8182	*Podotheca angustifolia (Sticky Longheads)*			
1925.	27162	*Pollexfenia pedicellata*			
1926.	2905	*Polycarpon tetraphyllum (Fourleaf Allseed)*	Y		
1927.	2419	*Polygonum aviculare (Wireweed)*	Y		
1928.	582	*Polypogon monspeliensis (Annual Beardgrass)*	Y		

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1929.	583	*Polypogon tenellus*			
1930.	27173	*Polysiphonia decipiens*			
1931.	27177	*Polysiphonia mollis*			Y
1932.	14547	*Pomaderris brevifolia*			
1933.	4818	*Pomaderris myrtilloides*			
1934.	122	*Posidonia angustifolia*			
1935.	123	*Posidonia australis (Fibreball Weed)*			
1936.	106	*Posidonia denhartogii*			
1937.	107	*Posidonia kirkmanii*			
1938.	124	*Posidonia ostenfeldii*			
1939.	108	*Posidonia robertsoniae*			
1940.	125	*Posidonia sinuosa*			
1941.	110	*Potamogeton drummondii*			
1942.	15424	*Praecoxanthus aphyllus*			
1943.	15425	*Prasophyllum calcicola*			
1944.	1671	*Prasophyllum elatum (Tall Leek Orchid)*			
1945.	1672	*Prasophyllum fimbria (Fringed Leek Orchid)*			
1946.	1674	*Prasophyllum giganteum (Bronze Leek Orchid)*			
1947.	1677	*Prasophyllum macrostachyum (Laughing Leek Orchid)*			
1948.	17650	*Prasophyllum odoratissimum*			
1949.	1680	*Prasophyllum parvifolium (Autumn Leek Orchid)*			
1950.	1682	*Prasophyllum sargentii*			
1951.	6911	*Prostanthera baxteri*			
1952.	27190	*Protokuetzingia australasica*			
1953.	8189	*Pseudognaphalium luteoalbum (Jersey Cudweed)*			
1954.	13255	*Pterochaeta paniculata*			
1955.	1687	*Pterostylis dilatata*			
1956.	1693	*Pterostylis recurva (Jug Orchid)*			
1957.	1694	*Pterostylis rogersii (Curled-tongue Shell Orchid)*			
1958.	18652	*Pterostylis sp. robust (W. Jackson BJ294)*			
1959.	10998	*Pterostylis turfosa (Bird Orchid)*			
1960.	1698	*Pterostylis vittata (Banded Greenhood)*			
1961.	27202	*Ptilocladia australis*			
1962.	27203	*Ptilocladia pulchra*			
1963.	27204	*Ptilocladia vestita*			
1964.	31672	*Puccinellia longior*			
1965.	592	*Puccinellia stricta (Marsh Grass)*			
1966.	4172	*Pultenaea ericifolia*			
1967.	28286	*Pultenaea heterochila*			
1968.	20785	*Pultenaea indira subsp. indira*			
1969.	20790	*Pultenaea purpurea*			
1970.	4184	*Pultenaea spinulosa*			
1971.	4186	*Pultenaea tenuifolia*			
1972.	4187	*Pultenaea verruculosa*			
1973.	16367	*Pyrorchis nigricans (Red beaks, Elephants ears)*			
1974.	8195	*Quinetia urvillei*			
1975.	2937	*Ranunculus sessiliflorus (Smallflower Buttercup)*			
1976.	3061	*Raphanus raphanistrum (Wild Radish)*	Y		
1977.	3063	*Rapistrum rugosum (Turnip Weed)*	Y		
1978.	27211	*Rhabdonia coccinea*			
1979.	2578	*Rhagodia baccata (Berry Saltbush)*			
1980.	11341	*Rhagodia baccata subsp. baccata*			
1981.	2580	*Rhagodia crassifolia (Fleshy Saltbush)*			
1982.	2584	*Rhagodia preissii*			
1983.	27215	*Rhipiliopsis peltata*			
1984.	13300	*Rhodanthe citrina*			
1985.	27220	*Rhodopeltis australis*			
1986.	27223	*Rhodymenia leptophylla*			
1987.	31911	*Ricinocarpos megalocarpus*			
1988.	11096	*Rinzia dimorphandra (Esperance Rinzia)*			
1989.	48269	*Rinzia icosandra (Recherche Mainland Rinzia)*			
1990.	48887	*Roepera billardierei*			
1991.	1556	*Romulea rosea (Guildford Grass)*	Y		
1992.	10970	*Rostraria cristata*	Y		
1993.	32426	*Rosulabryum campylothecium*			
1994.	32429	*Rosulabryum torquescens*			
1995.	20496	*Rubus laudatus*	Y		
1996.	2429	*Rumex acetosella (Sorrel)*	Y		
1997.	2430	*Rumex brownii (Swamp Dock)*	Y		
1998.	2433	*Rumex crispus (Curled Dock)*	Y		

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1999.	46434	*Rumex hypogaeus*	Y		
2000.	115	*Ruppia megacarpa*			
2001.	116	*Ruppia polycarpa*			
2002.	117	*Ruppia tuberosa*			
2003.	40431	*Rytidosperma acerosum*			
2004.	40427	*Rytidosperma setaceum*			
2005.	2906	*Sagina apetala (Annual Pearlwort)*	Y		
2006.	48433	*Salicornia blackiana*			
2007.	48430	*Salicornia quinqueflora*			
2008.	48431	*Salicornia quinqueflora subsp. quinqueflora (Beaded Glasswort)*			
2009.	6928	*Salvia reflexa (Mintweed)*	Y		
2010.	6483	*Samolus junceus*			
2011.	6484	*Samolus repens (Creeping Brookweed)*			
2012.	27229	*Sarcomenia delesserioides*			
2013.	27232	*Sarcotrichia tenera*			
2014.	2817	*Sarcozona praecox (Sarcozona)*			
2015.	7606	*Scaevola crassifolia (Thick-leaved Fan-flower)*			
2016.	7607	*Scaevola cuneiformis (Wedge-leaved Scaevola)*			
2017.	7614	*Scaevola globulifera*			
2018.	13151	*Scaevola thesioides subsp. filifolia*			
2019.	41660	*Schenkia australis*			
2020.	976	*Schoenus breviculmis*			
2021.	978	*Schoenus brevisetis*			
2022.	979	*Schoenus caespititius*			
2023.	984	*Schoenus curvifolius*			
2024.	992	*Schoenus grandiflorus (Large Flowered Bogrush)*			
2025.	994	*Schoenus humilis*			
2026.	996	*Schoenus laevigatus*			
2027.	1004	*Schoenus nitens (Shiny Bog-rush)*			
2028.	1005	*Schoenus obtusifolius*			
2029.	1006	*Schoenus odontocarpus*			
2030.	1009	*Schoenus pleiostemoneus*			
2031.	17614	*Schoenus plumosus*			
2032.	16273	*Schoenus sp. Grey Rhizome (K.L. Wilson 2922)*		P1	
2033.	1016	*Schoenus subbarbatus (Bearded Bog-rush)*			
2034.	1018	*Schoenus subfascicularis*			
2035.	1019	*Schoenus subflavus (Yellow Bog-rush)*			
2036.	16251	*Schoenus subflavus subsp. long leaves (K.L. Wilson 2865)*			
2037.	1022	*Schoenus submicrostachyus*			
2038.	6544	*Sebaea ovata (Yellow Sebaea)*			
2039.	32433	*Sematophyllum homomallum*			
2040.	8207	*Senecio glossanthus (Slender Groundsel)*			
2041.	8216	*Senecio picridioides*			
2042.	25882	*Senecio pinnatifolius var. maritimus (Coastal Groundsel)*			
2043.	25883	*Senecio pinnatifolius var. pinnatifolius*			
2044.	8217	*Senecio quadridentatus*			
2045.	7362	*Sherardia arvensis (Field Madder)*	Y		
2046.	4980	*Sida hookeriana*			
2047.	4823	*Siegfriedia darwinioides*			
2048.	2909	*Silene gallica (French Catchfly)*	Y		
2049.	15972	*Silene gallica var. gallica*	Y		
2050.	8224	*Siloxerus filifolius*			
2051.	8225	*Siloxerus humifusus (Procumbent Siloxerus)*			
2052.	14583	*Siloxerus multiflorus*			
2053.	3072	*Sisymbrium orientale (Indian Hedge Mustard)*	Y		
2054.	7017	*Solanum laciniatum (Kangaroo Apple)*	Y		
2055.	7022	*Solanum nigrum (Black Berry Nightshade)*	Y		
2056.	7033	*Solanum rostratum (Buffalo Burr)*	Y		
2057.	7037	*Solanum symonii*			
2058.	45036	*Solidago chilensis*	Y		
2059.	27281	*Solieria robusta*			
2060.	8230	*Sonchus asper (Rough Sowthistle)*	Y		
2061.	9367	*Sonchus hydrophilus (Native Sowthistle)*			
2062.	8231	*Sonchus oleraceus (Common Sowthistle)*	Y		
2063.	44731	*Sonderophycus capensis*			
2064.	614	*Sorghastrum nutans*	Y		Y
2065.	617	*Sorghum halepense (Johnson Grass)*	Y		
2066.	1560	*Sparaxis pillansii (Harlequin Flower)*	Y		
2067.	33636	*Spergularia brevifolia*			
2068.	8900	*Spergularia marina*			

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2069.	2915	*Spergularia rubra (Sand Spurry)*	Y		
2070.	4201	*Sphaerolobium daviesioides (Prickly Globe-pea)*			
2071.	17551	*Sphaerolobium drummondii*			
2072.	4205	*Sphaerolobium linophyllum*			
2073.	4206	*Sphaerolobium macranthum*			
2074.	4211	*Sphaerolobium vimineum (Leafless Globe Pea)*			
2075.	624	*Spinifex hirsutus (Hairy Spinifex)*			
2076.	635	*Sporobolus virginicus (Marine Couch)*			
2077.	27309	*Spyridia dasyoides*			
2078.	27310	*Spyridia filamentosa*			
2079.	4828	*Spyridium globulosum (Basket Bush)*			
2080.	14355	*Spyridium majoranifolium*			
2081.	4830	*Spyridium microcephalum (Small-headed Spyridium)*			
2082.	14243	*Spyridium minutum*			
2083.	14795	*Spyridium mucronatum subsp. multiflorum*		P2	
2084.	31916	*Spyridium sp. Jerdacuttup (A. Williams 332)*			
2085.	20537	*Stachystemon virgatus*			
2086.	4733	*Stackhousia monogyna*			
2087.	4734	*Stackhousia muricata*			
2088.	9070	*Stackhousia pubescens (Downy Stackhousia)*			
2089.	43541	*Stackhousia sp. Hairy fruited (E.N.S. Jackson 1387)*			
2090.	43662	*Stackhousia sp. Thick sepals (A.E. Orchard 1547)*			
2091.	1315	*Stawellia gymnocephala*			
2092.	2918	*Stellaria media (Chickweed)*	Y		
2093.	20397	*Stellaria pallida*	Y		
2094.	15065	*Stenanthemum notiale subsp. notiale*			
2095.	16375	*Stirlingia anethifolia*			
2096.	2317	*Stirlingia simplex*			
2097.	27318	*Struvea plumosa*			
2098.	8242	*Stuartina muelleri (Round-leaf Stuartina)*			Y
2099.	7678	*Stylidium adnatum (Common Beaked Triggerplant)*			
2100.	7682	*Stylidium albomontis*			
2101.	7687	*Stylidium assimile (Bronze-leaved Triggerplant)*			
2102.	7692	*Stylidium breviscapum (Boomerang Triggerplant)*			
2103.	7696	*Stylidium calcaratum (Book Triggerplant)*			
2104.	12057	*Stylidium corymbosum var. corymbosum*			
2105.	7712	*Stylidium despectum (Dwarf Triggerplant)*			
2106.	7741	*Stylidium insensitivum (Insensitive Trigger Plant)*			
2107.	7758	*Stylidium macranthum (Crab Claws)*			
2108.	7772	*Stylidium perpusillum (Tiny Triggerplant)*			
2109.	7774	*Stylidium piliferum (Common Butterfly Triggerplant)*			
2110.	7775	*Stylidium pilosum (Silky Triggerplant)*			
2111.	7777	*Stylidium preissii (Lizard Triggerplant)*			
2112.	7785	*Stylidium repens (Matted Triggerplant)*			
2113.	7794	*Stylidium rupestre (Rock Triggerplant)*			
2114.		*Stylidium sp.*			
2115.	20599	*Stylidium turleyae*			
2116.	1260	*Stypandra glauca (Blind Grass)*			
2117.	6473	*Styphelia intertexta*			
2118.	48618	*Styphelia sp. South Coast (J.M. Powell 3374)*			
2119.	2639	*Suaeda australis (Seablite)*			
2120.	2640	*Suaeda baccifera*	Y		
2121.	25902	*Symphyotrichum squamatum (Bushy Starwort)*	Y		
2122.	16860	*Synaphea media*			
2123.	12911	*Synaphea obtusata*			
2124.	16772	*Synaphea oligantha*			
2125.	16864	*Synaphea petiolaris subsp. petiolaris*			
2126.	15534	*Synaphea spinulosa subsp. major*			
2127.	32437	*Syntrichia antarctica*			
2128.	20102	*Taxandria callistachys*			
2129.	20134	*Taxandria marginata*			
2130.	20103	*Taxandria spathulata*			
2131.	31552	*Tecticornia arbuscula*			
2132.	33236	*Tecticornia halocnemoides (Shrubby Samphire)*			
2133.	31873	*Tecticornia indefessa*		P2	
2134.	33319	*Tecticornia indica subsp. bidens*			
2135.	31718	*Tecticornia lepidosperma*			
2136.	31675	*Tecticornia lylei*			
2137.	33297	*Tecticornia pergranulata subsp. pergranulata (Blackseed Samphire)*			
2138.	31716	*Tecticornia syncarpa*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
2139.	4256	*Templetonia retusa (Cockies Tongues)*			
2140.	2823	*Tetragonia implexicoma (Bower Spinach)*			
2141.	1034	*Tetraria capillaris (Hair Sedge)*			
2142.	35582	*Tetraria sp. Mt Madden (C.D. Turley 40 BP/897)*			
2143.	27327	*Thamnoclonium dichotomum*			
2144.	1701	*Thelymitra antennifera (Vanilla Orchid)*			
2145.	10856	*Thelymitra benthamiana (Leopard Orchid)*			
2146.	1705	*Thelymitra crinita (Blue Lady Orchid)*			
2147.	1706	*Thelymitra cucullata (Swamp Sun Orchid)*			
2148.	11143	*Thelymitra graminea*			
2149.	18248	*Thelymitra granitora*			
2150.	20730	*Thelymitra paludosa*			
2151.	20732	*Thelymitra petrophila*			
2152.		*Thelymitra sp.*			
2153.	20735	*Thelymitra speciosa*			
2154.	1716	*Thelymitra tigrina (Tiger Orchid)*			
2155.	1718	*Thelymitra villosa (Custard Orchid)*			
2156.	20731	*Thelymitra vulgaris*			
2157.	5075	*Thomasia angustifolia (Narrow Leaved Thomasia)*			
2158.	5077	*Thomasia cognata*			
2159.	5086	*Thomasia macrocalyx*			
2160.	5093	*Thomasia petalocalyx (Paper Flower)*			
2161.	5094	*Thomasia purpurea*			
2162.	5105	*Thomasia triphylla*			
2163.	2644	*Threlkeldia diffusa (Coast Bonefruit)*			
2164.	19698	*Thryptomene australis subsp. australis*			
2165.	6065	*Thryptomene saxicola (Rock Thryptomene)*			
2166.	27330	*Thuretia australasica*			Y
2167.	27331	*Thuretia quercifolia*			
2168.	1328	*Thysanotus dichotomus (Branching Fringe Lily)*			
2169.	1338	*Thysanotus manglesianus (Fringed Lily)*			
2170.	1341	*Thysanotus nudicaulis*			
2171.	1343	*Thysanotus patersonii*			
2172.	1344	*Thysanotus pauciflorus (Few Flowered Fringe Lily)*			
2173.	1351	*Thysanotus sparteus*			
2174.	1358	*Thysanotus triandrus*			
2175.	1368	*Trachyandra divaricata*	Y		
2176.	6280	*Trachymene pilosa (Native Parsnip)*			
2177.	11112	*Tribolium uniolae*	Y		
2178.	1485	*Tribonanthes violacea (Violet Tiurndin)*			
2179.	32449	*Trichostomum brachydontium*			
2180.	32450	*Trichostomum eckelianum*			
2181.	1361	*Tricoryne elatior (Yellow Autumn Lily)*			
2182.	41648	*Tricostularia aphylla*			
2183.	1037	*Tricostularia compressa*			
2184.	4289	*Trifolium angustifolium (Narrowleaf Clover)*	Y		
2185.	17542	*Trifolium arvense var. arvense*	Y		
2186.	4292	*Trifolium campestre (Hop Clover)*	Y		
2187.	4293	*Trifolium cernuum (Drooping Flower Clover)*	Y		
2188.	4296	*Trifolium fragiferum (Strawberry Clover)*	Y		
2189.	4297	*Trifolium glomeratum (Cluster Clover)*	Y		
2190.	4312	*Trifolium striatum (Knotted Clover)*	Y		
2191.	4315	*Trifolium tomentosum (Woolly Clover)*	Y		
2192.	33276	*Triglochin isingiana*			
2193.	146	*Triglochin minutissima*			
2194.	147	*Triglochin mucronata*			
2195.	151	*Triglochin striata*			
2196.	152	*Triglochin trichophora*			
2197.	4737	*Tripterococcus brunonis (Winged Stackhousia)*			
2198.	32451	*Triquetrella papillata*			
2199.	1139	*Trithuria bibracteata*			
2200.	13479	*Trymalium ledifolium var. rosmarinifolium*			
2201.	15757	*Trymalium spatulatum*			
2202.	27347	*Tylotus obtusatus*			
2203.	98	*Typha domingensis (Bulrush, Djandjid)*			
2204.	35260	*Ulva compressa*			
2205.	38388	*Ursinia anthemoides subsp. anthemoides*	Y		
2206.	1766	*Urtica incisa (Scrub Nettle)*			
2207.	1767	*Urtica urens (Small Nettle)*	Y		
2208.	7145	*Utricularia menziesii (Redcoats)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
2209.	7148	*Utricularia multifida*			
2210.	7153	*Utricularia tenella*			
2211.	13160	*Velleia exigua*		P2	
2212.	7665	*Velleia trinervis*			
2213.	8257	*Vellereophyton dealbatum (White Cudweed)*	Y		
2214.	6072	*Verticordia brownii*			
2215.	6073	*Verticordia chrysantha*			
2216.	6076	*Verticordia densiflora (Compacted Featherflower)*			
2217.	15432	*Verticordia densiflora var. densiflora*			
2218.	6079	*Verticordia fastigiata (Mouse Featherflower)*			
2219.	6090	*Verticordia humilis*			
2220.	12432	*Verticordia inclusa*			
2221.	6096	*Verticordia minutiflora*			
2222.	12450	*Verticordia plumosa var. grandiflora*			
2223.	14718	*Verticordia sieberi var. sieberi*			
2224.	12470	*Verticordia vicinella*			
2225.	11474	*Vicia sativa subsp. nigra*	Y		
2226.	27360	*Vidalia spiralis*			
2227.	4325	*Viminaria juncea (Swishbush, Koweda)*			
2228.	8266	*Vittadinia gracilis*			
2229.	722	*Vulpia bromoides (Squirrel Tail Fescue)*	Y		
2230.	11137	*Vulpia fasciculata*	Y		
2231.	11018	*Vulpia muralis*	Y		
2232.	724	*Vulpia myuros (Rat's Tail Fescue)*	Y		
2233.	12052	*Vulpia myuros forma megalura*	Y		
2234.	33101	*Vulpia myuros forma myuros*	Y		
2235.		*Vulpia sp.*			
2236.	7384	*Wahlenbergia capensis (Cape Bluebell)*	Y		
2237.	7389	*Wahlenbergia preissii*			
2238.	18108	*Watsonia meriana var. bulbillifera*	Y		
2239.	27362	*Webervanbossea splachnoides*			
2240.	6939	*Westringia dampieri*			
2241.	6658	*Wilsonia backhousei (Narrow-leaf Wilsonia)*			
2242.	6659	*Wilsonia humilis (Silky Wilsonia)*			
2243.	6660	*Wilsonia rotundifolia (Round-leaf Wilsonia)*			
2244.	27364	*Wollastoniella myriophylloides*			
2245.	27368	*Wrangelia plumosa*			
2246.	27369	*Wrangelia velutina*			
2247.	1389	*Wurmbea cernua*			
2248.	1394	*Wurmbea dioica (Early Nancy)*			
2249.	1255	*Xanthorrhoea platyphylla*			
2250.	6289	*Xanthosia huegelii*			
2251.	19330	*Xanthosia tasmanica*			
2252.	16992	*Yucca aloifolia*	Y		

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

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

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: 21/09/21 16:00:14

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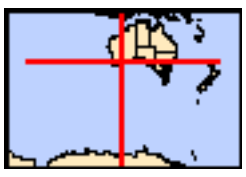
Coordinates

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:	48
Listed Migratory Species:	52

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:	82
Whales and Other Cetaceans:	14
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:	15
Regional Forest Agreements:	None
Invasive Species:	15
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	Roosting 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	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

Name	Status	Type of Presence
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 borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species 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
Parantechinus apicalis Dibbler [313]	Endangered	Species or species habitat likely to occur within area
Petrogale lateralis lateralis Black-flanked Rock-wallaby, Moororong, Black-footed Rock Wallaby [66647]	Endangered	Translocated population known to occur within area
Phascogale calura Red-tailed Phascogale, Red-tailed Wambenger, Kenngoor [316]	Vulnerable	Species or species habitat may occur within area
Plants		
Anigozanthos bicolor subsp. minor Little Kangaroo Paw, Two-coloured Kangaroo Paw, Small Two-colour Kangaroo Paw [21241]	Endangered	Species or species habitat likely to occur within area
Eucalyptus insularis Twin Peak Island Mallee [3057]	Endangered	Species or species habitat likely 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 likely to 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

Name	Status	Type of Presence
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
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]		Breeding 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	Vulnerable	Species or species

Name	Threatened	Type of Presence
Albatross [64459] Thalassarche melanophris		habitat may occur within area
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 borealis		
Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera edeni		
Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus		
Blue Whale [36]	Endangered	Species or species habitat may occur within area
Balaenoptera physalus		
Fin Whale [37]	Vulnerable	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		

Name	Threatened	Type of Presence
Motacilla cinerea Grey Wagtail [642]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris alba Sanderling [875]		Roosting 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]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting 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]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting 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]		Roosting likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Roosting 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 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]		Roosting 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]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting 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	Breeding 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]		Roosting known to occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
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
Eudyptula minor Little Penguin [1085]		Breeding known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting 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]		Roosting known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area
Larus novaehollandiae Silver Gull [810]		Breeding known to occur within area
Larus pacificus Pacific Gull [811]		Breeding 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 known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur

Name	Threatened	Type of Presence
		within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting 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 known to occur within area
Pelagodroma marina White-faced Storm-Petrel [1016]		Breeding known to occur within area
Phalacrocorax fuscescens Black-faced Cormorant [59660]		Breeding known to occur within area
Pterodroma macroptera Great-winged Petrel [1035]		Breeding known to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area
Puffinus assimilis Little Shearwater [59363]		Breeding 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]		Breeding 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

Name	Threatened	Type of Presence
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 [66235]		Species or species 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

Name	Threatened	Type of Presence
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 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 borealis		
Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera edeni		
Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus		
Blue Whale [36]	Endangered	Species or species habitat may occur within area
Balaenoptera physalus		
Fin Whale [37]	Vulnerable	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

Name	Status	Type of Presence
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
Cape Le Grand	WA
Esperance 827 and Part 373 & 826	WA
Helms Arboretum	WA
Lake Mortijinup	WA
Lake Warden	WA
Mullet Lake	WA
Recherche Archipelago	WA
Shark Lake	WA
Unnamed WA04182	WA
Unnamed WA24511	WA
Unnamed WA24953	WA
Unnamed WA32259	WA
Unnamed WA42379	WA
Woody Island	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

Name	Status	Type of Presence
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 within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		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

-33.80605 121.86319

Acknowledgements

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

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

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

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

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