RECONNAISSANCE FLORA, VEGETATION AND BASIC FAUNA SURVEY REPORT

Line 51 Esperance Branch Line, Esperance to Gibson – Section 3 Walsh Road to Meat Works (368.7 – 371.7KM, Site 13)

Myrup, WA 6448

Final

07/06/2022

BUSHFIRE | ENVIRONMENTAL | WATER | GIS

DOCUMENT CONTROL

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Reviewer (s): Dr K. Bain, C. Cramer and M. Holt.
Job No.: AI005-003
Client: Arc Infrastructure

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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 5.05ha along Railway Line 51 from Walsh Road to Meat Works in the Shire of Esperance. Specifically, this was located along Railway Kilometre (KM) marking 368.7 – 371.87 which corresponds with Site 13 of the 2022 scope of works programme, as instructed by Arc Infrastructure. The reconnaissance survey was required to assess the impact on areas of native vegetation proposed to be cleared for a construction and maintenance project along the railway line. An environmental risk assessment was completed following the commission of the biological survey, to identify where clearing permits or further environmental approvals were required. Some areas within the survey area were assessed as not being exempt, and require a clearing permit. A finalised report was submitted to Arc Infrastructure for review prior to approval for submission to DWER, as supporting information for a clearing permit application.

Three native vegetation units were recorded during the survey, namely Vegetation Unit 1: *Banksia speciosa* Shrubland, 2: *Lambertia inermis* Shrubland and 3: Invasive Grassland and Shrubland. The vast majority of the survey area had been historically cleared, with 2.818 ha of bare ground present. The condition of native vegetation ranged from 'Very Good' to 'Completely Degraded', with degradation occurring primarily from historical clearing and invasive species invasion. Floristic diversity was relatively high, with 130 flora species recorded, consisting of 97 native species and 33 introduced species. A single priority flora species was detected, P3 *Dampiera sericantha,* with 26 plants present within the survey area. Additionally, the threatened (TEC)/priority (PEC) ecological community 'Proteaceae Dominated Kwongkan Shrublands of the South-east Coastal Floristic Region (Kwongkan)' was detected within Vegetation Unit 1: Banspe SL. A total of 0.205ha of Kwongkan TEC/PEC was present.

During the survey, a relatively low level of fauna diversity was detected with 25 taxa recorded during the survey period. Carnaby's Cockatoo is the only Threatened or Priority fauna species identified during the survey period. No individuals were observed, presence was only detected through scattered chewed Pine cones. The *Banksia speciosa* Shrubland (Banspe SL) and *Lambertia inermis* Shrubland (Lamine SL) vegetation units provide low quality foraging habitat (0.486 ha which is 21.74% of all mapped native vegetation within the survey area), for Carnaby's Cockatoo, although no foraging evidence was observed within these vegetation units. The scattered nature of the pine trees within the survey area, the low quantity of feeding debris and the low availability and diversity of suitable foraging habitat suggests that these feeding events are likely to be opportunistic and that the area is not a preferred foraging area. Undisturbed vegetation immediately adjoining the northern portion of the survey area contains higher quality foraging habitat for Carnaby's Cockatoo. It is unlikely the proposed works at this location would need to be referred for assessment under the *Environmental Protection and Biodiversity Conservation Act 1999.* However, the accumulative total and potential impact across the entire Esperance Branch Line project should be taken into consideration.

The survey area does provide low quality habitat for quenda (*Isoodon fusciventer*, P4) within the northern portion of the survey area in the *Banksia speciosa* Shrubland (Banspe SL) and *Lambertia inermis* shrubland (Lamine SL) vegetation units and possible transient activity from this species was detected in the form of runnels. Proposed clearing as part of this project is unlikely to result in loss of significant habitat for this species.

The *Banksia speciosa* Shrubland (Banspe SL) vegetation unit provides marginally suitable habitat for the Cape Le Grand assassin spider (*Zephyrarchaea marki,* VU), and impacts to this vegetation unit should be avoided, where possible. If clearing of this vegetation is unavoidable it is recommended a targeted survey for this species is undertaken to ascertain species presence.

The survey area also provides marginal suitable habitat for the fork-tailed swift (*Apus pacificus,* MI) and letter-winged kite *(Elanus scriptus,* P4). Habitat for these species occurs throughout the entire survey area, with areas of native vegetation providing daytime refuge and hunting habitat.

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 5.056 ha along Railway Line 51 from Walsh Road to Meat Works, in the Shire of Esperance. This specifically is to occur along Railway Kilometre (KM) markings 368.7 – 371.87. The total 5.056 ha consists of 3.01 km of linear surveys along access tracks and nine separate laydown areas, ranging from 0.121 to 0.339 ha in size.

The scope of works included:

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

1.1. Location and Development Proposal

The 'survey area' is defined as the total area being surveyed, consisting of six areas located along Line 51 (368.7-371.87KM), from Walsh Road to Meat Works, in the Shire of Esperance local government area. The areas surveyed ranged between 0.121 and 0.339 ha in size, and the total length of the survey area is approximately 3.01km (Figure 1). These areas have been earmarked by Arc Infrastructure for clearing as part of the required upgrades and ongoing maintenance of the railway track. Specifically, the survey area correlates with a portion of Site 13 of the 2022 Scope of Works for Arc Infrastructure (Tanna, 2021).

The 'study area' consists of the 30km 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 surrounding area is dominated by private agricultural properties to the north and east, an industrial park to the west, and the rural-urban fringe of smaller hobby-farms to the south. A number of reserves consist of intact; remnant vegetation are present adjacent to the survey area (Table 1).

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 the 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.

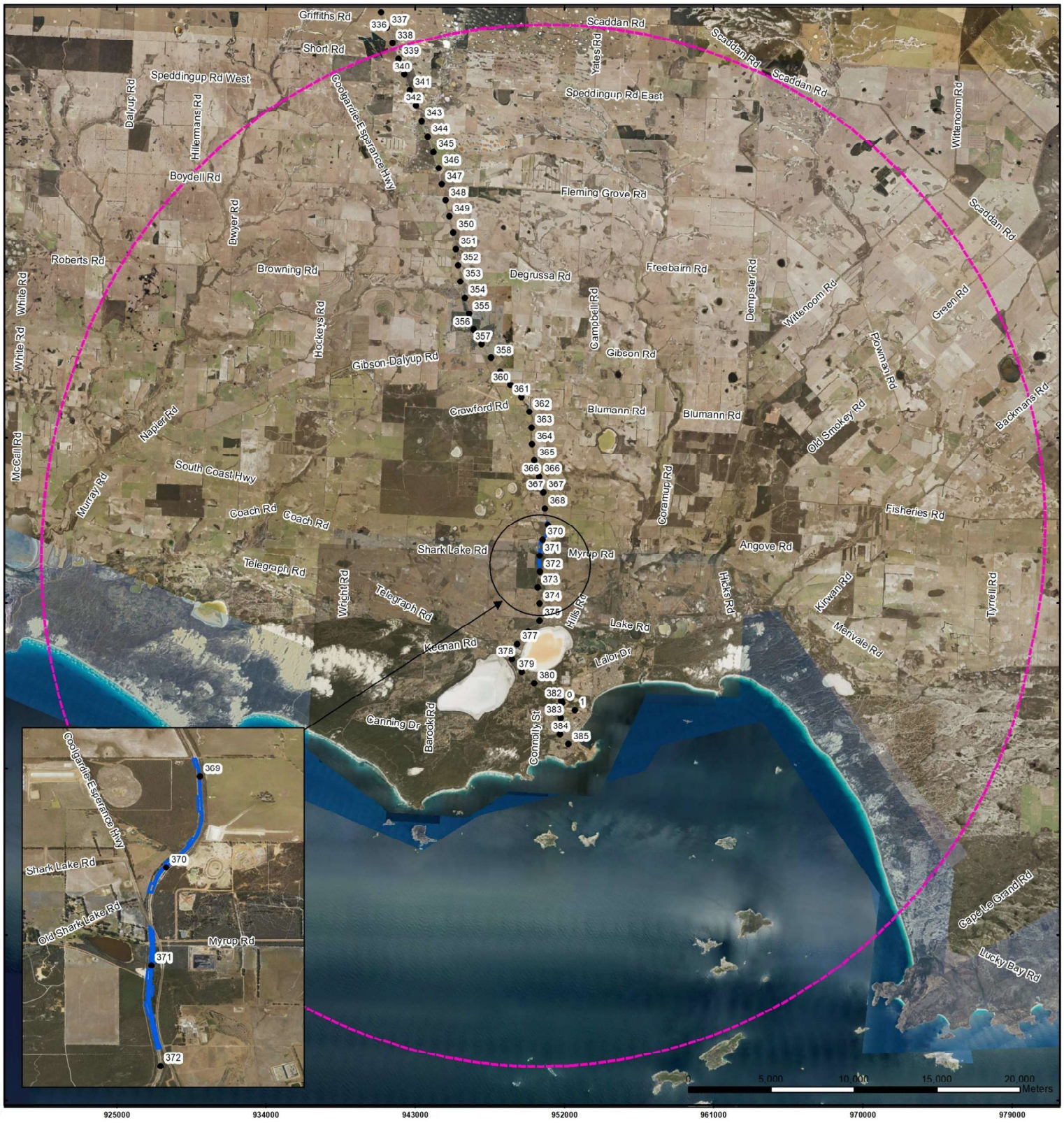
The environmental risk assessment that corresponds with the survey area is outlined in Figure 15 (Appendix A), illustrating how large areas within the survey area were considered previously cleared or exempt from a clearing permit. A linear corridor

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 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 (368.7 – 371.7km) Site 13
Esperance to Gibson – Section 3, Walsh Road
Myrup, WA 6448

Figure 1: Survey Area Locality

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-003**	**20/04/2022**

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

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 2 b Phase (245Es_1E2b), Esperance 9E1d Phase (245Es_9E1d), Esperance 9E3d Phase (245Es_9E3d) and Esperance 2E3b Phase (245Es_2E3b). 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 2 b Phase is described as "*Gently undulating plain. Slopes 1-3%, relief <9m."* (DPIRD, 2019a). The Esperance 9E1d Phase is described as "*Gravelly, yellow mottled duplex soil with < 30 cm of sand over gravel layer (Fleming (shallow)), Dy5.85, on undulating low rises to low hills, 3-10% slope*" (DPIRD, 2019a). The Esperance 9E3d Phase is described as "*Deep uniform sand, Podzol > 80 cm (Corinup), Uc2.24, on undulating low rises to low hills, 3-10% slope*" (DPIRD, 2019a). 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).

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 7.6-19.1°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 and June 2021, and in November 2020 (Figure 2). The total rainfall in the year previous to the survey (September 2020 – August 2021) was 578.8mm which is 9.8 mm above average and equates to 1.72% increase in average rainfall.

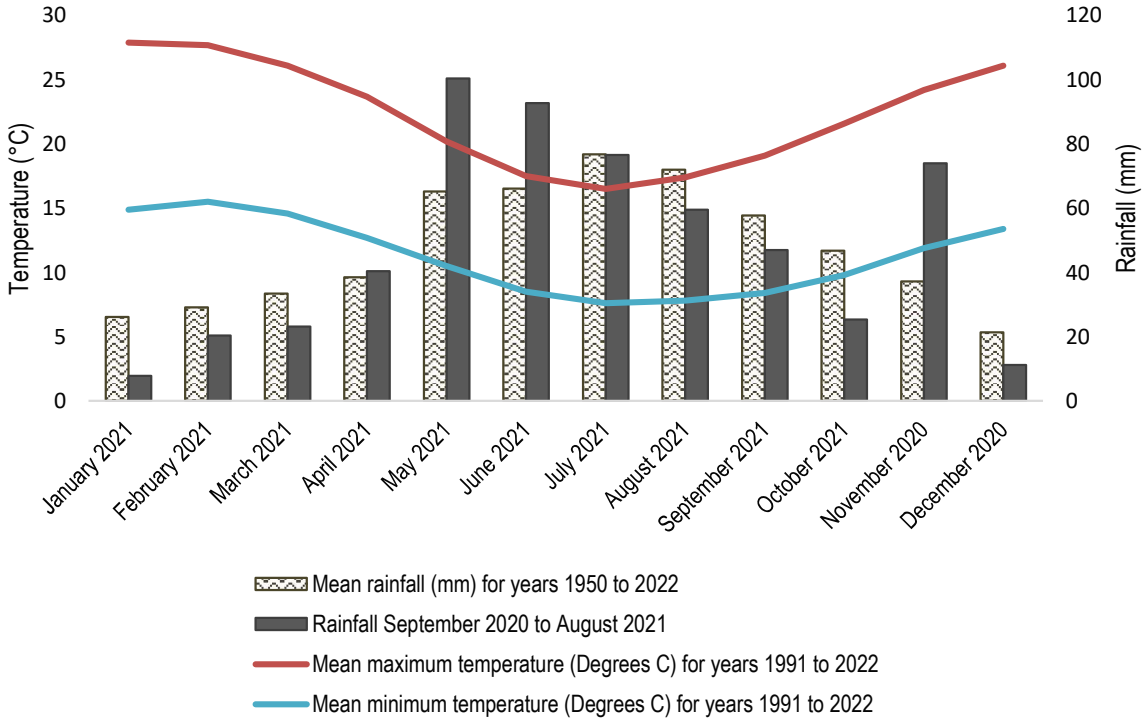


Figure 2: Temperature and Rainfall Data for Esperance Aero BoM Weather Station No.009542.

1.5. Habitat Connectivity

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

Table 1: Reserve Details (GoWA, 2022).

Reserve Number	Reserve Name	Responsible Agency	Current Purpose
21922		Department of Planning, Lands and Heritage	Gravel
23527		Department of Planning, Lands and Heritage	Future Railway
27158		Department of Planning, Lands and Heritage	Gravel
35037		Department of Planning, Lands and Heritage	Recreation
31197	Shark Lake Nature Reserve	Department of Biodiversity Conservation and Attractions	Conservation of flora and fauna
27681		Water Corporation	Waste Water Disposal Site

1.6. Water and Wetlands

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

No RAMSAR wetlands, or significant wetlands are located within the survey area. The desktop survey did identify that the Lake Gore RAMSAR wetland is ~30km west and the Lake Warden RAMSAR system is ~3.5km to the south of the survey area (DAWE, 2021). The survey area is not present within the catchment of Lake Gore RAMSAR system. However, it is located within the catchment of Lake Warden RAMSAR system (DBCA, 2017a).

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

1.7. Environmentally Sensitive Areas

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

1.8. Remnant Vegetation

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

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

of J.S. Beards (Beard *et al.* 2013) vegetation classification places the survey area within one System and Vegetation Association (DPIRD, 2019b) Refer to Figure 14 in Appendix A:

- **System Association Name**: Esperance.
- **Vegetation Association Number:** 6048.
- **Structure Description:** Scrub-heath.
- **Floristic Description:** Mixed heath with scattered tall shrubs Acacia spp., Proteaceae and Myrtaceae.
- **Remnant Vegetation by Beard Association Rarity in LGA:** 14.21% remaining (GoWA, 2019).
- **Remnant Vegetation by Beard Association Rarity in IBRA Region:** 14.16% remaining (GoWA, 2019).

1.9. Heritage

The survey area is located within a 'Other Heritage Places' area (DPLH, 2022), specifically ID 1644 'Bukenerup Road', and is located within the Wudjari Nyungar nation. 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 (2021).

2. Methodology – Desktop Assessment

2.1. Flora and Vegetation

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

- 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 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 30 km of the survey area was undertaken using the following databases:

- 30 km Nature Map Database Search (combined data from DBCA and WA Museum; DBCA, 2007-);
- 30 km Protected matters search tool (DAWE, 2020); and
- 30 km Fauna DBCA database records (DBCA, 2021c).

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

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

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

- Carnaby's Cockatoo Confirmed (DBCA_050) 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

A Spring season reconnaissance level flora and vegetation survey was undertaken by Katie White (Botanist) of Bio Diverse Solutions on the 30th of September 2021, with a following visit on the 11th of November 2021, supported by Kimberly Jenkins (Technical Assistant) of Bio Diverse Solutions. The survey area was surveyed on foot using traverses and relevés. The intent of the traverses was to identify and map the different vegetation units, their condition category and to undertake more intensive targeted surveys within suitable habitat for conservation significant species.

Two relevés were systematically surveyed within representative vegetation units to enable thorough recording of species occurrence and representative vegetation descriptions (Appendix D), used to describe the composition and structure of vegetation units present. A risk assessment was completed following the 30th September field survey on vegetation units likely to meet Kwongkan TEC/PEC criteria (Table 6, Section 4.2, DoE, 2015b), namely Vegetation Unit 1: Banspe SL (Section 5.6). A single quadrat was systematically sampled within a "laydown" area, with photos and GPS coordinates recorded on the south-western corners.

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

Information collected within each relevé included:

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

3.2. Flora and Vegetation Survey Limitations and Constraints

An assessment of potential survey limitations was undertaken as per the EPA (2016) document *Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment* refer to Table 2 below. Limitations were present, primarily relating to Autumn flowering species, namely P3 *Styphelia rotundifolia* limiting detection and the fire ephemeral nature of P1 *Lobelia archeri.* Minor limitations were present relating to the presence of bryo-flora on the desktop assessment and limited information available taxonomically for undescribed/informal species.

Table 2: Flora and Vegetation 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.

Table 2 continued.

Limitation	Significance of limitation	Comment
Experience of personnel (cont.)	Nil (cont.)	A single species of bryo-flora was identified within the desktop assessment (Table 12, 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. Timing of survey occurred over two periods, 30th September and 11th of November. The November survey detected late-flowering Spring species. Three species identified in the desktop assessment (Table 12, Appendix B) as 'Likely' or 'Possible' to occur were flowering immediately prior (August) or immediately after (October or December) the surveys were conducted. It is likely that early or late buds or blooms were present. However, it may represent a minor limitation. A single species, namely P3 *Styphelia rotundifolia,* was identified as 'Possible' to occur in the Likelihood of Occurrence assessment. It is recorded as flowering in April, which may represent a significant limitation to detecting the species.
Access restrictions	Nil	No access restrictions were encountered during the survey. It is noted that vegetation present was highly dense Shrubland, which often made traversing through challenging. It also obscured site distance for smaller herbs.
Availability of contextual information	Minor	Publicly available desktop and background information was readily available to give a broad contextual understanding of the site. Database searches were conducted through DBCA (DBCA, 2021a; DBCA, 2021b) providing a more comprehensive context. However, it must be noted that the Esperance area is highly understudied. Four species were identified in the desktop assessment (Table 12, Appendix B) as 'Possible' to occur with very limited information present taxonomically. This primarily related to undescribed, informal phrase names, such as P1 *Baeckia* sp. Gibson (K.R. Newbey 11084), P1 *Leucopogon* sp. Lake Magenta (K.R. Newbey 3387), and P1 *Schoenus* sp. Grey Rhizome (K.L. Wilson 2922); or species with extreme niche abiotic requirements, such as being a fire ephemeral, namely P1 *Lobelia archeri.* Precautionary principles were applied for any species within these genera during identification.
Survey effort and extent	Minor	130 species were identified during the survey, and two relevé and one quadrat data sets collected to gain as complete a picture as possible of flora species present at the site. The survey intensity is displayed in Figure 16, Appendix A, which is noted to only show partial survey effort, as tracking equipment had mechanical issues and was not tracked in entirety.

Table 2 continued.

Limitation	Significance of limitation	Comment
Survey effort and extent (cont.)	Minor (cont.)	Following the CoA (2013) *Draft Survey guidelines for Australia's Threatened Orchids,* it is recognised that due to the complex nature of Orchid phenology and physiology, more intensive survey transects and surveys over multiple time periods may be required. Two Orchid species were identified within the desktop assessment as 'Possible' to occur, namely P2 *Paracaleana parvula* and P3 *Pterostylis faceta*. Whilst the survey intensity was appropriate at a reconnaissance level (EPA, 2016), it was recognised that it likely did not meet requirements for sampling Orchids (CoA, 2013), which may represent a minor limitation. A single quadrat was sampled to assess whether Vegetation Unit 1: Banspe SL met the criteria for Kwongkan TEC. Ideally for further rigorous analysis additional quadrats would have been sampled. Due to the Degraded to Completely Degraded condition of the majority of the survey area and predominate linear nature of the survey, this wasn't practicable to be conducted within the survey area.
Disturbances that may affect results	Nil Major – Fire ephemeral species, P1 *Lobelia archeri*	The primary form of disturbance was the presence of access tracks adjacent to the railway line that were effectively cleared. Large amounts of historical disturbance was evident through the dominance of invasive species forming a novel ecosystem (Vegetation Unit 3: Invasive GL SL). 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*, identified as 'Possible' in the Likelihood of Occurrence assessment. It is therefore possible to be present through viable soil seed bank, which would not have been captured through this survey.
Identification issues	Minor	The survey was undertaken on 29th of September and 11th of November, during the peak flowering period for many south coast flora species to maximise ease of identifying them. Given that not all flora species flower during this time some species will be more difficult to observe in the field than others. Of the 130 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. Four species could not be identified, comprising of three sedges and one Verticordia species without flowers. These bore no similarities to species identified as 'Likely' or 'Possible' to occur in the Likelihood of Occurrence assessment.

3.3. Basic Fauna Survey Methodology

The aim of the basic fauna survey was to assess and map fauna habitat within the survey area, assess the likelihood of occurrence for conservation significant fauna, record actual presence of conservation significant fauna, and undertake an opportunistic inventory of fauna and introduced species encountered whilst traversing the survey area.

Field survey work was carried out by Bianca Theyer (Conservation and Wildlife Biologist/Ecologist) and Dr. Karlene Bain (Wildlife Ecologist) on the 30th September and 24th November 2021, and was 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.

In addition, published papers, reports and recovery plans were used as a source of ecological information to inform surveys and selected survey techniques.

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 is not 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, which consisted of a systematic traverse-based assessment of hollow-bearing trees, foraging habitat, feeding activity and roosting sites as described in sections 3.4.1-3.4.3.

3.4.1. Surveys for Breeding Hollows

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

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

If present, significant trees were GPS located, the diameter of the tree measured at breast height (1.5 m above the ground; DBH) using a diameter tape, photographed, and the presence or absence of potential breeding hollows determined. Where present, hollows were photographed, the entrance type (chimney, side or elbow) and dimensions of the hollow were recorded and hollows were assessed for signs of use by cockatoos, based on evidence such as chewing around the hollow entrance, and activity at the base of the tree, e.g., feathers, faecal material, feeding debris.

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

3.4.2. Surveys for Foraging Habitat and Feeding Activity

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

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

3.4.3. Surveys for Roosting Activity

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 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. Nests 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 Priority conservation species.
Remoteness or access issues	Nil	No access restrictions were encountered.

Table 4 continued.

Limitation	Constraint	Comment
Disturbances that may affect results	Nil	No recent disturbances which may affect results of the survey were identified, e.g., recent fire or grazing. Historical and ongoing disturbances from the existing operational activities along the railway line may impact the presence of fauna within the survey area. However, given these disturbances are long-term and continuous, they are unlikely to have resulted in a significant limitation on detection probability or species occurrence during the survey period (i.e., activities would result in some fauna moving away / not utilising the survey area at all times).
Intensity of survey	Nil	The intensity of the basic fauna survey and targeted components of the survey were deemed appropriate given the scope.
Sources of information (recent or historic) and availability of contextual information	Minor	Publicly available desktop, background and ecological data were readily available to provide a contextual understanding for the site and the survey. DBCA data were also acquired (not publicly available) to provide a more detailed understanding of potential conservation significant fauna in the survey area.
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. Carnaby's Cockatoos use a range of areas for foraging and roosting. 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. 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. Cryptic species such as the Cape Le Grand assassin spider (VU) are unlikely to have been detected within the parameters of this survey. The presence of potential habitat was used as an indication of their likelihood of occurrence, and the possible need for follow up targeted surveys. Species-level detection probabilities are dealt with in the Threatened fauna likelihood of occurrence (LOO) in Table 14, Appendix B.
Survey limitations	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.

Table 4 continued.

Limitation	Constraint	Comment
Experience of personnel	Nil	Bianca Theyer has 5 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 6 years' 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 20, 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 and ecological communities are presented in Tables 15 and 16, Appendix C. NatureMap and Protected matters search tool database searches are provided in Appendix F.

As a result of the above-mentioned database searches 7 Threatened and 55 Priority species were identified within the study area (30 km buffer). Of these, three species were assessed to be 'Likely' and 43 species as 'Possible' to occur. Refer to Table 12, Appendix B for likelihood of occurrence (LOO) analysis. Species that have previously been recorded within a 30km radius of the survey area are shown in Figure 3.

Suitable habitat for species considered to have historically been possible to occur is mostly no longer present within the site, likely due to the extensive degradation across the site, resulting in a completely degraded condition across the survey area, in the areas that haven't been entirely cleared. It is also likely that if populations of species assessed as 'Possible' to occur were historically present at the site, the soil seed bank has been significantly impacted and compromised from disturbance.

Numerous limitations were present relating to detection of species identified as 'Likely' or 'Possible' to occur in the desktop assessment, which is outlined in Table 12, Appendix B. A brief summary is provided below:

- Flowering time – P3 *Leucopogon rotundifolia* was identified as 'Possible' to occur and is an Autumn flowering species. This represents a minor limitation, and it is recognised that detection of the species is possible without flowering;
- Limited information present on species – three informal, undescribed species lack information on distinguishing taxonomic information or reference people. Cautionary principles were applied to identifications of any species within these genera; and
- Fire ephemeral species – Detection of P1 *Lobelia archeri* is limited as the site is long unburnt.

4.2 Threatened and Priority Ecological Communities

Database results also indicate that two Threatened or Priority ecological communities '*Subtropical and Temperate Coastal Saltmarsh* (CSM)*'* and '*Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia* (Kwongkan)*'* may be present within the survey area, 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 17 and 18 in Appendix C. NatureMap and Protected matters search tool database searches are provided in Appendix F.

Subtropical and Temperate Coastal Saltmarsh (CSM)

CSM is listed as a P3 PEC within WA under the *BC Act 2016* and as a Vulnerable TEC under the *EPBC Act 1999.* The community consists of the assemblage of plants, animals and micro-organisms associated with saltmarsh in coastal regions of sub-tropical and temperate Australia (south of 23 Degrees S latitude). CSM TEC/PEC is recognised by key diagnostic features and minimum condition thresholds outlined in Approved Conservation Advice Guidelines (DoE, 2015a), which are outlined below. Refer to Table 13, 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 the Approved Conservation Advice Guidelines (DoE, 2015b):

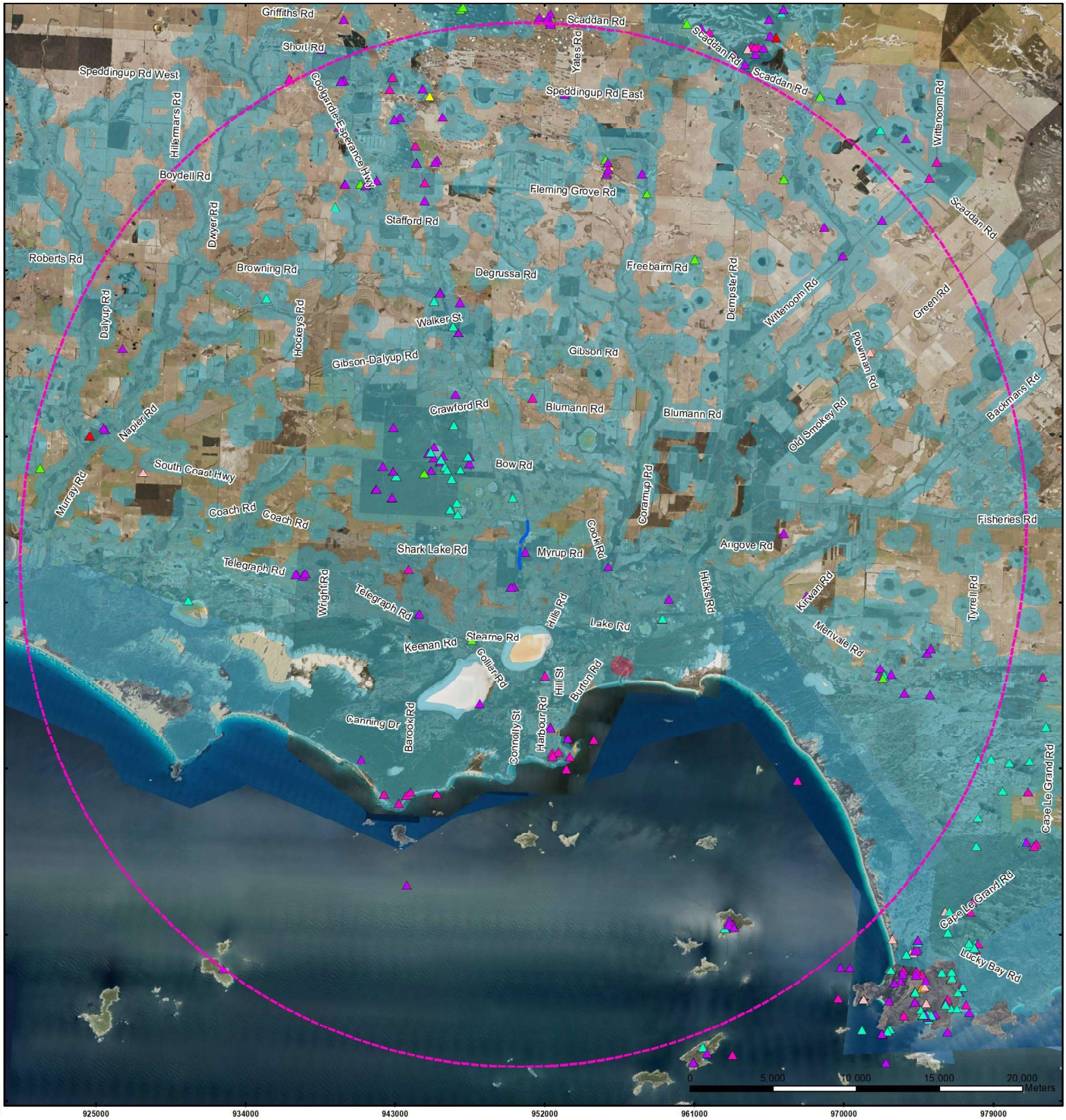
1) Occurs within the South Coastal Floristic Province (Hopper and Gioia, 2004); relating to south west phytogeographic boundaries. Includes Island of the Recherche Archipelago.
2) a) Characterised by Proteaceae species having 30% or greater cover of Proteaceae species across all layers of where shrubs 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 could possibly occur within the survey area.



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

CLIENT Arc Infrastructure
Line 51 (368.7 – 371.7km) Site 13
Esperance to Gibson – Section 3, Walsh Road
Myrup, WA 6448

Figure 3: Desktop Flora & TEC/PEC Data (DBCA2021, 2021b)

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-003	20/04/2022

Legend

- Survey Area
- 30km Study Area Buffer

Ecological Communities

State, Commonwealth

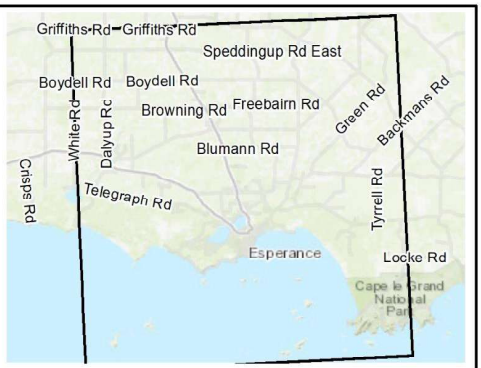
- Priority 3, Endangered
- Priority 3, Vulnerable

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 80 species of conservation significance within 30 km of the survey area. Of these, 44 were Threatened taxa under the *BC Act 2016* and / or *EPBC Act 1999* (critically endangered, endangered or vulnerable), 10 were Priority listed or specially protected taxa and 26 were migratory species protected under international agreements. Of the 44 Threatened taxa and 10 Priority taxa, 23 are also migratory species protected under international agreements (Table 14, Appendix B). Conservation categories for Threatened and Priority fauna are presented in Tables 15 and 16 in Appendix C. NatureMap and Protected Matters Search Tool database searches are provided in Appendix F.

The full species list compiled from all available data (Table 14, 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 range of the survey area, as it is outside of the modelled breeding range for black cockatoos. DBCA data supplied by Arc Infrastructure indicates there are 10 black cockatoo roost sites that have been recorded within 30 km of the survey area, the closest being approximately 4.8 km to the northwest (DBCA, 2021c; Figure 4). Publicly available DBCA black cockatoo databases also indicate there are confirmed roosting sites within the 30 km of the survey area (DBCA, 2018a; 2018c; 2019b).

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

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

CLIENT
Arc Infrastructure
Line 51 (368.7 – 371.7km) Site 13
Esperance to Gibson – Section 3, Walsh Road
Myrup, WA 6448

Figure 4: Desktop Fauna Data (DBCA, 2021c).

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-003**	**20/04/2022**

5. Results – Flora and Vegetation Field Survey

5.1 Flora Diversity

During the survey 130 flora species, consisting of 38 families and 99 genera were found. The most commonly occurring families were Asteraceae, Fabaceae and Myrtaceae. The list includes 97 native species (refer to Table 20, Appendix D), and 33 introduced / alien species. The vegetation units identified across the survey area are described in Section 5.2. Refer to Figure 8 for vegetation mapping.

5.2 Vegetation Units

Three vegetation units were identified during the survey period, vegetation descriptions can be found in the following sections, with relevé and quadrat data presented in Appendix D. Refer to Figures 5 – 7 for photographs of vegetation units and Figure 8 for extent and distribution of vegetation units.

A large area of the survey area (2.818 ha) was also historically cleared, consisting of bare ground or entirely non-native invasive species (mostly agricultural grasslands).

1. Vegetation unit: *Banksia speciosa* Shrubland (Banspe SL)

Vegetation Unit 1 was predominately characterised and defined by keystone species of *Banksia speciosa.* This dominated in the overstorey, along with scattered *Nuytsia floribunda* and *Acacia cyclops.* A mixed Proteaceae dominated Shrubland midstorey, such as *Adenanthos cuneatus* and *Conospermum leianthum* subsp. *leianthum.* The understorey was dominated by a sedgeland of predominated *Anarthria scabra.* Mixed other sedges were also present, including *Hypolaena humilis* and *Hypolaena exsulca.* The *B. speciosa* leaves formed a dense leaf litter cover on any bare ground. The midstorey and understorey were highly diverse and complex.

Vegetation Description (NVIS; DoEE, 2017): U+ ^^*Banksia speciosa, Nuytsia floribunda*, +/-*Acacia cyclops*\tree\6\c; M ^^*Adenanthos cuneatus, Conospermum leianthum* subsp. *leianthum, Hibbertia racemosa*\shrub\2,3\i; G ^^*Hypolaena humilis, Hypolaena exsulca, Anarthria scabra*\sedge\2\c.

Vegetation Description (Muirs, 1977): *Banksia speciosa, Nuytsia floribunda* and *Acacia cyclops* Low Forest B, over *Adenanthos cuneatus* and *Conospermum leianthum* subsp. *leianthum* Low Scrub A and B, over *Hibbertia racemosa* and *Verticordia minutifolia* Dwarf Scrub D, over *Anarthria scabra* and *Lepidosperma squamatum* Tall Sedges, over *Hypolaena humilis* and *Hypolaena exsulca* Low Sedges, over *Trachymene pilosa, Chamaescilla corymbosa* and *Hypochaeris radiata* Open Herbs, over *Avena fatua* Very Open Tall Grass.

Area: 0.205 ha.

Site description: Light grey overlaying deep yellow sands, good drainage. Flat sandplain.

Condition: Very Good, Good and Degraded.

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

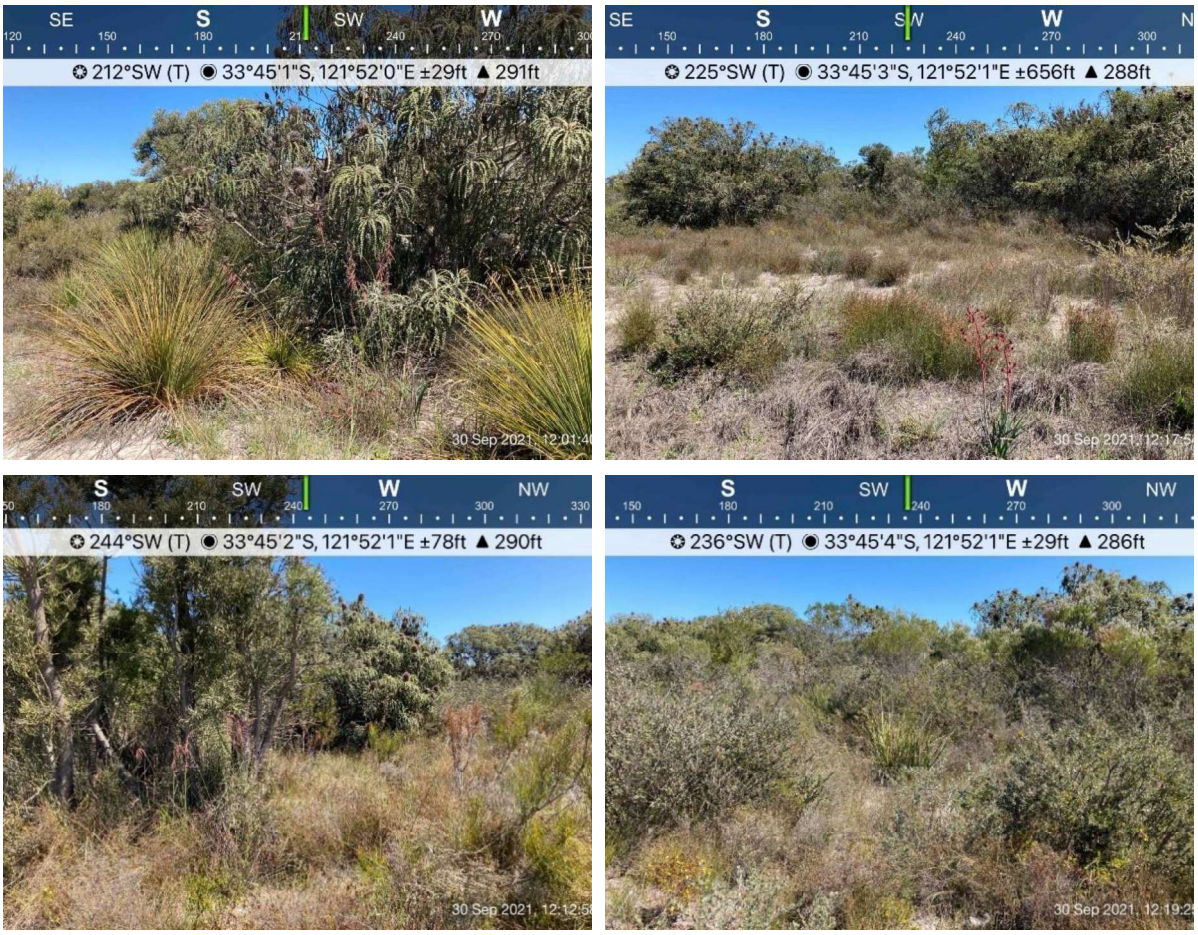

Figure 5: Vegetation Unit 1: *Banksia speciosa* Shrubland present within the survey area.

2. Vegetation unit: *Lambertia inermis* Shrubland (Lamine SL)

Vegetation Unit 2 was characterised by scattered *Lambertia inermis* shrubs, forming an open to sparse upperstorey. Invasive Victorian Tea Tree (*Leptospermum laevigatum)* was also common within the overstorey. The midstorey consisted of a mixed and dense Myrtaceae Shrubland, such as *Darwinia vestita, Jacksonia spinosa* and *Verticordia minutifolia.* The over cover across all stratum was lower with more bare ground present, compared to Vegetation Unit 1. Potential indications of *Phytophthora cinnamomii* Dieback was observed within this Vegetation Unit.

Vegetation Description (NVIS; DoEE, 2017): U ^*Leptospermum laevigatum, +/-Lambertia inermis*\shrub\4\c; M *Darwinia vestita, Jacksonia spinosa, Verticordia minutifolia*\shrub\2\r; G+ ^*Hypolaena exsulca*, *+/-Loxocarya striata*\sedge\1\d.

Vegetation Description (Muirs, 1977): *Leptospermum laevigatum* and *Lambertia inermis* Thicket, over *Acacia cyclops* Open Dwarf Scrub C, over *Darwinia vestita, Jacksonia spinosa* and *Verticordia minutifolia* Open Dwarf Scrub D, over *Hypolaena exsulca* and *Loxocarya striata* Dense Low Sedge, over *Drosera drummondii* and *Microtis media* subsp. *media* Very Open Herbs.

Area: 0.343 ha.

Site description: Light grey sand, on flat sandplain. Good Drainage.

Condition: Degraded.

Represented in R2 (refer to Appendix D).

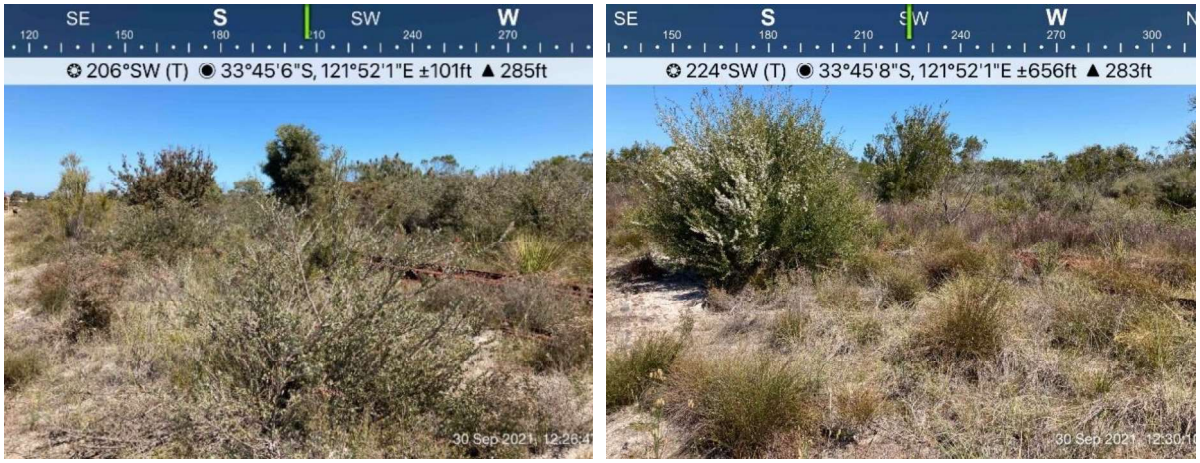

Figure 6: Vegetation Unit 2: *Lambertia inermis* Shrubland present within the survey area.

3. Vegetation units: Invasive Grassland and Shrubland

Vegetation Unit 3 consisted of a novel ecosystem, consisting of invasive species that dominated historically disturbed areas, with disturbance opportunists or clonal native species are scattered throughout. It's likely that the native species had re-grown following historical clearing. Common novel ecosystem complexes are listed below:

- Invasive *Eragrostis curvula* (African Lovegrass) dominated grassland. Scattered natives present include *Verticordia minutifolia* and *Hypolaena exsulca.*
- Invasive *Leptospermum laevigatum* (Victorian Tea Tree) dominated Shrubland and *Pelargonium capitatum* (Rose Pelargonium) understorey. Common scattered natives include *Acacia cyclops, Acacia saligna* and *Hypolaena exsulca.*
- Invasive *Cenchrus clandestinus* (Kikuyu) dominated grassland with other agricultural grasses. Scattered natives present include *Acacia cyclops.*
- Planted stands of non-native species, such as *Cytisus proliferus* (Tagaste) with planted agricultural trees, and an understorey dominated by *Eragrostis curvula* (African Lovegrass).

Area: 1.69 ha.

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

Condition: Completely Degraded.

a) b)

Figure 7: Vegetation Unit 3: Invasive Grassland and Shrubland
a) and b) Novel ecosystem dominated by *Cenchrus clandestinus* (Kikuyu) with scattered native, disturbance opportunist *Acacia cyclops*.

c)

d)

e)

f)

Figure 7 continued.

c) and d) Novel ecosystem dominated by *Leptospermum laevigatum* (Victorian Tea Tree), with scattered native, disturbance opportunist *Acacia cyclops* and *Acacia saligna*. e) Planted *Cytisus proliferus* (Tagasaste) with *Eragrostis curvula* (African Lovegrass) understorey. f) *Eragrostis curvula* (African Lovegrass) dominated grassland.

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 vegetation ranged from Very Good to Completely Degraded condition throughout the survey area. These classification levels are related to degradation of structure and vegetation integrity by processes such as clearing, fire, weeds, grazing, Phytophthora Dieback and vehicle tracks. Vegetation Unit 1: Banspe SL had areas of Very Good and Good condition, primarily located to the north of the survey area when adjacent to Reserve 4887 and 21922. Minor weed invasion and historical clearing was observed. Vegetation Unit 2: Lamine SL was considered Degraded, due to the greater cover and diversity of weed species present and obvious lack of structure in vegetation. Vegetation Unit 3: Invasive Grassland and Shrubland was predominately characterised by the dominance of non-natives resulting in a novel ecosystem with only scattered disturbance opportunists present, and hence was classified as Completely Degraded.

Indications of *Phytophthora cinnamomi* Dieback was observed within Vegetation Unit 2: Lamine SL, primarily through the scattered and recent deaths of numerous susceptible species, including *Banksia speciosa, Lambertia inermis* and *Xanthorrhoea platyphylla.* It is likely that indications or evidence of Dieback is observed in these Vegetation Units due to the presence of Proteaceae species highlighting susceptibility, and other Vegetation Units with non-susceptible species likely still carry or hold the disease.

Table 7: Vegetation condition rating.

Vegetation unit	Condition rating	Area (ha)
1: Banspe SL	Very Good	0.125
	Good	0.018
	Degraded	0.063
2: Lamine SL	Degraded	0.343
3: Invasive Grassland and Shrubland	Completely Degraded	1.689
Cleared		2.818
	Total	**5.056 ha**

5.4 Invasive Plants

Of the 130 flora species recorded within the survey area, 33 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), Australian Weeds Strategy (IPAC, 2017) and the *BAM Act* (2007). The ratings given under the WA Weed Strategy relate to determining the significance of a weed, based on the criteria of invasiveness, impacts, potential for spread and socioeconomic and environmental values, and can be either 'High', 'Moderate', 'Mild', or 'Low' (CALM, 1999).

All species except Bridal Creeper (*Asparagus asparagoides*) and Dwarf Mallow (*Malva neglecta*) are classed as 'Permitted – s11', while Bridal Creeper is rated as higher risk classed as a 'Declared Pest – s22(2)' and Dwarf Mallow as a 'Declared Pest – s12' under the *BAM Act 2007. A. asparagoides* was also listed as a Weed of National Significance (IPAC, 2017). Records of Bridal Creeper is presented in Figure 8, whilst Dwarf Mallow was not recognised as a 'Declared Pest – s22(2)' at the time of the survey and was not GPS'd. Under the Environmental Weeds Strategy for Western Australia (CALM, 1999) Rose Pelargonium, Guildford Grass, Victorian Tea Tree and African Lovegrass are listed as 'High', while Cape Weed, Smooth Cats-ear, Jersey Cudweed, Daisy, Ursinia, White Cudweed, Cape Bluebell, Common Storksbill, Bugle Lilly, South African Orchid, Pine Tree, Wild Oats, Blowfly grass and Kikuyu are rated as 'Moderate'. The remaining species are either rated 'Low', 'Mild' 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. The area of greatest conservation value and in a higher condition is the northern area bordering Reserve 21922 and 48847. It is recommended that machinery work from north to south, to prevent the introduction of weeds and diseases to the intact reserve, incidentally observed to be in Excellent condition.

Table 8: Weed species recorded from the survey area.

Family	Species	Common Name	WA Weed Strategy rating (CALM 1999)	BAM Act (2007)	Australian Weeds Strategy (IPAC, 2017)
Asteraceae	*Arctotheca calendula*	Cape Weed	Moderate	Permitted - s11	
Asteraceae	*Hypochaeris glabra*	Smooth Cats-ear	Moderate	Permitted - s11	
Asteraceae	*Hypochaeris radicata*	Flat Weed		Permitted - s11	
Asteraceae	*Pseudognaphalium luteoalbum*	Jersey Cudweed	Moderate	Permitted - s11	
Asteraceae	*Sonchus sp.*	Daisy	Moderate	Permitted - s11	
Asteraceae	*Ursinia anthemoides*	Ursinia	Moderate	Permitted - s11	

Table 8 continued.

Family	Species	Common Name	WA Weed Strategy rating (CALM 1999)	BAM Act (2007)	Australian Weeds Strategy (IPAC, 2017)
Asteraceae	*Vellereophyton dealbatum*	White Cudweed	Moderate	Permitted s11	
Asteraceae	*Dimorphotheca ecklonis*	Daisy	Low		
Asteraceae	*Conyza sp.*	Fleabane	Low	Permitted - s11	
Asparagaceae	*Asparagus asparagoides*	Bridal Creeper	High	Declared Pest s22(2)	Weed of National Significance
Campanulaceae	*Wahlenbergia capensis*	Cape Bluebell	Moderate	Permitted - s11	
Fabaceae	*Cytisus proliferus*	Tagasaste	Low		
Fabaceae	*Lupinus sp.*	Lupin			
Fabaceae	*Trifolium sp.*	Clover		Permitted (s11)	
Fabaceae	*Vicia sp.*	Vetch	Low	Permitted s11	
Geraniaceae	*Erodium cicutarium*	Common Storksbill	Moderate		
Geraniaceae	*Pelargonium capitatum*	Rose Pelargonium	High	Permitted - s11	
Iridaceae	*Romulea rosea*	Guildford Grass	High	Permitted - s11	
Iridaceae	*Watsonia meriana*	Bugle Lilly	Moderate	Permitted - s11	
Malvaceae	*Malva neglecta*	Dwarf Mallow		Declared Pest, Prohibited - s12	
Myrtaceae	*Eucalyptus gomphocephala*	Tuart		Permitted - s11	
Myrtaceae	*Eucalyptus leucoxylon* var *rosea*			Permitted - s11	
Myrtaceae	*Leptospermum laevigatum*	Victorian Tea Tree	High	Permitted - s11	
Orchidaceae	*Disa bracteata*	South African Orchid	Moderate		
Oxalidaceae	*Oxalis pes-caprae*	Soursob	Mild	Permitted - s11	
Pinaceae	*Pinus radiata*	Pine Tree	Moderate	Permitted - s11	
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	*Pennisetum clandestinum*	Kikuyu	Moderate		
Poaceae	*Lolium perenne*	Perennial Ryegrass	Low		

Table 8 continued.

Family	Species	Common Name	WA Weed Strategy rating (CALM 1999)	BAM Act (2007)	Australian Weeds Strategy (IPAC, 2017)
Primulaceae	*Lysimachia anagallis*	Pimpernel			
Rutaceae	*Zanthoxylum piperitum*				

5.5 Presence of Conservation Significant Flora

In total, one species of Priority conservation status was identified within the survey area directly, P3 *Dampiera sericantha.* Further detail is provided below on specific species dynamics.

Plant identification was undertaken through the most relevant, current and available taxonomic literature, keys and herbarium reference specimens available (Hollister & Thiele, n.d.; WAH 1998 -). All resources used were the most current to knowledge(Bell, 2018; Brundrett, 2014; Hammer & Thiele, 2021; Hopper *et al.* 1987; ICPS, 2021; Maslin, 2018 - ; Ng, 2022; Rye, 1988; Weber, 2007; WAH, 1998-). Nomenclature used through this report follows the most recent scientific names through the Western Australian Herbarium.

Additionally, numerous non-threatened species were identified with close similarities to conservation listed species that were identified in the 30km desktop assessment. Key rationale behind identification as non-threatened are listed below, and are further expanded in Table 12, Appendix B:

- *Micromyrtus elobata* subsp. *elobata* – bears similarities to P3 *Micromyrtus* subsp. *scopula*, but was determined as being the non-threatened subspecies, as the leaves were too long at 4-5mm length, opposed to 1.2-1.5 mm of the P3 *M. elobata* subsp. *scopula.*
- *Conostylis seorsiflora* subsp. *seorsiflora* – bears similarities to P2 *Conostylis* subsp. *longissima*, but was determined as being the non-threatened subspecies as the leaves are too short at 2-9mm, opposed to 8-16mm.

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BIO DIVERSE SOLUTIONS

Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- Cadastre
- 2m Contours
- Releve
- Quadrat

Flora

- *Dampiera sericantha*, P3
- *Pelargonium capitatum*

Vegetation Units

- 1: *Banksia speciosa shrubland* (Banspe SL)
- 2: *Lambertia inermis* Shrubland (Lamine SL)
- 3: Invasive Grassland and Shrubland
- Cleared

Vegetation Condition

- Very Good
- Good
- Degraded
- Completely Degraded

Overview Map Scale 1:100,000

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

CLIENT
Arc Infrastructure
Line 51 (368.7 – 371.7km) Site 13
Esperance to Gibson – Section 3, Walsh Road
Myrup, WA 6448

Figure 8A: Flora & Vegetation Findings.

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-003**	**11/05/2022**

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BIO DIVERSE SOLUTIONS

Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- Cadastre
- 2m Contours

Flora

- *Asparagus asparagoides*

Vegetation Units

- 2: *Lambertia inermis* Shrubland (Lamine SL)
- 3: Invasive Grassland and Shrubland
- Cleared

Vegetation Condition

- Degraded
- Completely Degraded

Overview Map Scale 1:100,000

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

CLIENT
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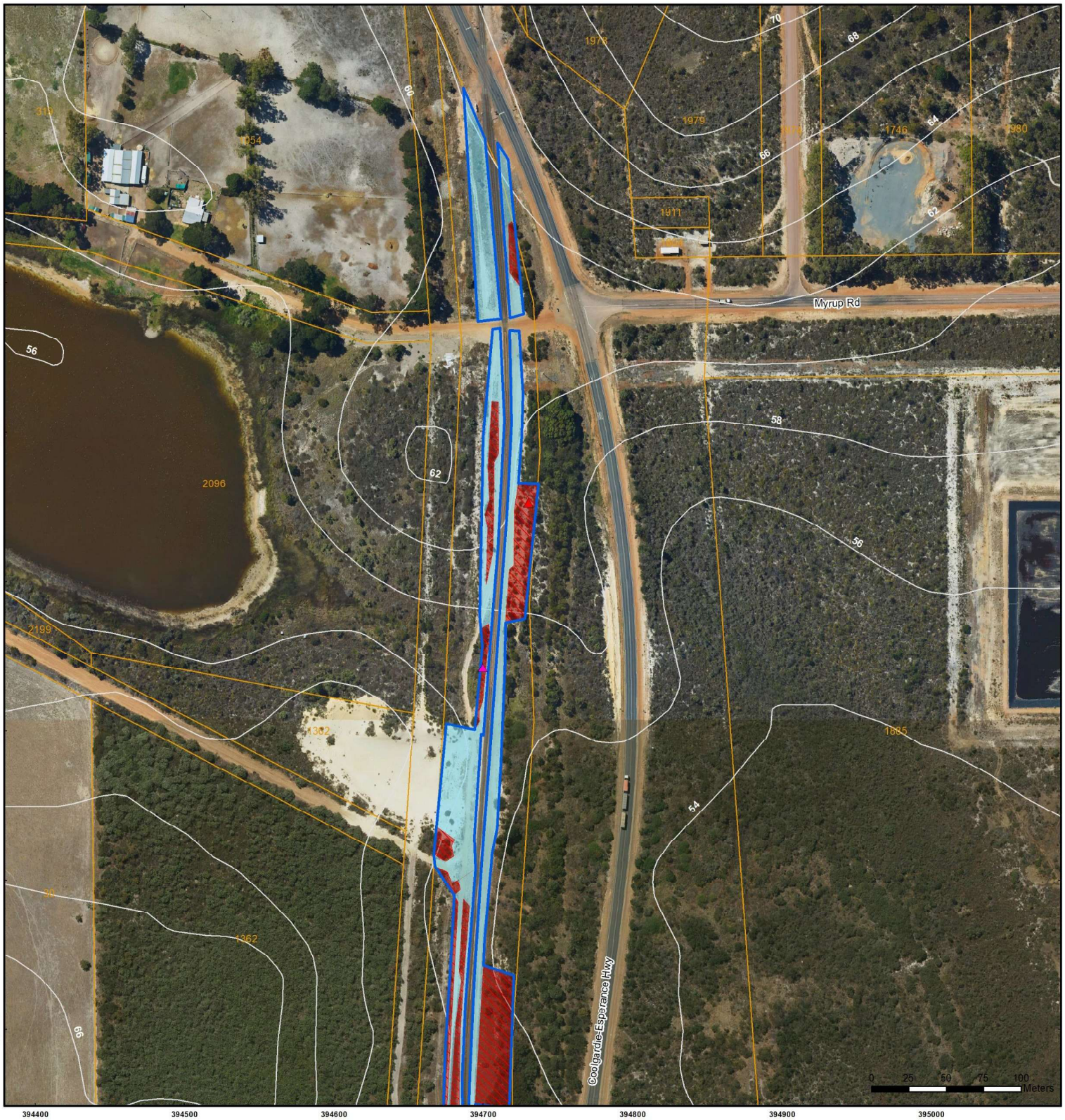
Figure 8B: Flora & Vegetation Findings

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-003	11/05/2022



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BIO DIVERSE SOLUTIONS

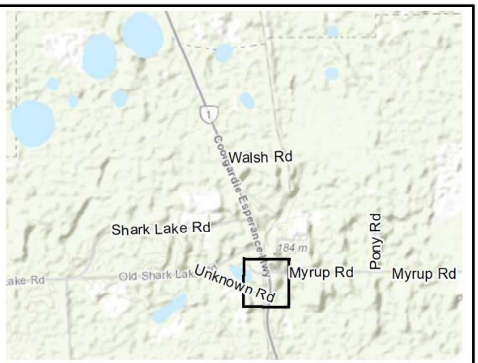
Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend
- Survey Area
- Cadastre
- 2m Contours

Flora
- *Asparagus asparagoides*
- *Zanthoxylum piperitum*

Vegetation Units
- 3: Invasive Grassland and Shrubland
- Cleared

Vegetation Condition
- Completely Degraded



Overview Map Scale 1:100,000

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

CLIENT
Arc Infrastructure
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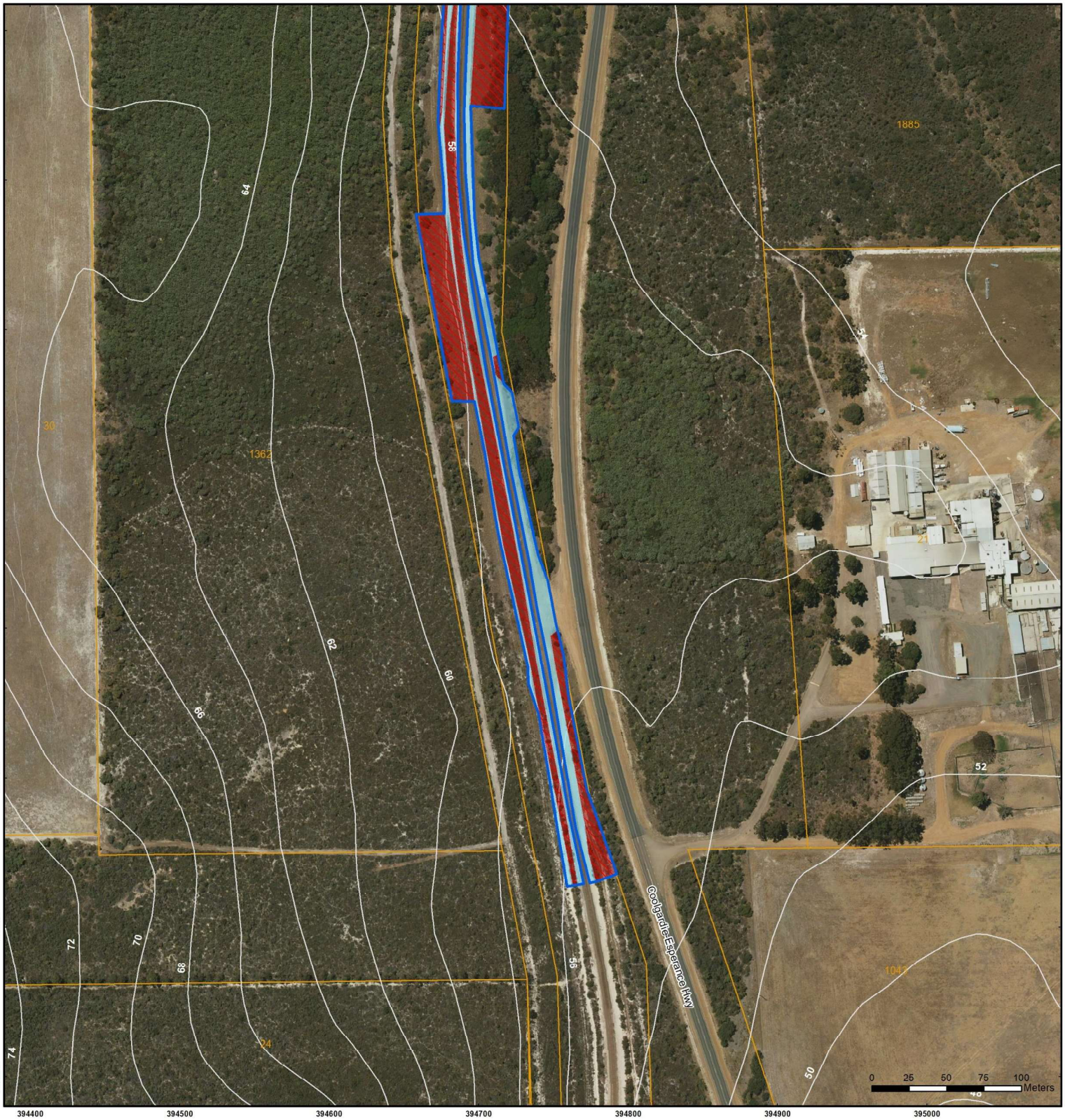
Esperance to Gibson – Section 3, Walsh Road
Myrup, WA 6448

Figure 8C: Flora & Vegetation Findings.

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-003**	**11/05/2022**



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BIO DIVERSE SOLUTIONS

Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend
- Survey Area
- Cadastre
- 2m Contours

Vegetation Units
- 3: Invasive Grassland and Shrubland
- Cleared

Vegetation Condition
- Completely Degraded

Overview Map Scale 1:100,000

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

CLIENT
Arc Infrastructure
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Esperance to Gibson – Section 3, Walsh Road
Myrup, WA 6448

Figure 8D: Flora & Vegetation Findings.

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-003**	**11/05/2022**

***Dampiera sericantha*, P3**

Dampiera sericantha (P3) plants found within the survey area form a new population (Figure 8; Figure 9). It was detected within Vegetation Unit 1: Banspe SL, immediately south of the Walsh Road railway crossing on the western side of the railway reserve. Specifically, this was located at 368.836KM. The plants were all located within the railway reserve and are proposed to be impacted, within a proposed laydown area for the storage of materials and machinery during the railway reconstruction and maintenance process. 26 plants were counted as being present. Due to being a new population, a specimen was collected under Katie White's Regulation 60 FTB20000327 Flora Taking Licence. These were submitted to the WA Herbarium for confirmation as a new Priority population (KW170, Accession 9281, not retained). A Threatened and Priority Report Form (TPFL) was submitted to DBCA Species District Flora Conservation Officer (Emma Adams) and Species and Communities Branch on the 05/01/2022 (Appendix E).

The plants of *D. sericantha* counted represent a partial or edge survey, with only plants directly located within the survey area counted. It is likely that the population extends more broadly into the surrounding suitable habitat and the total population number is much higher. However, it is locally known that *D. sericantha* is often associated with disturbance and may be present due to the proximity of the adjacent railway track. Further surveys may be required to quantify impact of proposed clearing of areas identified in the survey area, within the context of the total population.

The known distribution and records of *D. sericantha* within the Australasian Virtual Herbarium (AVH, n.d.) and Florabase (WAH, 1998 -) indicate that *D. sericantha* has a total of 34 records, located in 250km (east-west) and 100km (north-south) distribution area. It has been recorded within the Local Government Areas of Esperance and Ravensthorpe, and IBRA subregions of Fitzgerald, Recherche and Eastern Mallee (Figure 10).

Figure 9: Photo of *Dampiera sericantha* from within the survey area.

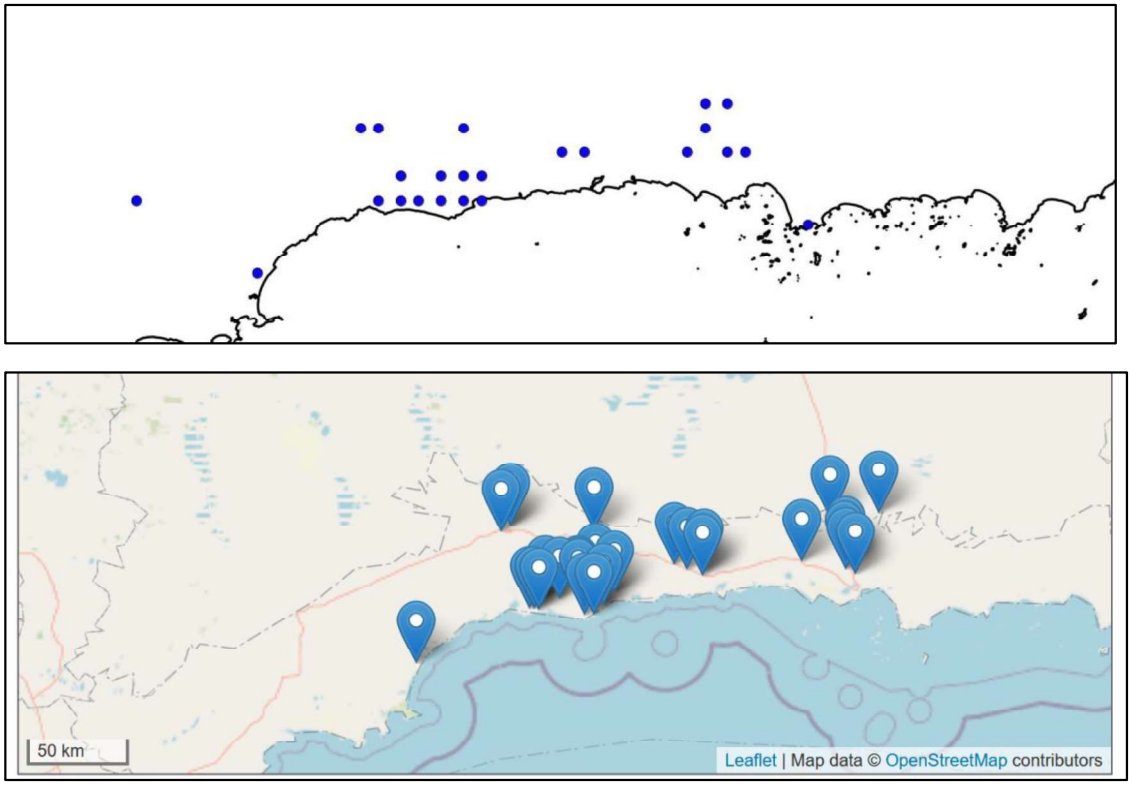


Figure 10: Regional distribution of *Dampiera sericantha* (AVH, n.d.; WAH, 1998 -).

5.6 Threatened and Priority Ecological Communities

Two Threatened (TEC) and Priority (PEC) ecological communities were identified in the 30km desktop analysis, 'Subtropical and Temperate Coastal Saltmarsh (CSM)' and the 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongkan)' (Section 4.2; Table 13, Appendix B). Analysis of Vegetation Units identified within the survey area and comparison to TEC/PEC Kwongkan criteria is discussed in further detail below, and is consistent with a Targeted Vegetation Assessment.

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

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

Kwongkan is listed as an Endangered TEC under the federal *EPBC Act 1999.* Multiple more specific and define communities are applicable under the state legislation *BC Act 2016,* meeting key diagnostic characteristics of the federal TEC Kwongkan. Generally, Kwongkan is listed as a Priority 3 PEC under the *BC Act 2016*. Specific criteria of Kwongkan TEC/PEC is outlined in Section 4.2.

Vegetation Unit 2: Lamine SL contained numerous Proteaceous species and a key distinguishing feature of the vegetation unit description was the scattered presence of *Lambertia inermis* in the overstorey. However, Proteaceous species were not dominant and well below the 30% crown cover threshold required. Additionally, it was only recorded in a Degraded condition within the survey area. Therefore, it was considered to meet Kwongkan TEC/PEC criteria and no further analysis was conducted.

A risk assessment was completed on the 30th of September field survey on relevé data that determined there was a high likelihood that Vegetation Unit 1: Banspe SL met criteria for Kwongkan TEC/PEC. Therefore, more intensive and targeted sampling methodology using quadrat analysis occurred on the 11th of November. Specific analysis of quadrat results are presented below. In summary, 0.205ha Vegetation Unit 1: Banspe SL did meet the criteria and was considered as Kwongkan TEC/PEC (Table 9).

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

Vegetation unit	Code	Condition	Area (ha)	Meet Patch Size Criteria?	Meet criteria for Kwongkan TEC/PEC
1: *Banksia speciosa* Shrubland	Banspe SL	Very Good	0.125	Yes	Yes
		Good	0.018		
		Degraded	0.062		

Vegetation Unit 1: *Banksia speciosa* Shrubland – Kwongkan TEC Analysis

A single quadrat was sampled within Vegetation Unit 1 to systematically determine whether it met Kwongkan TEC/PEC criteria (Appendix D). It was located strategically within a laydown area of the survey area. Ideally for further rigorous analysis additional quadrats would have been sampled. However, due to the Degraded to Completely Degraded condition of the majority of the survey area and predominate linear nature of the survey, this wasn't practicable to be conducted within the survey area (Table 2).

Comparison of the ecological criteria outlined in Section 4.2 of Kwongkan TEC/PEC occurred, and are presented in Table 10. All floristic structure, composition and analysis indicated that Vegetation Unit 5: Banspe Sandplains met Kwongkan TEC/PEC criteria. Additionally, the location of Vegetation Unit 1: Banspe SL consisted of a larger 'patch' of vegetation, extending into Reserve 48847 and 21922. Therefore, patch criteria thresholds were also met.

Table 10: Quadrat analysis of Vegetation Unit 5: Banspe SL to determine the presence of 'Proteaceae Dominated Kwongkan Shrubland of the South-east Coastal Floristic Province (Kwongkan)' Threatened and Priority Ecological Community.

Criteria	Description	Discussion	Meet Criteria
1)	Occurs within the South Coastal Floristic Province (Hopper and Gioia, 2004).	Confirmed survey area is located within province.	Yes
2a)	Characterised by Proteaceae species having 30% or greater cover of Proteaceae species across all layers of where shrubs occur (crowns measured as if opaque).	Quadrat one had a total cover exceeding 30% of Proteaceous species. Specifically, *Adenanthos cuneatus* was present at >70% cover, *Conospermum leianthum* subsp. *leianthum* at 10-30% cover and *Banksia speciosa* at <10% cover, cumulatively exceeding the overall 30% cover.	Yes
2b)	Two or more diagnostic Proteaceae species are present that are likely to form a significant vegetative component when regenerated. The use of diagnostic species is for situations in which the cover or Proteaceae species is reduced due to recent disturbance (e.g., fire).	Whilst the site had not been recently burnt, which is the basis for this criterion, it does provide an indication of keystone species present within the community. Proteaceous species make up the dominant feature of the vegetation unit present, as indicated by the NVIS Level V (DoEE, 2017) and Muirs (Muir, 1977) description, which identifies three Proteaceous species in the description. Specifically, *B. speciosa* is the dominant feature in the upperstorey and *A. cuneatus* and *C. leianthum* subsp. *leianthum* is one of the dominant species of the midstorey. All of these three Proteaceous species occurred in both quadrat one. Overall, six Proteaceae species were recorded within Vegetation Unit 1: Banspe SL. Therefore, two or more diagnostic Proteaceous species form a key ecological marker and are likely to be significant when the ecological community is regenerating.	Yes
Qualitative	Approved conservation Advice guidelines – form and structure of vegetation. Qualitative description of Kwongkan as below: • Structure of shrubland, ranging from high to low and varying density; • Mallee Eucalypt often scattered and present, forming independent stratum layer; and • High floristic richness and localised endemism.	Descriptions of the vegetation indicate that the vegetation is predominately a shrubland structure, as indicated in the NVIS Level V (DoEE, 2017) description. The quadrat analysis indicates that 82% of plant species present within quadrat one were shrubs. No Mallee species were identified within either quadrat. Quadrat one was relatively diverse, with 23 species identified in the 10x10m (and 20x20m for over-story only) quadrat area. Across the entirety of Vegetation Unit 1: Banspe SL, which included incidental collections, 71 species were recorded.	Yes
Qualitative	Approved Conservation Advice guidelines – key diagnostic species.	Of the Proteaceous species identified in quadrat one, two species were identified as key diagnostic species within the Approved Conservation Guidelines (DoE, 2015b) for the 'Esperance (east)' area. These included *A. cuneatus* and *B. speciosa.* Additionally, *Lambertia inermis* was recorded within Vegetation Unit 1: Banspe SL incidentally and is also listed as a key diagnostic species (DoE, 2015b).	Yes

Table 10 continued.

Criteria	Description	Discussion	Meet Criteria
Qualitative	Condition category for minimum patch size – refer to Table 1, Section 2.2 of this report.	Patch criteria refers to the size of a discrete and continuous area of the ecological community, opposed to the survey area specifically. The surrounding vegetation outside of the survey area was not surveyed and it is unknown how far the Ecological Community extends in the surrounding vegetation. Vegetation Unit 1: Banspe SL is located to the north of the survey area and directly adjacent onto Reserve 48847 and 21922. The remnant vegetation along the railway corridor and these reserves is connected and forms part of the same 'Patch'. Incidentally it was observed to consist of vegetation with similar floristic composition and structure. Therefore, it is likely that ecological community described in Vegetation Unit 1: Banspe SL extends further and meets the minimum patch size (Table 6, Section 4.2 of this report) to be considered Kwongkan PEC/TEC.	Yes

6. Results – Fauna Field Survey

6.1. Basic Fauna Survey

A description of the three vegetation units identified during the survey is given in Section 5.2, which correlate with fauna habitat types (refer to Figure 8 above). The southern and northern survey areas differ significantly in terms of providing quality habitat for fauna. The northern portion of the survey area (north of Coolgardie-Esperance Highway) contains areas of native vegetation within the *Banksia speciosa* Shrubland (Banspe SL), *Lambertia inermis* Shrubland (Lamine SL) vegetation units. The *Banksia speciosa* Shrubland (Banspe SL), is in better condition (Very Good – Good), whilst the *Lambertia inermis* Shrubland (Lamine SL) unit is considered to be in Degraded condition and contains a sparser cover of native vegetation. These two vegetation units whilst relatively small in size (0.205 ha and 0.343 ha respectively) provide areas of potentially important habitat for fauna. The southern portion of the survey area (south of Coolgardie-Esperance Highway) is almost entirely devoid of native vegetation, (Invasive Grassland and Shrubland vegetation unit) with few scattered natives that appear to have re-grown following historical clearing. This portion of the survey area provides minimal habitat value for fauna, particularly ground dwelling mammal taxa.

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 scratching. A total of 25 taxa were recorded, of these 13 were birds, five reptiles, four invertebrates, and three mammals. Refer to full fauna species list in Table 21 in Appendix D. Of the fauna taxa observed during the survey, Carnaby's Cockatoo (*Calyptorhynchus latirostris*, EN) was the only Threatened species observed. No other Threatened or Priority species were observed during the survey period.

Carnaby's Cockatoo were observed through the presence of chewed pine cones in two locations (Figures 11 and 13). These feed events consisted of <10 chewed pine cones in both cases, and were not considered significant. No other evidence of this species was observed within the survey area. There is suitable foraging habitat available for the species within the *Banksia speciosa* Shrubland (Banspe SL), and marginal foraging habitat within the *Lambertia inermis* Shrubland (Lamine SL) vegetation units. No evidence of foraging was observed within these vegetation units and there is a low diversity of food species available. There was a low diversity of scattered feed species within the 'Completely Degraded' Invasive Grassland and Shrubland vegetation unit, however the only foraging evidence observed was chewed pine cones. Refer to section 6.2 for detailed foraging habitat assessment.

Suitable habitat was detected for the Cape Le Grand assassin spider (*Zephyrarchaea marki,* VU) within the *Banksia speciosa* Shrubland (Banspe SL) vegetation unit (Figure 12). The Cape Le Grand assassin spider is known to occur in elevated leaf litter associated with *B. speciosa* thickets (Rix and Harvey 2012). Targeted surveys would be required to detect this species within the habitat mapped.

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

The *Banksia speciosa* Shrubland (Banspe SL) and *Lambertia inermis* Shrubland (Lamine SL) vegetation units provide marginally suitable habitat for quenda (*Isoodon fusciventer*, P4). Refer to Figure 12. Runnels 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.

Activity from the introduced species fox (*Vulpes vulpes*) and rabbit was observed through diggings / scrapes, scats and tracks within the northern and southern survey areas (Figures 11).

Figure 11: Photographs of evidence of fauna presence within the survey area.
a) and b) chewed pine cones (Carnaby's Cockatoo); c) bobtail; d) western grey kangaroo scats; e) rabbit scrape; f) rabbit scats (old) g) fresh fox print; h) old fox scat.

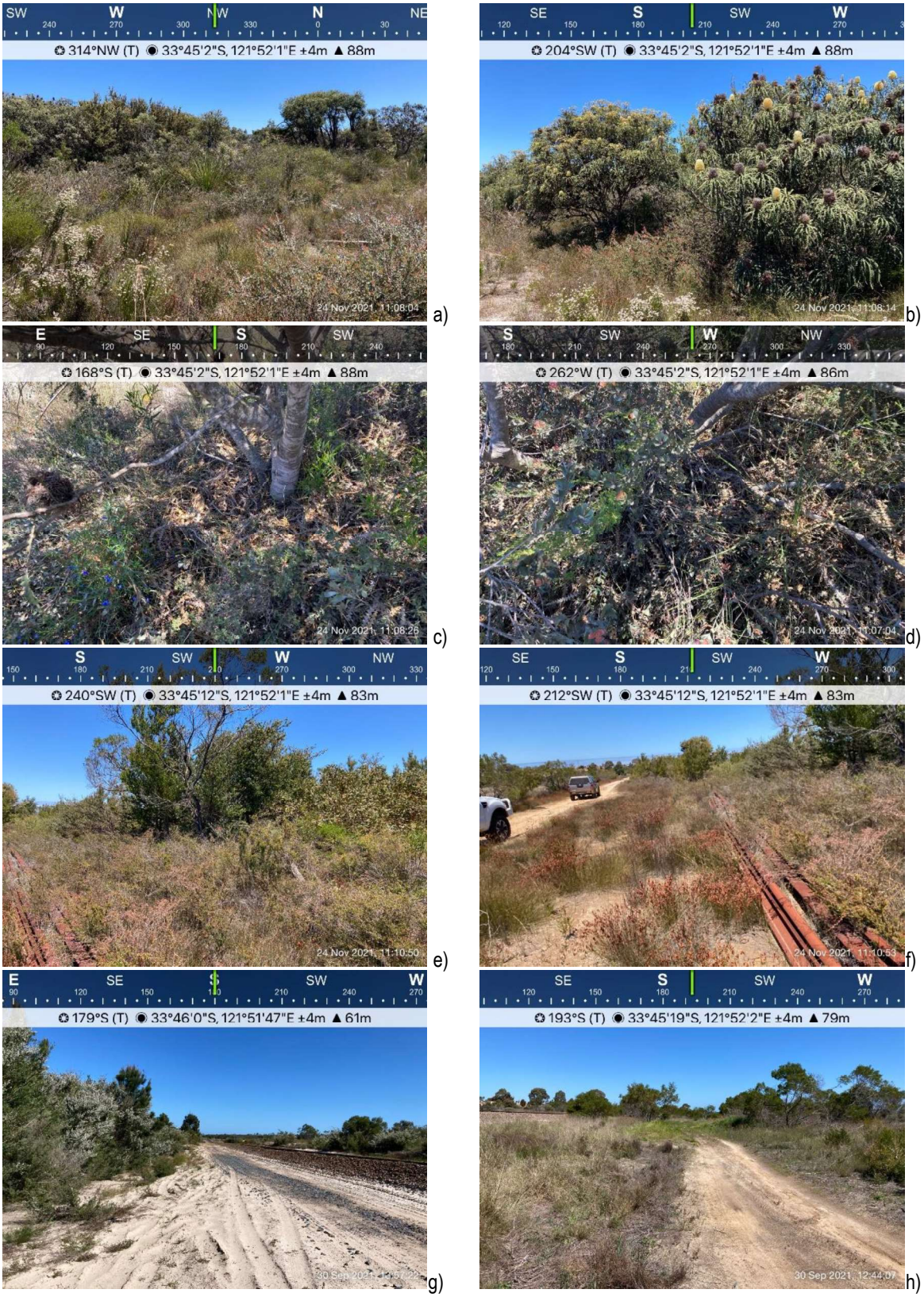


Figure 12: Photographs of fauna habitat available within the survey area.
a) and b) *Banksia speciosa* Shrubland (Banspe SL); c) and d) suspended leaf litter within Banspe SL providing potential habitat for *Z, marki;* e) and f) *Lambertia inermis* Shrubland (Lamine SL); g) and h) Invasive Grassland and Shrubland vegetation unit.

6.2. Targeted Black Cockatoo Assessment

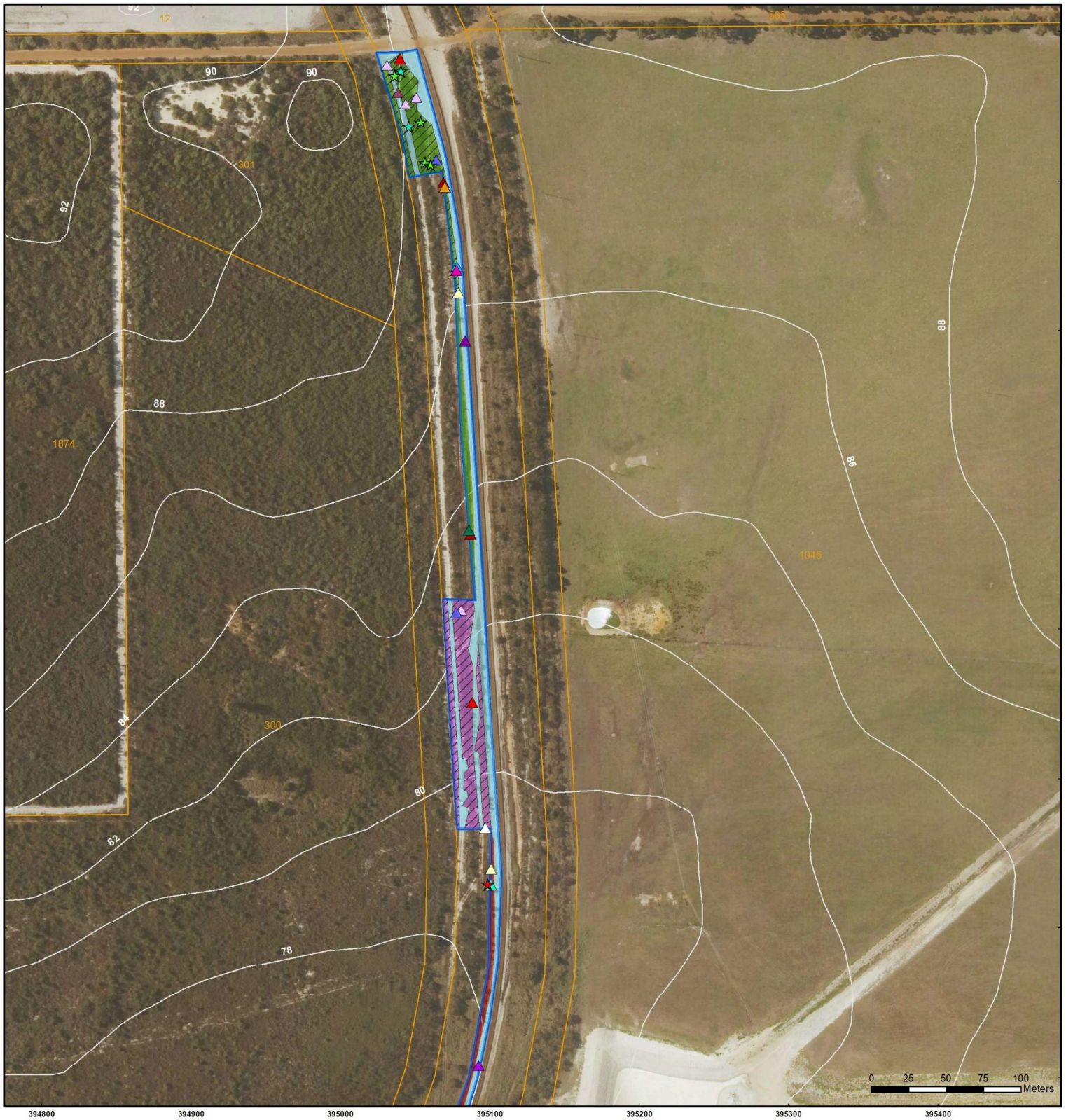
6.2.1. Breeding habitat

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

6.2.2. Foraging and roosting habitat

During this survey, scattered evidence of feeding events (chewed pine cones) were observed within the survey area associated with scattered pine trees predominantly within the Invasive Grassland and Shrubland vegetation unit. Feed events consisted of small numbers of cones (<10 per location) and were not considered significant. Marginally suitable foraging habitat was mapped within the *Banksia speciosa* Shrubland (Banspe SL) and *Lambertia inermis* Shrubland (Lamine SL) vegetation units, however feed species diversity and overall quantity of available feed species is low. No evidence of foraging was observed within these two vegetation units. In addition, a low quantity of scattered plants from the Proteaceae, Myrtaceae and Casuarinaceae families occur within the Invasive Grassland and Shrubland vegetation unit and could be considered potential food species. However, this vegetation unit is "Completely Degraded' and contains a very high occurrence of invasive species, which reduces the quality and availability of feed species available to Carnaby's Cockatoo. It is highly unlikely that these scattered plants provide significant foraging habitat. Overall, the quantity of suitable foraging habitat present within the survey area equates to approximately 0.486 ha which is 21.74% of all mapped vegetation within the survey area and is considered low quality.

No suitable roosting habitat or any evidence of roosting (accumulated scats or feathers) was observed within the survey area.



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BIO DIVERSE SOLUTIONS

Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- Cadastre
- 2m Contours

Vegetation Units

- 1: *Banksia speciosa shrubland* (Banspe SL)
- 2: *Lambertia inermis* Shrubland (Lamine SL)
- 3: Invasive Grassland and Shrubland
- Cleared

Fauna Habitat

- *Banksia speciosa*
- Pine tree
- Runnel
- Carnaby's Cockatoo Foraging Habitat (marginal)

Fauna Observed

- *Anthochaera carunculata*
- *Anthochaera lunulata*
- *Calyptorhynchus latirostris*, (EN)
- *Drymodes brunneopygia*
- *Macropus fuliginosus*
- *Manorina flavigula*
- *Melithreptus brevirostris*
- *Oryctolagus cuniculus*
- *Phylidonyris novaehollandiae*
- *Pogona minor*
- *Rhipidura leucophrys*
- *Sericornis frontalis*
- *Tiliqua rugosa*
- *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

CLIENT
Arc Infrastructure
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Figure 13A: Fauna & Fauna Habitat Observed

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-003	11/05/2022

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BIO DIVERSE SOLUTIONS

Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- Cadastre
- 2m Contours

Vegetation Units

- 2: *Lambertia inermis* Shrubland (Lamine SL)
- 3: Invasive Grassland and Shrubland
- Cleared

Fauna Habitat

- Pine tree
- Reptile burrow
- Varanus Burrow
- Carnaby's Cockatoo Foraging Habitat (marginal)

Fauna Observed

- *Anthochaera lunulata*
- *Aprasia striolata*
- *Calyptorhynchus latirostris*, (EN)
- *Macropus fuliginosus*
- *Notechis scutatus*
- *Tiliqua rugosa*
- *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

CLIENT
Arc Infrastructure
Line 51 (368.7 – 371.7km) Site 13
Esperance to Gibson – Section 3, Walsh Road
Myrup, WA 6448

Figure 13B: Fauna & Fauna Habitat Observed

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-003**	**11/05/2022**

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Denmark Office:
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Esperance Office:
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BIO DIVERSE SOLUTIONS

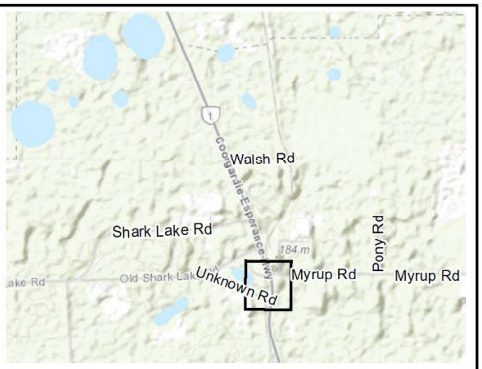
Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend
- Survey Area
- Cadastre
- 2m Contours

Flora
- *Asparagus asparagoides*
- *Zanthoxylum piporitum*

Vegetation Units
- 3: Invasive Grassland and Shrubland
- Cleared

Vegetation Condition
- Completely Degraded



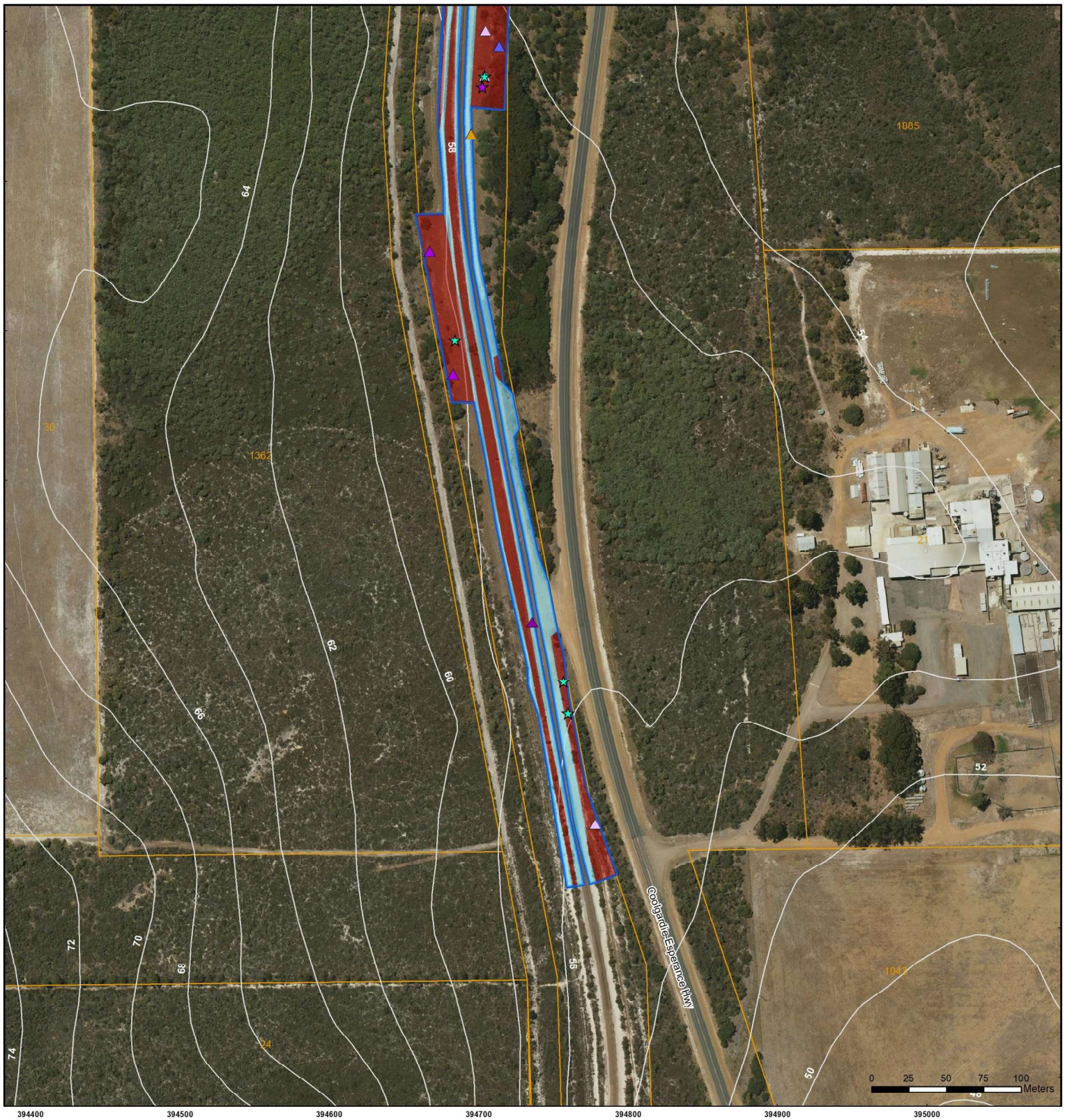
Overview Map Scale 1:100,000

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

CLIENT
Arc Infrastructure
Line 51 (368.7 – 371.7km) Site 13
Esperance to Gibson – Section 3, Walsh Road
Myrup, WA 6448

Figure 13C: Fauna & Fauna Habitat Observed

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-003**	**11/05/2022**



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Esperance, WA 6450
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BIO DIVERSE SOLUTIONS

Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- Cadastre
- 2m Contours

Vegetation Units

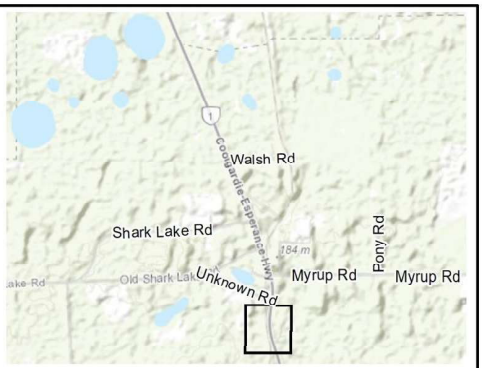
- 3: Invasive Grassland and Shrubland
- Cleared

Fauna Habitat

- Runnel
- Snake Burrow

Fauna Observed

- *Anthochaera lunulata*
- *Macropus fuliginosus*
- *Oryctolagus cuniculus*
- *Tiliqua rugosa*
- *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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Figure 13D: Fauna & Fauna Habitat Observed

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-003**	**11/05/2022**

7. Discussion

7.1. Vegetation, Threatened and Priority Flora and Ecological Communities

The scope for this survey was to provide the client with information on any Threatened or Priority flora species that are potentially present within the survey area, as well as Threatened/Priority Ecological Communities, and to provide an assessment on vegetation units and their general condition. Three vegetation units were recorded within the survey area, namely 1: *Banksia speciosa* Shrubland, 2: *Lambertia inermis* Shrubland and 3: Invasive Grassland and Shrubland. 2.818ha was already cleared within the survey area, consisting of bare ground with minor invasive herbs or grasses. These vegetation units broadly align with different habitat types, and at a local level subtle changes in soil types, position in the landscape hydrological regimes, soil types and historical disturbance. The condition of the vegetation units ranged from 'Completely Degraded' to 'Very Good'. Where the survey area corresponded with the native vegetation patch contained within adjacent Reserve 4887 and Reserve 21922, vegetation was generally more intact and of a higher condition. Indications of *Phytophthora cinammomi* Dieback was observed within Vegetation Unit 2: Lamine SL. It is recommended that biosecurity principles and strict clean down occurs to prevent the spread of invasive species and plant pathogens.

A total of 62 flora species were identified in the desktop assessment, consisting of 7 Threatened and 55 Priority species. 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 autumn flowering species, limited information on undescribed or poorly understood species and fire ephemeral species.

A total of 130 species of flora were recorded, consisting of 97 native species and 33 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 33 invasive species, two species was classified as 'Declared Pest – s22(2)' under the *BAM Act* 2007, *Asparagus asparagoides* (Bridal Creeper) and *Malva neglecta* (Dwarf Malva). One species of Priority flora were recorded within the survey area, consisting of 26 plants of P3 *Dampiera sericantha,* and was considered a new population. It is recognised there is likely ample suitable habitat in the surrounding reserves that may include additional plants within the population.

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 was detected at Vegetation Unit 1: Banspe SL, following detailed quadrat analysis consistent with a Targeted Vegetation Assessment. In total, 0.205ha of Kwongkan TEC/PEC was present within the survey area.

7.2. Basic Fauna Survey and Targeted Black Cockatoo Assessment

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 25 taxa recorded during the survey period. Carnaby's Cockatoo was the only Threatened or Priority fauna listed species identified during the survey period. No individuals were observed. Presence was detected through scattered feeding evidence (chewed pine cones) associated with pine trees within the Invasive Grassland and Shrubland vegetation unit. There were other potential feed species within this vegetation unit, but the unit was degraded, and feed species were sparse and low in diversity. The *Banksia speciosa* Shrubland (Banspe SL) and *Lambertia inermis* Shrubland (Lamine SL) vegetation units, were considered to provide low quality foraging habitat (0.486ha) for Carnaby's Cockatoo, but no foraging evidence was observed in these units. The scattered nature of the pine trees within the survey area, the low quantity of feeding debris and the low availability and diversity of suitable foraging habitat suggests that these feeding events are likely to be opportunistic and that the area is not a preferred foraging area. Undisturbed vegetation immediately adjoining the northern portion of the survey area contains higher quality foraging habitat for Carnaby's Cockatoo. Given the *Banksia speciosa* Shrubland (Banspe SL) and *Lambertia inermis* Shrubland (Lamine SL) vegetation units, are the only units within the survey area considered to contain low quality foraging habitat for Carnaby's Cockatoo, it is

unlikely the proposed works at this location would need to be referred for assessment under the *EPBC Act.* However, the cumulative total and potential impact across the entire Esperance Branch Line project should be taken into consideration.

Low quality habitat for quenda (P4) was detected within the northern portion of the survey area associated with the *Banksia speciosa* Shrubland (Banspe SL) and *Lambertia inermis* Shrubland (Lamine SL) vegetation units and possible transient activity from this species was detected in the form of runnels. Undisturbed vegetation immediately adjoining the survey area appears to have higher habitat value for this species. Proposed clearing as part of this project is unlikely to result in loss of significant habitat for this species.

The Cape Le Grand assassin spider (VU) occurs in Cape Le Grande, however it is likely to be under surveyed in the Esperance region and is known to be associated with elevated litter within *B. speciosa* thickets, such as those present within the survey area. Work that disturbs the *Banksia speciosa* Shrubland (Banspe SL) vegetation unit should be avoided, where possible. If clearing of this vegetation unit is unavoidable, a targeted survey for the Cape Le Grand assassin spider is recommended to ascertain species presence prior to disturbance.

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

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9. Appendices

Appendix A – Maps

Appendix B – Species Lists and Relevé Data

Appendix C – Conservation Significant Values Likelihood of Occurrence Analysis

Appendix D – Conservation Status Definitions and Condition Scale

Appendix E – Threatened and Priority Report Forms

Appendix F - NatureMap and EPBC Act PMST reports

Appendix A

Maps

Albany Office:
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(08) 9072 1382

BIO DIVERSE SOLUTIONS

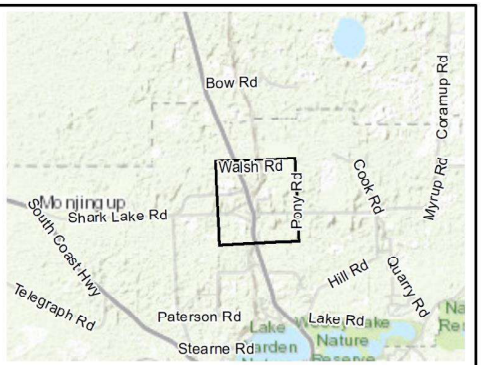
Scale
1:11,000 @ A3
GDA MGA 94 Zone 51

Legend

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

Pre European Vegetation (DPIRD_006)

- ESPERANCE_6048
- FANNY COVE_7048



Overview Map Scale 1:250,000

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

CLIENT
Arc Infrastructure
Line 51 (368.7 – 371.7km) Site 13
Esperance to Gibson – Section 3, Walsh Road
Myrup, WA 6448

Figure 14: Desktop Historic Vegetation Data

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-003**	**20/04/2022**

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BIO DIVERSE SOLUTIONS

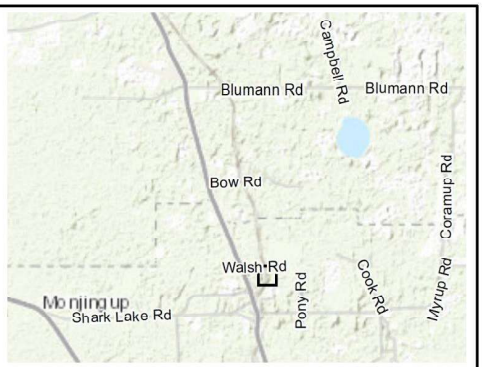
Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- Cadastre
- Railway KM

Environmental Risk Assessment

- Green
- Red
- Yellow



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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
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Esperance to Gibson – Section 3, Walsh Road
Myrup, WA 6448

Figure 15A: Environmental Risk Assessment

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
FINAL	AI005-003	11/05/2022

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BIO DIVERSE SOLUTIONS

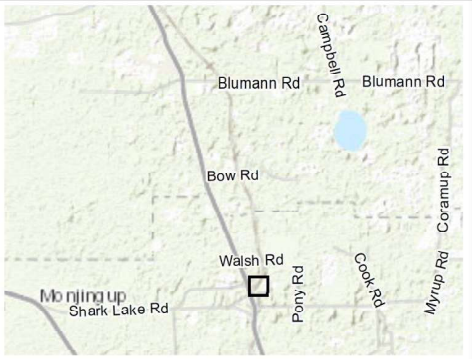
Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- Cadastre
- Railway KM

Environmental Risk Assessment

- Green
- Red
- Yellow



Overview Map Scale 1:250,000

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

CLIENT
Arc Infrastructure
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Myrup, WA 6448

Figure 15B: Environmental Risk Assessment

	QA Check	Drawn by
	MLH	BMT
STATUS	FILE	DATE
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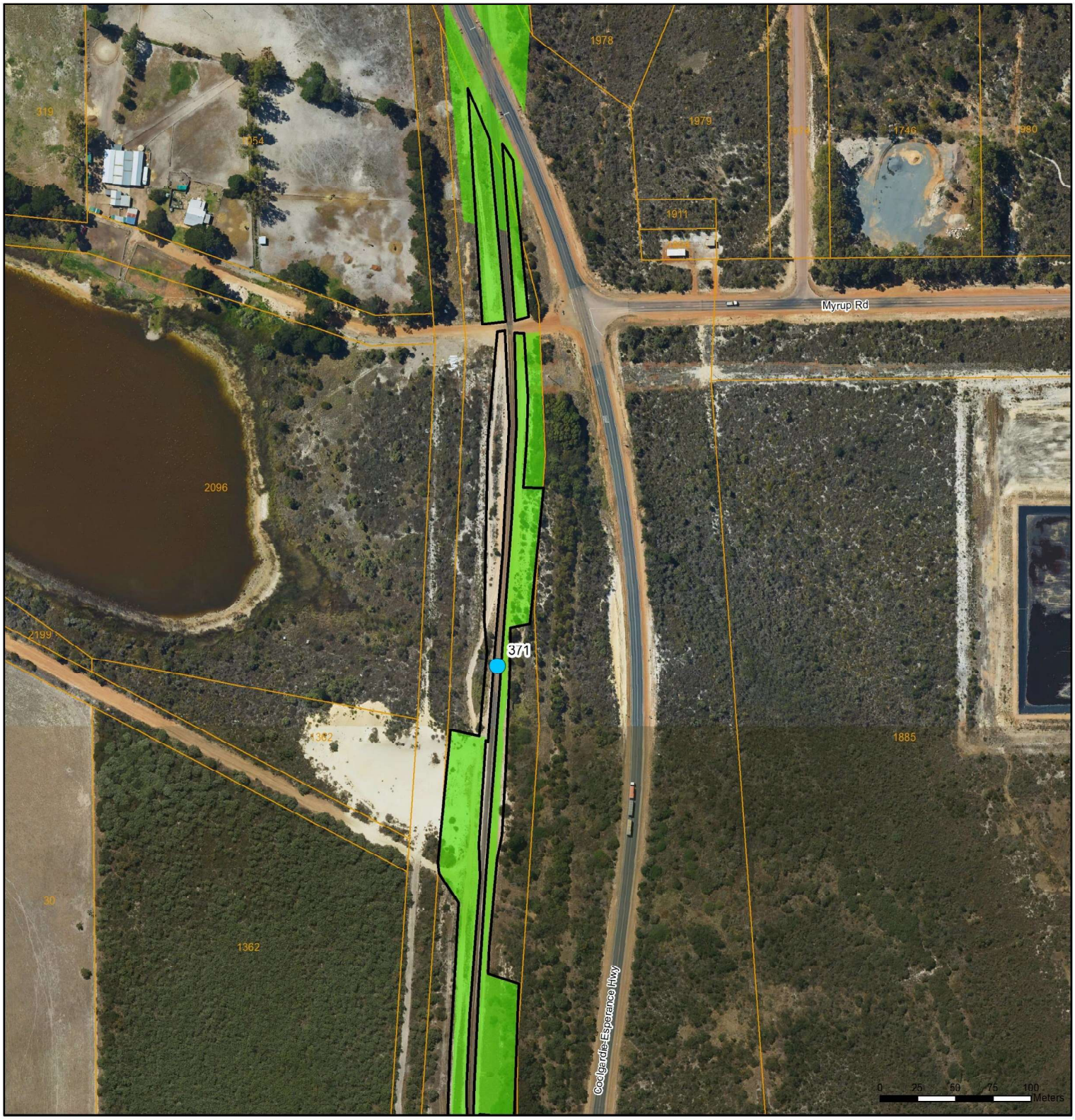

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BIO DIVERSE SOLUTIONS

Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- Cadastre
- Railway KM

Environmental Risk Assessment

- Green
- Red
- Yellow

Overview Map Scale 1:250,000

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

CLIENT
Arc Infrastructure
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Myrup, WA 6448

Figure 15C: Environmental Risk Assessment

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-003**	**11/05/2022**

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BIO DIVERSE SOLUTIONS

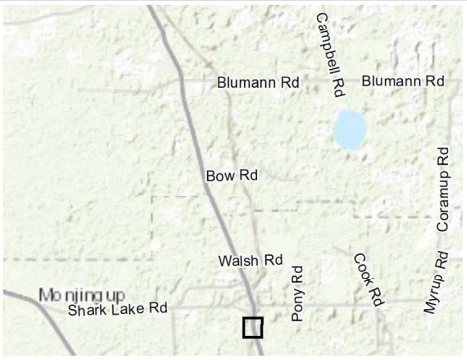
Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- Cadastre
- Railway KM

Environmental Risk Assessment

- Green
- Red
- Yellow



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Data Sources
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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 15D: Environmental Risk Assessment

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-003**	**11/05/2022**

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BIO DIVERSE SOLUTIONS

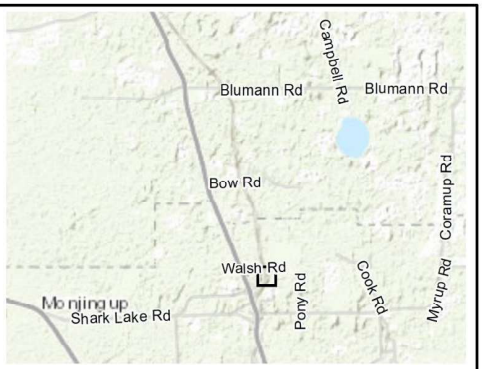
Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- Rail Kilometer Points
- Cadastre

Survey Effort

- Terrestrial Flora and Vegetation
- Terrestrial Vertebrate Fauna



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Data Sources
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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
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Myrup, WA 6448

Figure 16A: Survey Effort

	QA Check	Drawn by
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STATUS	FILE	DATE
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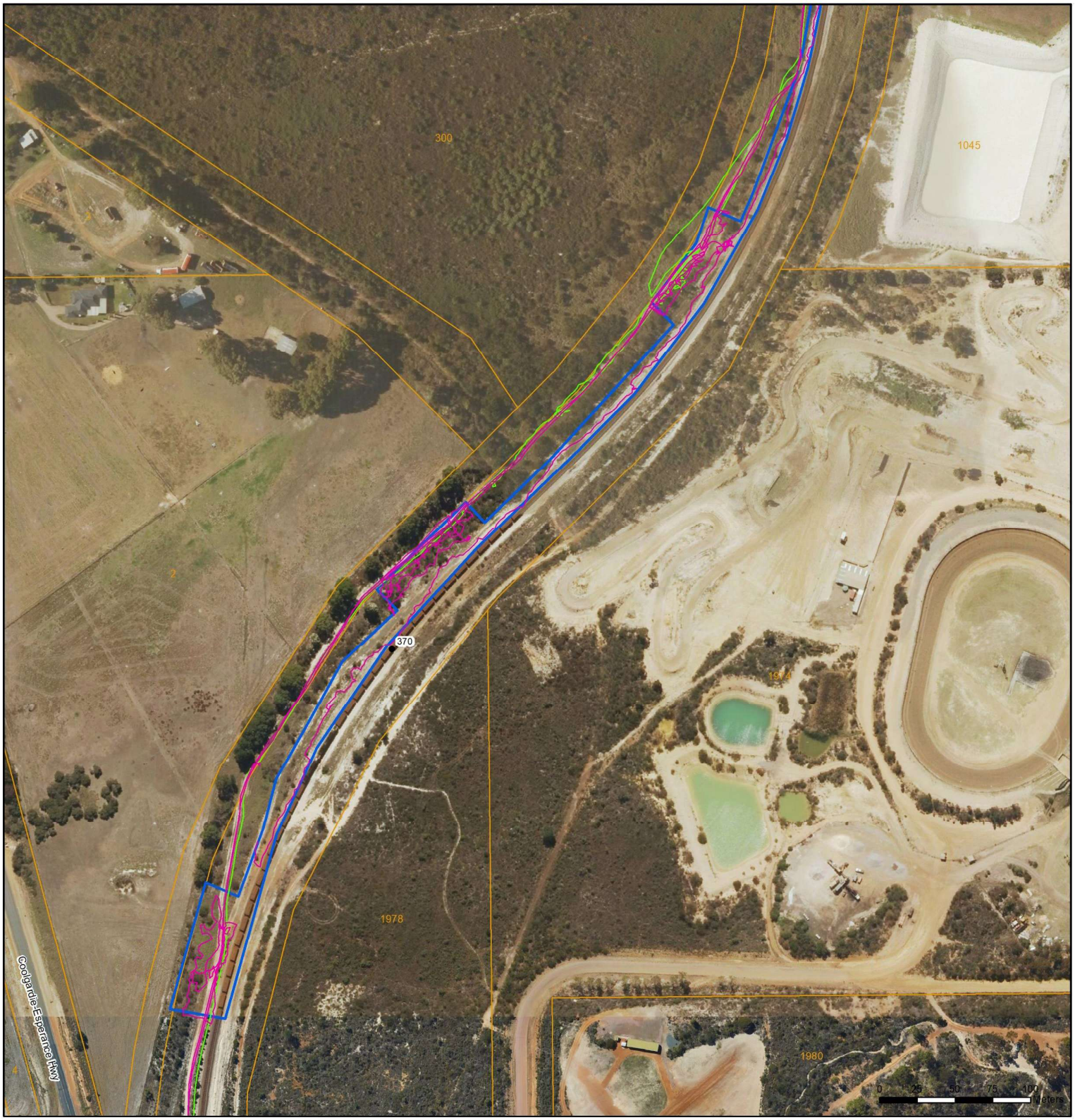

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BIO DIVERSE SOLUTIONS

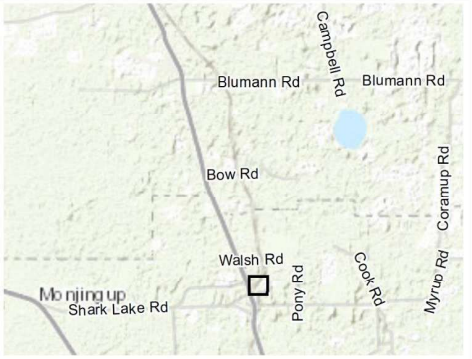
Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- Rail Kilometer Points
- Cadastre

Survey Effort

- Terrestrial Flora and Vegetation
- Terrestrial Vertebrate Fauna



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Data Sources
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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
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Myrup, WA 6448

Figure 16B: Survey Effort

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STATUS	*FILE*	*DATE*
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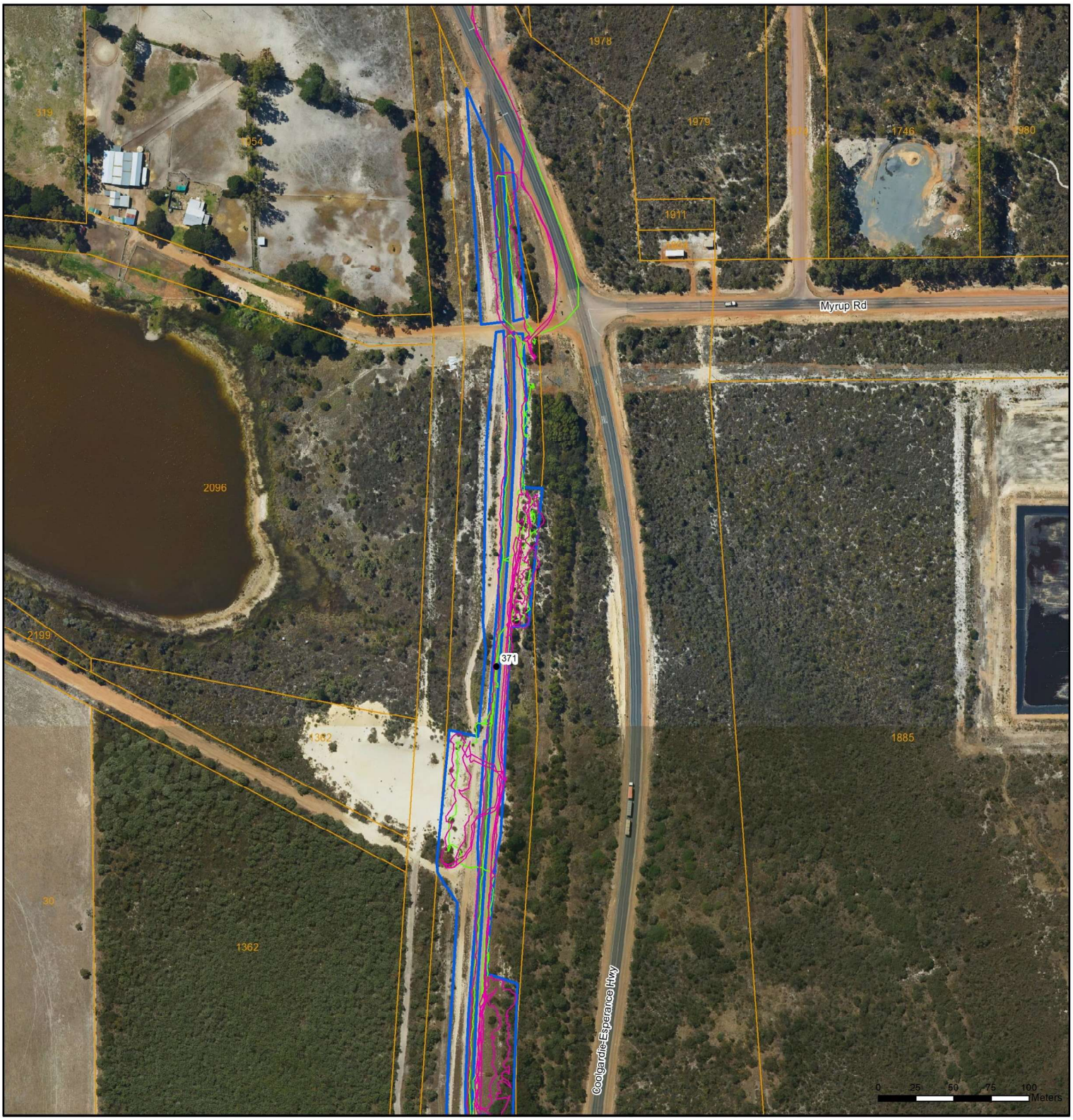

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BIO DIVERSE SOLUTIONS

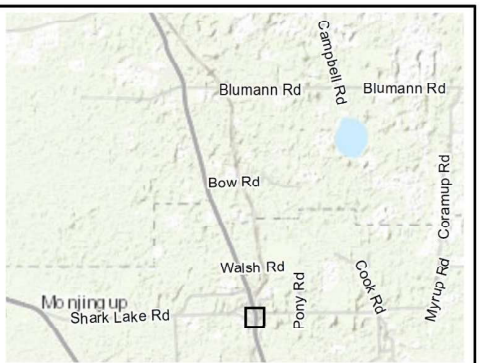
Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- Rail Kilometer Points
- Cadastre

Survey Effort

- Terrestrial Flora and Vegetation
- Terrestrial Vertebrate Fauna



Overview Map Scale 1:250,000

Data Sources
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CLIENT
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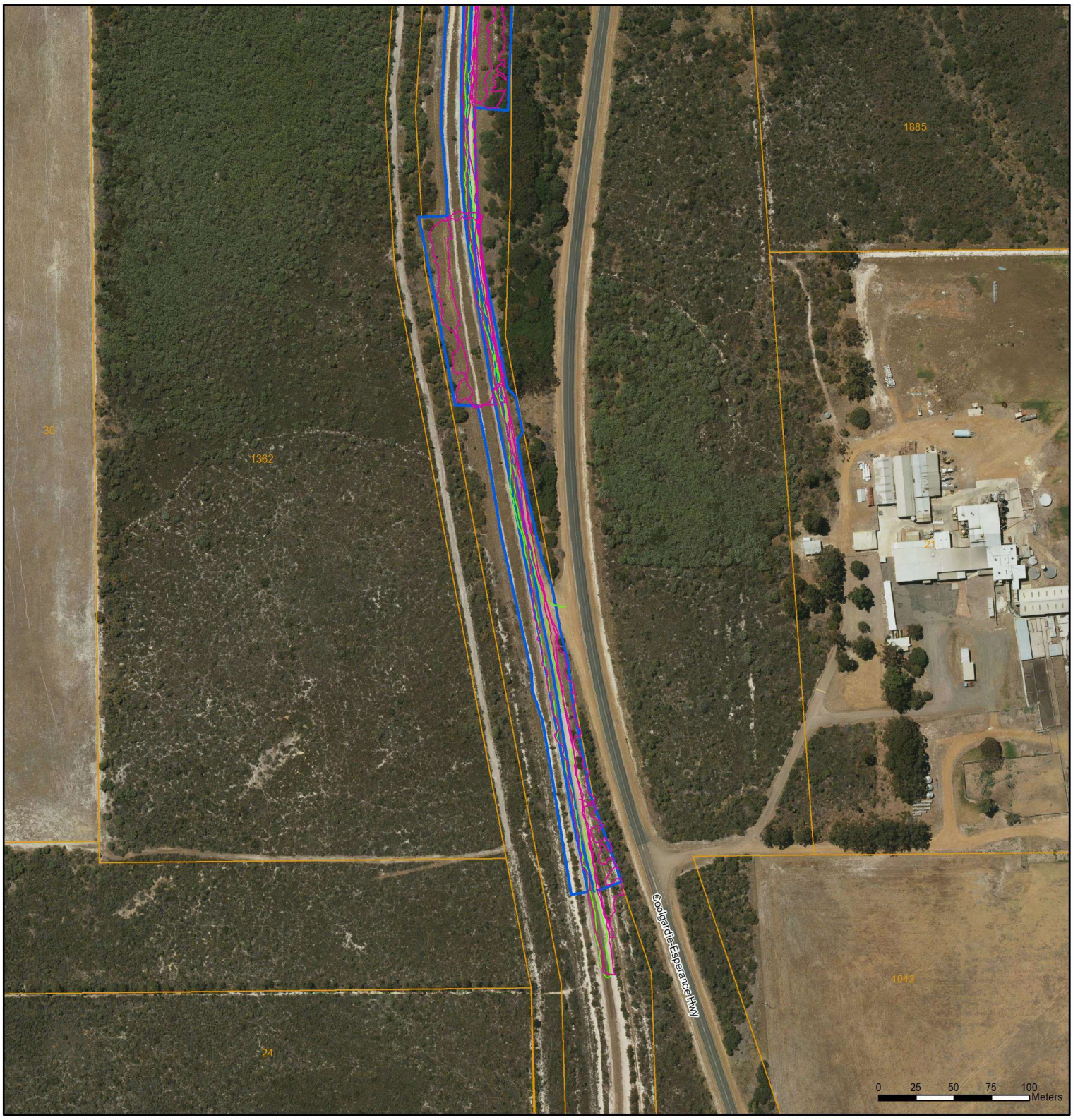
Figure 16C: Survey Effort

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-003**	**11/05/2022**



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BIO DIVERSE SOLUTIONS

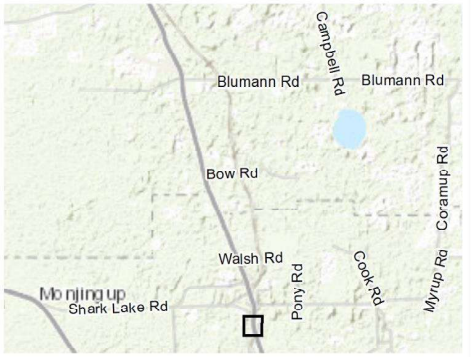
Scale
1:2,500 @ A3
GDA MGA 94 Zone 51

Legend

- Survey Area
- Rail Kilometer Points
- Cadastre

Survey Effort

- Terrestrial Flora and Vegetation
- Terrestrial Vertebrate Fauna



Overview Map Scale 1:250,000

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

CLIENT
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Myrup, WA 6448

Figure 16D: Survey Effort

	QA Check	*Drawn by*
	MLH	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-003**	**11/05/2022**

Appendix B

Conservation Significant Values Likelihood of Occurrence Analysis

Table 11: Criteria for assessing the likelihood of occurrence of Threatened or Priority flora and fauna within a 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 12: Potential conservation significant flora located within 10 (NatureMap and PMST) to 30 (DBCA) km of the survey area and likelihood of occurrence analysis (post survey).
NB - Species are sorted by likelihood of presence. Numerous resources specific to Threatened and Priority flora listed below were used in the likelihood assessment (Archer, 2016; Euclid, n.d; Gilmore, 2012; Hislop, 2014; JSTOR, 2000 - ; WAH, 1998 - ; WANOSCG, 1974 -).

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 Outcome
Fabroniaceae	*Fabronia hampeana*		P2	X		X	Moss species. Silver green species.	Often growing on Macrozamia species. Mixed woodlands.		Outside of expertise of surveyors	Unlikely - No Macrozamia plants detected within the survey area.
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 - often associated with disturbance	Detected - KW170, Accession 9281. 26 plants present.
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	Possible - Not detected. Survey intensity may not have captured species, under CoA (2013) Guidelines.
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	Possible - Not detected. Survey intensity may not have captured species, under CoA (2013) Guidelines.
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 - Not detected. Fire ephemeral species that may be persisting in the soil seed bank.
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 - Autumn flowering species, minor limitations in detection.
Myrtaceae	*Baeckea* sp. Gibson (K.R. Newbey 11084)		P1	X		X	Spreading, erect, mid-dense shrub, to 2 m high. Fl. Pink.	Brown sandy loam over laterite & granite. Moderately exposed hills, cleared bushland.	Jun or Nov to Dec.	Possible	Unlikely - Not detected
Ericaceae	*Leucopogon* sp. Lake Magenta (K.R. Newbey 3387)		P1	X				Uplands; sand or sand over laterite.	Nov	Possible	Unlikely - Not detected. Leucopogon species present don't bear any similarity.
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
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
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
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	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
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	Possible	Unlikely - Not detected. Leucopogon species present don't bear any similarity.
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
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.	Aug - Nov	Possible	Unlikely - Not detected
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	Possible	Unlikely - Not detected. Leucopogon species present don't bear any similarity.

Table 12 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 Outcome
Anarthriaceae	*Hopkinsia adscendens*		P3	X		X	Rhizomatous, perennial, herb to 0.4 m high.	Sand. Dry or seasonally damp habitats along streams.	Oct	Possible	Unlikely - Not detected
Loganiaceae	*Adelphacme minima*		P3	X		X	Annual.	Small post fire.	Sept -Oct; Nov-Jan	Possible	Not detected
Malvaceae	*Commersonia rotundifolia*	Round Leaved Rulingia	P3			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
Lamiaceae	*Pityrodia chrysocalyx*		P3	X		X	Erect, branched shrub, 0.3-0.75(-1) m high. Fl. White.	Sandy soils.	Aug to Oct.	Possible	Unlikely - Not detected
Myrtaceae	*Eucalyptus 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. Eucalyptus species present don't bear any similarity.
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
Proteaceae	*Isopogon alcicornis*	Elkhorn Coneflower	P3	X		X	Low, lignotuberous shrub, 0.3-0.5 m high to 0.6 m wide. Flowers yellow, white, pink. Distinctive shaped leaves forming cluster. No distinct stems.	Sandy soils, skeletal loam, sandhills, sandplains.	Oct to Dec or Feb	Possible	Unlikely - Not detected
Proteaceae	*Persoonia 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
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
Proteaceae	*Lambertia echinata* subsp. *echinata*	Prickly Honey Suckle	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 on granite and coastal.	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
Haemodoraceae	*Anigozanthos bicolor* subsp. *Minor*	Dwarf Green 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	Unlikely	Unlikely
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
Myrtaceae	*Eucalyptus insularis* subsp. *Continentalis*	Twin Peak Island Mallee	T – En		x	x	(Mallee), 1.5-8 m high. Fl. White-cream.	Sand. Granite outcrops & hills.	Aug	Unlikely distribution restricted to Cape Le Grand. Lack of suitable habitat.	Unlikely

Table 12 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 Outcome
Myrtaceae	*Eucalyptus merrickiae*	Goblet Mallee	T - Vu	X	X	X	Mallee, 2-4(6) m high. Bark rough and flaky. Distinguished by extremely red bud caps. Silver sheen to leaves.	Sandy clay, grey sand. Associated strongly with salt lakes in the Scaddan to Salmon Gums area, Esperance.	Aug to Nov	Unlikely	Unlikely
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.		Unlikely	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	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	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	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.	Unlikely
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.	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	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	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	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	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	Unlikely
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.	Unlikely	Unlikely

Table 12 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 Outcome
Ericaceae	*Brachyloma mogin*		P3	X		X	Compact shrub, 0.4 m high. Flowers red/pink/white.	Grey clayey sand. Swamp flat.	Jun	Unlikely	Unlikely
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	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	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	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	Unlikely
Myrtaceae	*Astartea reticulata*		P3	X		X	Single-stemmed or basally branched shrub 0.7–1.5 m tall. Fl. pale pink or white.	Occurs in winter-wet depressions or near watercourses along the coastal plain, commonly associated with the paperbark species *Melaleuca cuticularis*.	late November to January.	Unlikely	Unlikely
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	Unlikely	Unlikely
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.		Unlikely	Unlikely
Boraginaceae	*Myotis 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.	Unlikely - all records in WA restricted to immediate coastal areas	Unlikely
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	Unlikely - distribution restricted to coast and lack of limestone present	Unlikely
Myrtaceae	*Eucalyptus x missilis*		P4	X		X		Sand over limestone or granite. Coastal sites.	Jan-Apr	Unlikely - distribution restricted to coast.	Unlikely
Frankeniaceae	*Frankenia glomerata*	Cluster Head Frankenia	P4			X	Prostrate shrub. Fl. pink-white.	White sand.	Nov	Unlikely	Unlikely
Proteaceae	*Banksia prolata* subsp. *calcicola*		P4	X		X	Non-lignotuberous shrub, 0.4-1 m high. Fl. Yellow.	White sand over limestone. Coastal areas.	Jul to Sep.	Unlikely	Unlikely

Table 12 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 Outcome
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
Myrtaceae	*Eucalyptus dolichorhyncha*	Fuschia 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
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, no granite present.	Unlikely
Myrtaceae	*Eucalyptus misella*		P1	X		X	Mallee, 1-3 m high. Bark smooth. Flowers cream.	White, yellow or grey sand. Low lying sandplain.	Nov	Highly unlikely - recorded west of Salmon Gums near Peak Charles. Significant distribution difference.	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

Table 13: Conservation Code definitions for Threatened and Priority Ecological Communities located within 10km of the survey area.

Community Name	Status	Description	Pre-Survey Likelihood of Occurrence Analysis	Post-survey Likelihood of Occurrence and Survey Outcome
Subtropical and Temperate Coastal Saltmarsh	Priority 3 (WA) VU (EPBC Act)	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; DoE, 2017a). The habitat is coastal areas under tidal influence. In southern latitudes saltmarsh are the dominant habitat in the intertidal zone and often occur in association with estuaries. It is typically restricted to the upper intertidal environment, generally between the elevation of the mean high tide, and the mean spring tide. The community consists mainly of salt-tolerant vegetation (halophytes) including: grasses, herbs, reeds, sedges and shrubs. Succulent herbs and grasses generally dominate and vegetation is generally <0.5m tall with the exception of some reeds and sedges. Many species of non-vascular plants are also found in saltmarsh, including epiphytic algae, diatoms and cyanobacterial mats. Saltmarsh consists of many vascular plant species but is dominated by relatively few families. There is also typically a high degree of endemism at the species level. The two most widely represented coastal saltmarsh plant families are the Chenopodiaceae and Poaceae. Four structural saltmarsh forms are currently recognised based on dominance of a particular vegetation type: • dominance by succulent shrubs (e.g. Tecticornia). • dominance by grasses (e.g. *Sporobolus virginicus*). • dominance by sedges and grasses (e.g. *Juncus kraussii, Gahnia trifida*). • dominance by herbs (e.g. low-growing creeping plants such as *Wilsonia backhousei, Samolus repens, Schoenus nitens*).	Unlikely – Survey area 20km from the coast with no tidal interaction.	Unlikely - Not present in the survey area.
Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia	Priority 3 (WA) EN (EPBC Act)	Consists of predominantly obligate seeding proteaceous shrubland and heath (Kwongkan) and mallee heath on sandplain, duplex sand/clay and gravels overlying Eocene sediments, quartzite, schist, Yilgarn and Albany Fraser granite and greenstone ranges. Its flora is characterised by high species diversity and a high degree of endemism, particularly in the Stirling Range, Fitzgerald River National Park, Ravensthorpe Range and Russell Ranges. Due to the high levels of endemism, there are few species that exist across the entire range of the dense, obligate seeding Proteaceae dominated shrublands and Kwongkan of the Esperance Sandplains, however particular species have been identified as common dominant species in each of its ecodistricts (DBCA, 2017b).	Likely	Detected – specifically within Vegetation Unit 1: Banspe SL. Total of 0.205ha present.

Table 14: 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 (Post Survey)	Habitat Present (Y/N)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
Cacatuidae	*Calyptorhynchus latirostris*	Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo	EN / EN	Eucalypt woodlands, especially those that contain salmon gum and wandoo, and in shrubland or kwongan heathland dominated by hakea, dryandra, banksia and grevillea species. It also occurs in remnant patches of native vegetation on land otherwise cleared for agriculture. It also forages in forests containing marri, jarrah or karri.	Present	Y	HIGH	Y	Chewed Pine cones observed. Foraging habitat is scattered unlikely to be a frequently utilised area.
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	Y	HIGH	N	Marginal habitat present across the survey area.
Accipitridae	*Elanus scriptus*	letter-winged kite	P4 / -	Semi-desert and desert along tree-lined creeks; hunts over grasslands and other low vegetation.	Possible	Y	HIGH	N	Marginal habitat present across the survey area.
Peramelidae	*Isoodon fusciventer*	Quenda, southwestern brown bandicoot	P4 / -	Scrubby, often swampy, vegetation with dense cover up to 1 m high, often feeding in adjacent forest and woodland that is burnt on a regular basis. Forest, woodlands, heath and coastal scrub, usually on sandy combination soils.	Possible	Y	HIGH	N	Marginal habitat present within *Banksia speciosa* shrubland (Banspe SL) and *Lambertia inermis* Shrubland (Lamine SL) vegetation units, no signs of species observed during the survey period.
Archaeidae	*Zephyrarchaea marki*	Cape Le Grand Assassin Spider	VU/-	Elevated leaf litter in *Banksia speciosa* thickets. Currently known from Cape Le Grand.	Possible	Y	LOW	N	Habitat present within the *Banksia speciosa* shrubland (Banspe SL) vegetation unit. Requires targeted survey to ascertain presence.
Elapidae	*Acanthophis antarcticus*	Southern Death Adder	P3 / -	Mallee and coastal vegetation. Prefers sites with deep fixed leaf litter.	Unlikely	N	HIGH	N	
Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	MI / MI	Almost entirely coastal, coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats.	Unlikely	N	LOW	N	
Iulomorphidae	*Atelomastix anancita*	Cape Arid atelomastix millipede	VU/-	Currently known from Le Grand National Park within the soil and beneath rocks in montane habitat.	Unlikely	N	LOW	N	
Iulomorphidae	*Atelomastix brennani, sp. nov*	Brennan's atelomastix millipede	VU/-	Currently known from the soil or under granite rocks within Le Grand National Park.	Unlikely	N	LOW	N	
Iulomorphidae	*Atelomastix grandis*	Le Grand atelomastix millipede	VU/-	Currently known from Le Grand National Park under rocks or in soil on granite outcrops and within Agonis heath.	Unlikely	N	LOW	N	
Iulomorphidae	*Atelomastix melindae*	Moir's atelomastix millipede	VU/-	Currently known from the rocky outcrops and heath near the summit of Mount Arid in the Cape Arid National Park, and granite outcrop and eucalypt forest of Mount Belches, near the Duke of Orleans Bay.	Unlikely	N	LOW	N	
Iulomorphidae	*Atelomastix sarahae*	Comer's atelomastix millipede	VU/-	Currently only known from rocky outcrops near the summit of Mount Arid in the Cape Arid National Park.	Unlikely	N	LOW	N	
Ardeidae	*Botaurus poiciloptilus*	Australasian Bittern	EN / EN	Wetlands, permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and reeds (e.g., Phragmites, Cyperus, Eleocharis, Juncus, Typha, Baumea, Bolboschoenus) or cutting grass (Gahnia) growing over a muddy or peaty substrate.	Unlikely	N	HIGH	N	
Scolopacidae	*Calidris acuminata*	Sharp-tailed Sandpiper	MI / MI	Muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation.	Unlikely	N	HIGH	N	
Scolopacidae	*Calidris canutus*	Red Knot, knot	EN / EN & MI	Intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours; sometimes on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms or coral reefs.	Unlikely	N	HIGH	N	
Scolopacidae	*Calidris canutus subsp.. rogersi*	Red Knot (north-eastern Siberia)	CR / CR & MI	Intertidal mudflats and sandflats in sheltered coasts, including bays harbours and estuaries.	Unlikely	N	HIGH	N	
Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper	CR / CR & MI	Intertidal mudflats in sheltered coastal areas, non-tidal swamps, lakes and lagoons near the coast, and occasionally around ephemeral and permanent lakes and dams with bare edges of mud or sand.	Unlikely	N	HIGH	N	
Scolopacidae	*Calidris melanotos*	Pectoral Sandpiper	MI / MI	Shallow fresh to saline wetlands.	Unlikely	N	HIGH	N	

Table 14 continued.

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Post Survey)	Habitat Present (Y/N)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
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	N	HIGH	N	
Scolopacidae	*Calidris tenuirostris*	Great Knot	CR / CR & MI	Intertidal mudflats and sandflats in sheltered coasts, including bays harbours and estuaries.	Unlikely	N	HIGH	N	
Anatidae	*Cereopsis novaehollandiae*	Cape Barren Goose	VU / VU	It occurs on offshore islands and rocks, and at adjacent sites on the mainland. It inhabits grasslands and low fields of succulent herbs (comprised of *Carpobrotus* sp.), and occasionally occurs in open areas in taller and denser vegetation.	Unlikely	N	HIGH	N	
Anatidae	*Cereopsis novaehollandiae* subsp.. *grisea*	Recherche Cape Barren Goose	VU / VU	It occurs on offshore islands and rocks, and at adjacent sites on the mainland. It inhabits grasslands and low fields of succulent herbs (comprised of Carpobrotus sp.), and occasionally occurs in open areas in taller and denser vegetation.	Unlikely	N	HIGH	N	
Charadriidae	*Charadrius bicinctus*	Double-banded Plover	MI / MI	littoral, estuarine and fresh or saline terrestrial wetlands and also saltmarsh, grasslands and pasture. It occurs on muddy, sandy, shingled or sometimes rocky beaches, bays and inlets, harbours and margins of fresh or saline terrestrial wetlands such as lakes, lagoons and swamps, shallow estuaries and rivers. The species is sometimes associated with coastal lagoons, inland saltlakes and saltworks. It is also found on seagrass beds, especially Zostera, which, when exposed at low tide, remain heavily saturated or have numerous water-filled depressions. This species sometimes utilises kelp beds found on open grassy areas including short pasture, ploughed or newly cropped paddocks, swards, airstrips, and sports grounds such as golf courses or race-tracks near the coast and further inland.	Unlikely	N	HIGH	N	
Charadriidae	*Charadrius leschenaultii*	Greater Sand Plover	VU / VU & MI	Almost entirely coastal, inhabiting littoral and estuarine habitats. Mainly occur on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons. Seldom occur at shallow freshwater wetlands.	Unlikely	N	HIGH	N	
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	N	HIGH	N	
Dasyuridae	*Dasyurus geoffroii*	Chuditch, Western Quoll	VU / VU	Woodland or forest. Logs must have a diameter > 30 cm and a hollow with 7–20 cm diameter and 1 m length (Dunlop and Morris 2012). Burrows are constructed beneath habitat features such as stumps, logs, trees or rock outcrops.	Unlikely	N	HIGH	N	
Falconidae	*Falco hypoleucos*	Grey Falcon	VU / -	Usually in lightly timbered country, especially stony plains and lightly timbered acacia shrublands.	Unlikely	N	HIGH	N	
Falconidae	*Falco peregrinus*	Peregrine Falcon	OS / -	It requires abundant prey and secure nest sites, and prefers coastal and inland cliffs or open woodlands near water.	Unlikely	N	HIGH	N	
Scolopacidae	*Gallinago megala*	Swinhoe's Snipe	MI / MI	Dense clumps of grass and rushes round the edges of fresh and brackish wetlands. This includes swamps, billabongs, river pools, small streams and sewage ponds. They are also found in drying claypans and inundated plains pitted with crab holes.	Unlikely	N	HIGH	N	
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	N	HIGH	N	
Laridae	*Hydroprogne caspia*	Caspian Tern	MI / MI	Sheltered coastal embayments (harbours, lagoons, inlets, bays, estuaries and river deltas) and those with sandy or muddy margins are preferred. They also occur on near-coastal or inland terrestrial wetlands that are either fresh or saline, especially lakes (including ephemeral lakes), waterholes, reservoirs, rivers and creeks.	Unlikely	N	HIGH	N	
Megapodiidae	*Leipoa ocellata*	Malleefowl	VU / VU	Arid and semi-arid areas dominated by mallee eucalypts on sandy soils. They are known to also occur in Mulga (*Acacia aneura*), Broombush (*Melaleuca uncinata*), Scrub Pine (*Callitris verrucosa*), Eucalyptus woodlands and coastal heathlands. Malleefowl require abundant leaf litter and a sandy substrate for the successful construction of nest mounds.	Unlikely	N	HIGH	N	
Scolopacidae	*Limicola falcinellus*	Broad-billed Sandpiper	MI / MI	Sheltered parts of the coast, favouring estuarine mudflats but also occasionally occur on saltmarshes, shallow freshwater lagoons, saltworks and sewage farms, and in areas with large soft intertidal mudflats, which may have shell or sandbanks nearby. Occasionally they occur on reefs or rocky platforms. They have also been recorded in creeks, swamps and lakes near the coast, particularly those with bare mudflats or sand exposed by receding water.	Unlikely	N	HIGH	N	
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	MI (& VU or CR at subsp.. level) / MI (& VU or CR at subsp.. level)	Inhabit estuarine mudflats, beaches and mangroves.	Unlikely	N	HIGH	N	

Table 14 continued.

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Post Survey)	Habitat Present (Y/N)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
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	N	HIGH	N	
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	N	HIGH	N	
Scolopacidae	*Numenius madagascariensis*	Eastern Curlew	CR / CR & MI	Intertidal mudflats and sandflats, often with beds of seagrass, on sheltered coasts, especially estuaries, mangrove swamps, bays, harbours and lagoons.	Unlikely	N	HIGH	N	
Scolopacidae	*Numenius minutus*	Little Curlew	MI / MI	Pools, river beds and water-filled tidal channels, and shallow water at edges of billabongs. The species prefers pools with bare dry mud (including mudbanks in shallow water) and they do not use pools if they are totally dry, flooded or heavily vegetated. Feed in short, dry grassland and sedgeland, including dry floodplains and blacksoil plains, which have scattered, shallow freshwater pools or areas seasonally inundated. Open woodlands with a grassy or burnt understorey, dry saltmarshes, coastal swamps, mudflats or sandflats of estuaries or beaches on sheltered coasts, mown lawns, gardens, recreational areas, ovals, racecourses and verges of roads and airstrips are also used.	Unlikely	N	HIGH	N	
Laridae	*Onychoprion anaethetus*	Bridled Tern	MI / MI	Occupy tropical and subtropical seas, breeding on islands, including vegetated coral cays, rocky continental islands and rock stacks. Bridled Terns are only rarely found in inshore continental waters and along mainland coastlines, though the species is reported to breed on the mainland of far southern Western Australia (Higgins & Davies 1996; Johnstone & Storr 1998).	Unlikely	N	HIGH	N	
Anatidae	*Oxyura australis*	Blue-billed Duck	P4 / -	Prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation.	Unlikely	N	HIGH	N	
Accipitridae	*Pandion haliaetus*	Osprey	MI / MI	Littoral and coastal habitats and terrestrial wetlands and offshore islands. Requires extensive areas of open fresh, brackish or saline water for foraging.	Unlikely	N	HIGH	N	
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.	Unlikely	N	HIGH	N	
Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis	MI / MI	Fresh water marshes at the edges of lakes and rivers, lagoons, flood-plains, wet meadows, swamps, reservoirs, sewage ponds, rice-fields and cultivated areas under irrigation. The species is occasionally found in coastal locations such as estuaries, deltas, saltmarshes and coastal lagoons.	Unlikely	N	HIGH	N	
Charadriidae	*Pluvialis fulva*	Pacific Golden Plover	MI / MI	Coastal habitats, occasionally fresh, brackish or saline wetlands or claypans especially with muddy margins and often with submerged vegetation or short emergent grass. Other terrestrial habitats include short grass in paddocks, or ploughed or recently burnt areas.	Unlikely	N	HIGH	N	
Charadriidae	*Pluvialis squatarola*	Grey Plover	MI / MI	Sheltered embayments, estuaries and lagoons with mudflats and sandflats; terrestrial wetlands such as near-coastal lakes and swamps, or salt-lakes (Marchant & Higgins 1993).	Unlikely	N	HIGH	N	
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	Y	LOW	N	
Muridae	*Pseudomys shortridgei*	Heath mouse, Dayang	VU/EN	Historical distribution. Closest recent record Ravensthorpe. Floristically-rich, dry heathland in long unburnt vegetation.	Unlikely	N	LOW	N	
Laridae	*Sternula nereis*	Australian Fairy Tern	VU / VU	Coastal areas and embayments of a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands and mainland coastline.	Unlikely	N	HIGH	N	
Diomedeidae	*Thalasseus bergii*	Crested Tern	MI / MI	Tropical and subtropical coastlines, foraging in the shallow waters of lagoons, coral reefs, estuaries, bays, harbours and inlets, along sandy, rocky, coral or muddy shores, on rocky outcrops in open sea, in mangrove swamps and also far out to sea on open water. It shows a preference for nesting on offshore islands, low-lying coral reefs, sandy or rocky coastal islets, coastal spits, lagoon mudflats, and artificial islets in saltpans and sewage works within 3 km of the coast.	Unlikely	N	HIGH	N	
Scolopacidae	*Tringa brevipes*	Grey-tailed Tattler	MI & P4 / MI	Typical habitat is often found to be sheltered coasts with reefs and rock platforms or with intertidal mudflats.	Unlikely	N	HIGH	N	
Scolopacidae	*Tringa glareola*	Wood Sandpiper	MI / MI	Inland shallow freshwater wetlands, often with other waders. They prefer ponds and pools with emergent reeds and grass, surrounded by tall plants or dead trees and fallen timber.	Unlikely	N	LOW	N	

Table 14 continued.

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Post Survey)	Habitat Present (Y/N)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
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	N	HIGH	N	
Scolopacidae	*Tringa stagnatilis*	Marsh Sandpiper	MI / MI	Prefers permanent or ephemeral wetlands of varying salinity, including swamps, lagoons, billabongs, saltpans, saltmarshes, estuaries, pools on inundated floodplains, and intertidal mudflats and also regularly at sewage farms and saltworks.	Unlikely	N	HIGH	N	
Procellariidae	*Ardenna carneipes*	Flesh-footed Shearwater	VU / MI	Mainly occurs in the subtropics over continental shelves and slopes and occasionally inshore waters. Breeds on islands in burrows on sloping ground in coastal forest, scrubland, shrubland or grassland.	Highly Unlikely	N	HIGH	N	
Procellariidae	*Ardenna grisea*	Sooty Shearwater	MI / MI	Marine species. Occurs in pelagic (open ocean) sub-tropical, sub-Antarctic and Antarctic waters.	Highly Unlikely	N	HIGH	N	
Procellariidae	*Ardenna tenuirostris*	Short-tailed Shearwater	MI / MI	Found in coastal waters.	Highly Unlikely	N	HIGH	N	
Scolopacidae	*Arenaria interpres*	Ruddy Turnstone	MI / MI	Prefers coastal regions with exposed rock coast lines or coral reefs, platforms and shelves, often with shallow tidal pools and rocky, shingle or gravel beaches. Occasionally been sighted in estuaries, harbours, bays and coastal lagoons, among low saltmarsh or on exposed beds of seagrass, around sewage ponds and on mudflats.	Highly Unlikely	N	HIGH	N	
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).	Highly Unlikely	N	HIGH	N	
Scolopacidae	*Calidris alba*	Sanderling	MI / MI	Almost entirely coastal mostly on open sandy beaches exposed to open sea-swell, and also on exposed sandbars and spits, and shingle banks, where they forage in the wave-wash zone and amongst rotting seaweed.	Highly Unlikely	N	HIGH	N	
Diomedeidae	*Diomedea antipodensis*	Antipodean Albatross	EN / VU & MI	Marine, pelagic and aerial species. Nests in open patchy vegetation, such as among tussock grassland or shrubs on ridges, slopes and plateaus.	Highly Unlikely	N	HIGH	N	
Diomedeidae	*Diomedea dabbenena*	Tristan Albatross	CR/ EN & MI	Marine, pelagic seabird that sleeps and rests on ocean waters when not breeding.	Highly Unlikely	N	HIGH	N	
Diomedeidae	*Diomedea epomophora*	Southern Royal Albatross	VU / VU & MI	Marine, pelagic seabird that sleeps and rests on ocean waters when not breeding.	Highly Unlikely	N	HIGH	N	
Diomedeidae	*Diomedea exulans*	Wandering Albatross	VU / VU & MI	Marine, pelagic seabird that sleeps and rests on ocean waters when not breeding.	Highly Unlikely	N	HIGH	N	
Diomedeidae	*Diomedea sanfordi*	Northern Royal Albatross	EN / EN & MI	Marine, pelagic and aerial. Habitat includes subantarctic, subtropical, and occasionally Antarctic waters.	Highly Unlikely	N	HIGH	N	
Procellariidae	*Macronectes giganteus*	Southern Giant-Petrel	MI / VU & MI	Marine; Antarctic to subtropical waters.	Highly Unlikely	N	HIGH	N	
Procellariidae	*Macronectes halli*	Northern Giant Petrel	MI / EN & MI	Marine, oceanic; mainly in subantarctic waters.	Highly Unlikely	N	HIGH	N	
Procellariidae	*Pachyptila turtur subantarctica*	Fairy Prion (southern)	- / VU	Subantarctic seas and islands while breeding. Subtropical seas non breeding time; rarely inshore expect when sheltering from storms.	Highly Unlikely	N	HIGH	N	
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.	Highly Unlikely	N	LOW	N	
Procellariidae	*Pterodroma mollis*	Soft-plumaged Petrel	- / VU	Is a marine, oceanic species.	Highly Unlikely	N	HIGH	N	
Stercorariidae	*Stercorarius antarcticus*	Brown Skua	P4 / -	Marine, oceanic species.	Highly Unlikely	N	HIGH	N	
Stercorariidae	*Stercorarius antarcticus lonnbergi*	brown skua, Subantarctic skua	P4 / -	Marine, oceanic species.	Highly Unlikely	N	HIGH	N	
Stercorariidae	*Stercorarius parasiticus*		MI / MI	Nin nonbreeding months subtropical and subantarctic seas, inshore waters, shallow waters of the continental shelf and into bays estuaries and harbours.	Highly Unlikely	N	HIGH	N	
Diomedeidae	*Thalassarche carteri*	Indian Yellow-nosed Albatross	EN / VU & MI	Marine bird, located in subtropical and warmer subantarctic waters (Marchant & Higgins 1990).	Highly Unlikely	N	HIGH	N	
Diomedeidae	*Thalassarche cauta*	Shy Albatross	VU / VU & MI	Marine species. Breeds on rock islands.	Highly Unlikely	N	HIGH	N	

Table 14 continued.

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Post Survey)	Habitat Present (Y/N)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
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	N	HIGH	N	
Diomedeidae	*Thalassarche chlororhynchos*	Atlantic Yellow-nosed Albatross	VU / MI	Marine species. Builds nests built on tussock grass, on rocks and under trees.	Highly Unlikely	N	HIGH	N	
Diomedeidae	*Thalassarche impavida*	Campbell Albatross	VU / VU & MI	Marine sea bird inhabiting sub-Antarctic and subtropical waters from pelagic to shelf-break water habitats.	Highly Unlikely	N	HIGH	N	
Diomedeidae	*Thalassarche melanophris*	Black-browed Albatross	EN / VU & MI	Marine species that inhabits Antarctic, subantarctic and temperate waters and occasionally enters the tropics.	Highly Unlikely	N	HIGH	N	
Charadriidae	*Thinornis rubricollis*	Hooded Plover, Hooded Dotterel	P4 / -	Ocean sandy beaches and coastal lakes.	Highly Unlikely	N	HIGH	N	
Bivalvia	*Westralunio carteri*	Carter's Freshwater Mussel	VU / -	Patchily distributed in sandy/muddy sediments of freshwater lakes, rivers and streams with greatest densities associated with woody debris and overhanging riparian vegetation near stream banks and edges of lakes/dams.	Highly Unlikely	N	HIGH	N	

Appendix C

Conservation Status Definitions and Condition Scale

Table 15: Conservation code definitions for flora and fauna as listed as Threatened or specially protected.

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

Threat Category	Definition
Threatened - Critically endangered species (CR)	Facing an extremely high risk of extinction in the wild in the immediate future.
Threatened - Endangered species (EN)	Facing a very high risk of extinction in the wild in the near future.
Threatened - Vulnerable species (VU)	Facing a high risk of extinction in the wild in the medium-term future.
Threatened - Extinct (EX)	There is no reasonable doubt that the last member of the species has died.
Threatened – Extinct in the wild (EW)	Species is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form.
Specially protected species - Migratory species (MI)	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.
Specially protected species – Conservation Dependent (CD)	Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as Threatened.
Specially protected species – Other specially protected species (OS)	Fauna otherwise in need of special protection to ensure their conservation.

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

Possibly Threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3.

Threat Category	Definition
Priority 1: Poorly-known species	Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g., agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation.
Priority 2: Poorly-known species	Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g., national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation.
Priority 3: Poorly-known species	Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat.
Priority 4: Rare, Near Threatened and other species in need of monitoring	(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently Threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands. (b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent. (c) Species that have been removed from the list of Threatened species during the past five years for reasons other than taxonomy.

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

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

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

Possible Threatened ecological communities that do not meet survey criteria or that are not adequately defined are added to the Priority Ecological Community List under priorities 1, 2 and 3.

Threat Category	Definition
Priority One (P1)	Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤5 occurrences or a total area of ≤100ha), and appear to be under immediate threat.
Priority Two (P2)	Communities that are known from few occurrences with a restricted distribution (generally ≤10 occurrences or a total area of ≤200ha). At least some occurrences are not believed to be under immediate threat (within approximately 10 years) of destruction or degradation.
Priority Three (P3)	(i)Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or: (ii)communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat (within approximately 10 years), or; (iii)communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, inappropriate fire regimes, clearing, hydrological change etc.
Priority Four (P4)	Ecological communities that are adequately known, rare but not Threatened or meet criteria for Near Threatened, or that have been recently removed from the Threatened list. These communities require regular monitoring.
Priority Five (P5)	Conservation Dependent ecological communities that are not Threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming Threatened within five years.

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

Vegetation Condition Rating	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.
Very good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees and shrubs.

Appendix D

Species Lists and Relevé Data

Table 20: Flora Species List recorded within survey area.

Family	Genus	Species	Subspecies	Common Name	Invasive	Cons code	1	2	3
Anarthriaceae	*Anarthria*	*scabra*					X	X	X
Anarthriaceae	*Lyginia*	*imberbis*					X		
Araliaceae	*Trachymene*	*pilosa*		Native Parsnip			X		X
Asparagaceae	*Asparagus*	*asparagoides*		Bridal Creeper	X				X
Asparagaceae	*Lomandra*	*hastilis*					X		X
Asparagaceae	*Thysanotus*	*patersonii*		Twining Fringe Lilly			X		
Asteraceae	*Arctotheca*	*calendula*		Cape Weed	X		X	X	
Asteraceae	Conyza	sp.		Fleabane	X		X		X
Asteraceae	*Dimorphotheca*	*ecklonis*		Veldt Daisy	X		X		
Asteraceae	*Hypochaeris*	*glabra*		Smooth Cats Ear	X		X	X	X
Asteraceae	*Hypochaeris*	*radiata*		Flat Weed	X		X	X	X
Asteraceae	*Pseudognaphalium*	*luteoalbum*		Jersey Cudweed	X		X	X	
Asteraceae	*Sonchus*	sp.		Daisy			X		
Asteraceae	*Siloxerus*	*filifolius*			X				X
Asteraceae	*Vellereophyton*	*dealbatum*		White Cudweed	X		X		X
Asteraceae	*Ursinia*	*anthemoides*		Ursinia	X				X
Brassicaceae	*Brassica*	*napus*		Canola					X
Campanulaceae	*Wahlenbergia*	*capillaris*			X				X
Campanulaceae	*Wahlenbergia*	*capensis*		Cape Bluebell			X		
Casuarinaceae	*Allocasuarina*	*humilis*		Dwarf Sheoak			X	X	
Centrolepidaceae	*Centrolepis*	*drummondiana*					X		
Crassulaceae	*Crassula*	*tetramera*					X		
Cyperaceae	*Caustis*	*dioica*		Puzzle grass				X	X
Cyperaceae	*Lepidosperma*	*squamatum*					X		X
Cyperaceae	*Mesomelaena*	*stygia*	*stygia*						X
Cyperaceae	*Mesomelaena*	*tetragona*		Semaphore Sedge				X	X
Cyperaceae	*Schoenus*	*pleiostemoneus*							X
Cyperaceae	*Tricostularia*	*aphylla*		Medussa Sedge				X	

Table 20 continued

Family	Genus	Species	Subspecies	Common Name	Invasive	Cons code	1	2	3
Dilleniaceae	*Hibbertia*	*racemosa*		Cut Leaf Hibbertia			X		
Dilleniaceae	*Hibbertia*	*andrewsiana*					X		
Dilleniaceae	*Hibbertia*	*gracilipes*		Australian Buttercup			X	X	X
Droseraceae	*Drosera*	*glanduligera*		Pimpernel Drosera				X	
Droseraceae	*Drosera*	*drummondii*							X
Droseraceae	*Drosera*	*trichocaulis*					X		X
Ericaceae	*Leucopogon*	sp. Coujinup (M.A. Burgman 1085)							X
Ericaceae	*Lysinema*	*ciliatum*		Curry Flower			X	X	
Ericaceae	*Lysinema*	sp.		Curry Flower			X		
Ericaceae	*Oligarrhena*	*micrantha*					X		
Fabaceae	*Acacia*	*cyclops*		Coastal Wattle			X	X	X
Fabaceae	*Acacia*	*saligna*		Orange Wattle					X
Fabaceae	*Cytisus*	*proliferus*		Tagasaste; Tree Lucerne	X				X
Fabaceae	*Gompholobium*	*tomentosum*		Hairy Yellow Pea				X	
Fabaceae	*Jacksonia*	*spinosa*					X	X	X
Fabaceae	*Jacksonia*	*venosa*					X		
Fabaceae	*Lupinus*	sp.		Lupin	X				X
Fabaceae	*Sphaerolobium*	*drummondii*							X
Fabaceae	*Trifolium*	sp.		Clover					X
Fabaceae	*Trifolium*	*arvense*		Hare's Foot Clover	X				X
Fabaceae	*Vicia*	sp.		Vetch	X				X
Geraniaceae	*Erodium*	*cicutarium*		Common Storks Bill	X				X
Geraniaceae	*Pelargonium*	*capitatum*		Rose Pelargonium	X		X		X
Goodeniaceae	*Dampiera*	*sericantha*				P3	X		
Goodeniaceae	*Goodenia*	*trinervis*					X	X	
Goodeniaceae	*Lechenaultia*	*tubiflora*		Heath Lechenaultia			X		

Table 20 continued

Family	Genus	Species	Subspecies	Common Name	Invasive	Cons code	1	2	3
Haemodoraceae	*Anigozanthos*	*rufus*		Esperance Kangaroo Paw			X	X	X
Haemodoraceae	*Conostylis*	*bealiana*		Angles Trumpet					X
Haemodoraceae	*Conostylis*	*breviscapa*					X		
Haemodoraceae	*Conostylis*	*seorsiflora*	*seorsiflora*				X	X	X
Haemodoraceae	*Haemodorum*	*spicatum*		Bloodroot			X		
Hemerocallidaceae	*Chamaescilla*	*corymbosa*		Blue Quill			X		
Hemerocallidaceae	*Johnsonia*	*acaulis*		Hooded Lilly			X		
Hemerocallidaceae	*Tricoryne*	*elatior*		Yellow Autumn Lilly			X	X	X
Iridaceae	*Romulea*	*rosea*		Guildford grass	X		X		
Iridaceae	*Watsonia*	*meriana*		Bugle Lilly; Watsonia	X				X
Lamiaceae	*Microcorys*	*barbata*					X		
Lauraceae	*Cassytha*	*pomiformis*		Dodder Laurel				X	
Loranthaceae	*Nuytsia*	*floribunda*		Munji; Christmas Tree			X	X	X
Malvaceae	*Malva*	*neglecta*		Mallow Weed	X				X
Myrtaceae	*Astartea*	*astarteoides*						X	X
Myrtaceae	*Calytrix*	*decandra*		Pink Starflower			X		
Myrtaceae	*Darwinia*	*vestita*		Pom-pom Vestita				X	
Myrtaceae	*Eucalyptus*	*angulosa*		Ridge Fruited Mallee			X	X	
Myrtaceae	*Eucalyptus*	*gomphocephala*		Tuart	X				X
Myrtaceae	*Eucalyptus*	*leucoxylon*	*rosea*	Pink Flowering Gum	X				X
Myrtaceae	*Eucalyptus*	*pleurocarpa*		Tallerack, Silver Mallee					X
Myrtaceae	*Leptospermum*	*laevigatum*		Victorian Tea Tree	X		X	X	X
Myrtaceae	*Leptospermum*	*oligandrum*							X
Myrtaceae	*Melaleuca*	*cuticularis*		Saltwater Paperbark			X		X
Myrtaceae	*Melaleuca*	*pulchella*		Crab Claw Flower			X		
Myrtaceae	*Melaleuca*	*scabra*		Rough Honeymyrtle			X		

Table 20 continued

Family	Genus	Species	Subspecies	Common Name	Invasive	Cons code	1	2	3
Myrtaceae	*Melaleuca*	*striata*					X		X
Myrtaceae	*Melaleuca*	*thymoides*							X
Myrtaceae	*Micromyrtus*	*elobata*	*elobata*				X		
Myrtaceae	*Phymatocarpus*	*maxwellii*					X		
Myrtaceae	*Oxymyrrhine*	*gracilis*						X	
Myrtaceae	*Taxandria*	*callistachys*							X
Myrtaceae	*Taxandria*	*spathulata*						X	
Myrtaceae	*Verticordia*	*minutifolia*					X	X	X
Myrtaceae	*Verticordia*	sp.					X		
Orchidaceae	*Disa*	*bracteata*		South African Orchid				X	X
Orchidaceae	*Elythranthera*	*brunonis*		Purple Enamel Orchid				X	
Orchidaceae	*Microtis*	*media*	*media*	Common Mignonette Orchid			X	X	
Orchidaceae	*Thelymitra*	*antennifera*		Vanilla Orchid				X	
Oxalidaceae	*Oxalis*	*pes-caprae*		Soursop	X				X
Phyllanthaceae	*Phyllanthus*	*calycinus*		False Boronia				X	X
Pinaceae	*Pinus*	*radiata*		Pine Tree	X				X
Pittosporaceae	*Billardiera*	*fusiformis*		Australia Blue Bell			X		X
Poaceae	*Avena*	*fatua*		Wild Oats				X	
Poaceae	*Briza*	*maxima*		Blowfly grass	X		X		X
Poaceae	*Briza*	*minor*		Shivery grass	X		X		
Poaceae	*Eragrostis*	*curvula*		African Lovegrass					X
Poaceae	*Lolium*	*perenne*		Annual Ryegrass	X		X	X	X
Poaceae	*Pennisetum*	*clandestinus*		Kikuyu	X				X
Poaceae	*Austrostipa*	*semibarbata*			X				X
Proteaceae	*Conospermum*	*leianthum*	*leianthum*		X				X
Primulaceae	*Lysimachia*	*anagallis*		Pimpernel			X	X	X

Table 20 continued

Family	Genus	Species	Subspecies	Common Name	Invasive	Cons code	1	2	3
Proteaceae	*Adenanthos*	*cuneatus*		Jug Flower			X		X
Proteaceae	*Banksia*	*blechnifolia*							X
Proteaceae	*Banksia*	*obovata*		Wedge Leaf Banksia					X
Proteaceae	*Banksia*	*repens*		Creeping Banksia				X	
Proteaceae	*Banksia*	*speciosa*		Showy Banksia			X		
Proteaceae	*Hakea*	*cinerea*		Ashy Hakea			X		X
Proteaceae	*Hakea*	*trifurcata*		Two Leaf Hakea					X
Proteaceae	*Lambertia*	*inermis*		Chiddick; Native Honeysuckle				X	X
Proteaceae	*Petrophile*	*squamata*	Northern (J. Monks 40)				X		X
Proteaceae	*Stirlingia*	*anethifolia*							X
Proteaceae	*Synaphea*	*oligantha*					X	X	
Restionaceae	*Hypolaena*	*humilis*					X		X
Restionaceae	*Hypolaena*	*exsulca*						X	X
Restionaceae	*Leptocarpus*	*crebriculmis*						X	X
Restionaceae	*Loxocarya*	*striata*					X		X
Restionaceae	*Chordifex*	*laxus*					X	X	X
Rhamnaceae	*Spyridium*	*globulosum*		Basket Bush			X	X	X
Rutaceae	*Boronia*	*spathulata*						X	
Rutaceae	*Cyanothamnus*	*ramosus*	*anethifolius*					X	
Rutaceae	*Zanthoxylum*	*piperitum*		Japanese Pepper Plant	X				X
Stylidiaceae	*Levenhookia*	*sp.*							X
Stylidiaceae	*Stylidium*	*breviscapum*		Boomerang Triggerplant			X		
Thymelaeaceae	*Pimelea*	*angustifolia*		Narrow Leaved Pimelea			X	X	
Xanthorrhoeaceae	*Xanthorrhoea*	*platyphylla*		Grass Tree			X		

Relevé	R1	**Veg Code**	1: Banspe SL	**Date Surveyed**	21/04/2022
Location	Northern portion of the survey area. Specifically, 368.895KM and 70m south of Walsh Road railway crossing, on the western side of the railway line.				
GPS (Lat, Long)	121.8670180999, -33.7506108406				
Landform and Slope	Plain, Flat				
Soils	Sand, Light Grey				
Hydrology	Good Drainage				
Vegetation description	Vegetation Description (NVIS; DoEE, 2017): U+ ^^*Banksia speciosa, Nuytsia floribunda*, +/- *Acacia cyclops*\tree\6\c; M ^^*Adenanthos cuneatus, Conospermum leianthum* subsp. *leianthum, Hibbertia racemosa*\shrub\2,3\i; G ^^*Hypolaena humilis, Hypolaena exsulca, Anarthria scabra*\sedge\2\c Vegetation Description (Muirs, 1977): *Banksia speciosa, Nuytsia floribunda* and *Acacia cyclops* Low Forest B, over *Adenanthos cuneatus* and *Conospermum leianthum* subsp. *leianthum* Low Scrub A and B, over *Hibbertia racemosa* and *Verticordia minutifolia* Dwarf Scrub D, over *Anarthria scabra* and *Lepidosperma squamatum* Tall Sedges, over *Hypolaena humilis* and *Hypolaena exsulca* Low Sedges, over *Trachymene pilosa, Chamaescilla corymbosa* and *Hypochaeris radiata* Open Herbs, over *Avena fatua* Very Open Tall Grass				
Condition	Very Good				
Comments	10x10m for understorey and midstorey. 20x20m for upperstorey. Photo from south-west corner.				

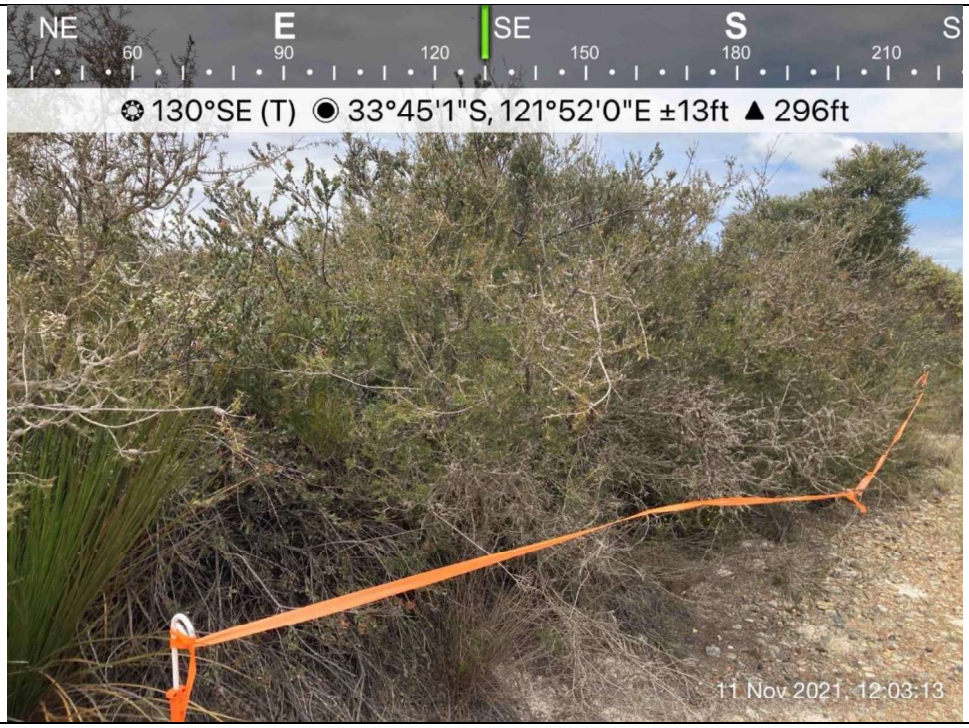
Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m			
Trees 10-30m			
Trees <10m	*Banksia speciosa, Nuytsia floribunda*	*Acacia cyclops*	M 30-70%
Shrub >2m			
Shrub 1-2m	*Adenanthos cuneatus, Conospermum leianthum subsp. leianthum*		S 10-30%
Shrub 0.5-1m			
Shrub <0.5m	*Hibbertia racemosa, Verticordia minutifolia*		S 10-30%
Sedge	*Hypolaena humilis, Hypolaena exsulca, Anarthria scabra*	*Lepidosperma squamatum*	M 30-70%
Herb	*Trachymene pilosa Chamaescilla corymbosa, *Hypochaeris radiata*		S 10-30%
Grass	**Avena fatua*		E <5%

Relevé	R2	**Veg Code**	2: Lamine SL	**Date Surveyed**	21/04/2022
Location	Northern portion of the survey area. Specifically, 369.260KM and ~430m of Walsh Road railway crossing, on the western side of the railway line.				
GPS (Lat, Long)	121.8672158981, -33.7538978426				
Landform and Slope	Plain, Flat				
Soils	Sand, Light Grey				
Hydrology	Good Drainage				
Vegetation description	Vegetation Description (NVIS; DoEE, 2017): U ^*Leptospermum laevigatum, +/-Lambertia inermis*\shrub\4\c; M *Darwinia vestita, Jacksonia spinosa, Verticordia minutifolia*\shrub\2\r; G+ ^*Hypolaena exsulca*, +/-*Loxocarya striata*\sedge\1\d Vegetation Description (Muirs, 1977): *Leptospermum laevigatum* and *Lambertia inermis* Thicket, over *Acacia cyclops* Open Dwarf Scrub C, over *Darwinia vestita, Jacksonia spinosa* and *Verticordia minutifolia* Open Dwarf Scrub D, over *Hypolaena exsulca* and *Loxocarya striata* Dense Low Sedge, over *Drosera drummondii* and *Microtis media* subsp. *media* Very Open Herbs				
Condition	Degraded				
Comments	10x10m for understorey and midstorey. 20x20m for upperstorey. Photo from south-west corner.				

Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m			
Trees 10-30m			
Shrub >2m	**Leptospermum laevigatum*	*Lambertia inermis*	M 30-70%
Shrub 1-2m			
Shrub 0.5-1m	*Acacia cyclops*		V 2-10%
Shrub <0.5m	*Darwinia vestita, Jacksonia spinosa, Verticordia minutifolia*		V 2-10%
Sedge	*Hypolaena exsulca*	*Loxocarya striata*	D > 70%
Herb	*Drosera drummondii, Microtis media* subsp. *media*		E <5%
Grass			

Quadrat	Q1	**Veg Code**	1: Banspe SL	**Date Surveyed**	21/04/2022
Location	Northern portion of the survey area. Specifically, 368.855KM and immediately south of Walsh Road railway crossing, on the western side of the railway line.				
GPS (Lat, Long)	121.8667993329, -33.7503193340				
Landform and Slope	Flat slope on sandplain				
Soils	White sands				
Hydrology	Good drainage				
Vegetation description	Vegetation Description (NVIS; DoEE, 2017): U+ ^^*Banksia speciosa, Nuytsia floribunda*, +/- *Acacia cyclops*\tree\6\c; M ^^*Adenanthos cuneatus, Conospermum leianthum* subsp. *leianthum, Hibbertia racemosa*\shrub\2,3\i; G ^^*Hypolaena humilis, Hypolaena exsulca, Anarthria scabra*\sedge\2\c Vegetation Description (Muirs, 1977): *Banksia speciosa, Nuytsia floribunda* and *Acacia cyclops* Low Forest B, over *Adenanthos cuneatus* and *Conospermum leianthum* subsp. *leianthum* Low Scrub A and B, over *Hibbertia racemosa* and *Verticordia minutifolia* Dwarf Scrub D, over *Anarthria scabra* and *Lepidosperma squamatum* Tall Sedges, over *Hypolaena humilis* and *Hypolaena exsulca* Low Sedges, over *Trachymene pilosa, Chamaescilla corymbosa* and *Hypochaeris radiata* Open Herbs, over *Avena fatua* Very Open Tall Grass				
Condition	Very Good				
Comments	10x10m for understorey and midstorey. 20x20m for upperstorey. Photo from south-west corner.				

Species Name	**Form**	**Height (m)**	**Cover (%)**	**Flowering/Fruiting**
Xanthorrhoea platyphylla		S-shrub	1	i 10-30%
Wahlenbergia capillaris		H-herb		
Adenanthos cuneatus		S-shrub	2	d > 70%
Melaleuca striata		S-shrub	2	c 30-70%
Calothamnus gracilis		S-shrub	1.5	
Conospermum leianthum subsp. *leianthum*		S-shrub	2	i 10-30%
Acacia pulchella		S-shrub	1	
Anarthria scabra		V-sedge	1	i 10-30%
Hibbertia gracilipes		S-shrub	1	r <10%
Nuytsia floribunda		S-shrub	3	r <10%
Desmocladus flexuosus		V-sedge	0.1	
Avena fatua		G-grass	0.5	
Lepidosperma squamatum		V-sedge	0.5	
Caustis dioica		V-sedge	0.5	r <10%
Billardiera fusiformis				r <10%
Acacia cyclops		S-shrub	2	r <10%
Banksia speciosa		S-shrub	4	r <10%
Allocasuarina humilis		S-shrub	2.5	
Hibbertia racemosa		S-shrub	0.5	
Micromyrtus elobata subsp. elobata		S-shrub	0.1	r <10%
Lysinema ciliatum		S-shrub	0.5	r <10%
Trachymene pilosa		H-herb		i 10-30%
Sonchus sp.		H-herb		
Leptospermum laevigatum		S-shrub	0.5	
Anigozanthos rufus		S-shrub	0.5	
Jacksonia spinosa		S-shrub	1	r <10%
Microcorys barbata		S-shrub	2	
Lomandra hastilis		V-sedge	0.5	
Pimelea angustifolia		S-shrub	0.4	
Levenhookia sp.		H-herb		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120
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180
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130°SE (T) 33°45'1"S, 121°52'0"E ±13ft 296ft
11 Nov 2021 12:03:13

Table 21: Fauna species recorded within survey area.

Family	Species	Common Name	Conservation Code	Comments
Birds				
Meliphagidae	*Anthochaera carunculata*	Red Wattlebird		
Meliphagidae	*Anthochaera lunulata*	Western Wattlebird		
Cuculidae	*Cacomantis flabelliformis*	Fan-tailed Cuckoo		
Cacatuidae	*Calyptorhynchus latirostris*	Carnaby's Cockatoo	EN	Observed via chewed pine cones
Petroicidae	*Drymodes brunneopygia*	Southern Scrub-Robin		
Monarchidae	*Grallina cyanoleuca*	Mudlark		
Artamidae	*Gymnorhina tibicen*	Australian Magpie		
Meliphagidae	*Manorina flavigula*	Yellow-throated Miner		
Meliphagidae	*Melithreptus brevirostris*	Brown-headed Honeyeater		
Columbidae	*Phaps chalcoptera*	Common Bronzewing		
Meliphagidae	*Phylidonyris novaehollandiae*	New Holland Honeyeater		
Rhipiduridae	*Rhipidura leucophrys*	Willy Wagtail		
Acanthizidae	*Sericornis frontalis*	White-browed Scrubwren		
Reptiles				
Pygopodidae	*Aprasia striolata*	Lined Worm-lizard		
Elapidae	*Notechis scutatus*	Tigersnake		
Agamidae	*Pogona minor*	Dwarf Bearded Dragon		
Scincidae	*Tiliqua rugosa*	Bobtail Skink		
Varanidae	*Varanus rosenbergi*	Heath Monitor		
Invertebrates				
Araneidae	*Argiope trifasciata*	Banded Garden Spider		
Araneidae	*Austracantha minax*	Christmas Spider		
Tipulidae	*Leptotarsus sp.*	Crane Fly		
Pieridae	*Pieris rapae*	Cabbage White		
Mammals				
Macropodidae	*Macropus fuliginosus*	Western Grey Kangaroo		
Leporidae	*Oryctolagus cuniculus*	Rabbit		
Canidae	*Vulpes*	Fox		

Appendix E

Threatened and Priority reporting forms

Appendix F

NatureMap and EPBC Act PMST reports

NatureMap
Mapping Western Australia's biodiversity

AI005-003 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° 45' 58" S
Buffer	30km
Group By	Kingdom

Kingdom	Species	Records
Animalia	724	13057
Chromista	48	105
Fungi	54	141
Plantae	1335	4409
TOTAL	**2161**	**17712**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Animalia					
1.	24559	*Acanthagenys rufogularis (Spiny-cheeked Honeyeater)*			
2.	24260	*Acanthiza apicalis (Broad-tailed Thornbill, Inland Thornbill)*			
3.	24261	*Acanthiza chrysorrhoa (Yellow-rumped Thornbill)*			
4.	24265	*Acanthiza uropygialis (Chestnut-rumped Thornbill)*			
5.		*Acanthopagrus butcheri*			
6.	25242	*Acanthophis antarcticus (Southern Death Adder)*		P3	
7.	24560	*Acanthorhynchus superciliosus (Western Spinebill)*			
8.		*Acariformes sp.*			
9.	25535	*Accipiter cirrocephalus (Collared Sparrowhawk)*			
10.	25536	*Accipiter fasciatus (Brown Goshawk)*			
11.		*Acercella falcipes*			
12.	42368	*Acritoscincus trilineatus (Western Three-lined Skink)*			
13.	25755	*Acrocephalus australis (Australian Reed Warbler)*			
14.	41323	*Actitis hypoleucos (Common Sandpiper)*		IA	
15.		*Adversaeschna brevistyla*			
16.		*Aedes (Och.) sp. 1 (nr. nigrithorax) (SAP)*			
17.		*Aedes camptorhynchus*			
18.		*Aedes sp.*			
19.	25544	*Aegotheles cristatus (Australian Owlet-nightjar)*			
20.		*Aetapcus maculatus*			
21.		*Agaue similis*			Y
22.		*Agaue tenuipes*			
23.		*Agauopsis calidictyota*			Y
24.		*Agauopsis miliaris*			
25.		*Agraptocorixa eurynome*			
26.		*Agraptocorixa sp.*			
27.		*Alboa worooa*			
28.		*Aldrichetta forsteri*			
29.		*Allodessus bistrigatus*			
30.		*Allomycterus pilatus*			
31.		*Ammotretis elongatus*			
32.	25647	*Amytornis striatus (Striated Grasswren)*			
33.		*Aname mainae*			
34.		*Aname tepperi*			
35.	24310	*Anas castanea (Chestnut Teal)*			
36.	24312	*Anas gracilis (Grey Teal)*			
37.	24313	*Anas platyrhynchos (Mallard)*			
38.		*Anas platyrhynchos subsp. domesticus*			
39.	24315	*Anas rhynchotis (Australasian Shoveler)*			
40.	24316	*Anas superciliosa (Pacific Black Duck)*			
41.		*Anax papuensis*			
42.	47414	*Anhinga novaehollandiae (Australasian Darter)*			
43.		*Anisops baylii*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
44.		*Anisops hackeri*			
45.		*Anisops hyperion*			
46.		*Anisops sp.*			
47.		*Anisops thienemanni*			
48.		*Anoplodactylus angulatus*			Y
49.		*Anoplodactylus cribellatus*			Y
50.	24561	*Anthochaera carunculata (Red Wattlebird)*			
51.	24562	*Anthochaera lunulata (Western Little Wattlebird)*			
52.	24599	*Anthus australis subsp. australis (Australian Pipit)*			
53.		*Antiporus occidentalis*			
54.		*Apocyclops dengizicus*			
55.	24991	*Aprasia repens (Sand-plain Worm-lizard)*			
56.	24994	*Aprasia striolata (Lined Worm-lizard)*			
57.	25554	*Apus pacificus (Fork-tailed Swift, Pacific Swift)*		IA	
58.	24285	*Aquila audax (Wedge-tailed Eagle)*			
59.		*Aracana aurita*			
60.		*Aracana ornata*			
61.		*Araneus necopinus*			
62.		*Araneus senicaudatus*			
63.		*Arcella discoides*			
64.		*Arcella hemisphaerica*			
65.	24208	*Arctocephalus forsteri (New Zealand Fur Seal, long-nosed fur-seal)*		S	
66.	25558	*Ardea ibis (Cattle Egret)*			
67.	41324	*Ardea modesta (great egret, white egret)*			
68.	24340	*Ardea novaehollandiae (White-faced Heron)*			
69.	24341	*Ardea pacifica (White-necked Heron)*			
70.	41326	*Ardenna carneipes (Flesh-footed Shearwater, Fleshy-footed Shearwater)*		T	
71.	41328	*Ardenna tenuirostris (Short-tailed Shearwater)*		IA	
72.	24610	*Ardeotis australis (Australian Bustard)*			
73.	25736	*Arenaria interpres (Ruddy Turnstone)*		IA	
74.		*Argiope trifasciata*			
75.		*Arrenurus (Truncaturus) sp. (SAP)*			
76.		*Arripis truttaceus*			Y
77.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
78.	24353	*Artamus cyanopterus (Dusky Woodswallow)*			
79.		*Artoria cingulipes*			
80.		*Artoria flavimana*			
81.		*Artoriopsis eccentrica*			
82.		*Artoriopsis expolita*			
83.		*Artoriopsis joergi*			
84.		*Ascorhis occidua*			
85.		*Aspasmogaster occidentalis*			
86.		*Asplanchna brightwelli*			
87.		*Asymbolus vincenti*			
88.	41383	*Atelomastix dendritica (Recherche Atelomastix millipede)*		T	Y
89.		*Atherinosoma wallacei*			
90.		*Aulopus purpurissatus*			
91.		*Austracantha minax*			
92.		*Australocypris insularis*			
93.		*Australomedusa ?baylii (SAP)*			
94.		*Austroagrion cyane*			
95.		*Austrochiltonia sp.*			
96.		*Austrochiltonia subtenuis*			
97.		*Austrodecus staplesi*			Y
98.		*Austrolestes analis*			
99.		*Austrolestes annulosus*			
100.		*Austrolestes aridus*			
101.		*Austrolestes io*			
102.		*Austrolestes sp.*			
103.	24318	*Aythya australis (Hardhead)*			
104.		*Barnardius zonarius*			
105.		*Bdelloidea med-large contracted of RJS (SAP)*			
106.		*Bdelloidea sp.*			
107.		*Bdelloidea sp. 2:2*			
108.		*Bennelongia barangaroo lineage*			
109.		*Bennelongia frumenta*			
110.		*Berosus discolor*			
111.		*Berosus munitipennis*			
112.		*Berosus sp.*			
113.		*Bezzia sp. (not 1 or 2)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
114.		*Bivalvia sp.*			
115.	24319	*Biziura lobata (Musk Duck)*			
116.		*Boeckella triarticulata*			
117.		*Bostockia porosa*			
118.		*Brachaluteres jacksonianus*			
119.		*Brachionus angularis*			
120.		*Brachionus cf. nilsoni (SAP)*			
121.		*Brachionus cf. plicatilis (SAP)*			
122.		*Brachionus leydigii*			
123.		*Brachionus plicatilis complex ("towerinninensis" form)*			Y
124.		*Brachionus plicatilis s.l.*			
125.		*Brachionus quadridentatus cluniorbicularis*			
126.		*Brachionus rotundiformis*			
127.		*Brachionus sp.*			
128.		*Brachionus urceolaris s.l.*			
129.		*Bradyagaue exilis*			Y
130.		*Branchipodidae sp.*			
131.		*Brentidae sp.*			
132.	24359	*Burhinus grallarius (Bush Stone-curlew)*			
133.		*Caboncypris kondininensis*			
134.	25598	*Cacomantis flabelliformis (Fan-tailed Cuckoo)*			
135.	24427	*Cacomantis flabelliformis subsp. flabelliformis (Fan-tailed Cuckoo)*			
136.	42307	*Cacomantis pallidus (Pallid Cuckoo)*			
137.	24269	*Calamanthus campestris (Rufous Fieldwren)*			
138.		*Calamoecia clitellata*			
139.		*Calamoecia sp. 342 (ampulla variant) (CB)*			
140.		*Calanoida sp.*			
141.	24779	*Calidris acuminata (Sharp-tailed Sandpiper)*		IA	
142.	24780	*Calidris alba (Sanderling)*		IA	
143.	25738	*Calidris canutus (Red Knot, knot)*		IA	
144.	24783	*Calidris canutus subsp. rogersi (Red Knot (north-eastern Siberia))*		T	
145.	24784	*Calidris ferruginea (Curlew Sandpiper)*		T	
146.	24786	*Calidris melanotos (Pectoral Sandpiper)*		IA	
147.	24788	*Calidris ruficollis (Red-necked Stint)*		IA	
148.	24790	*Calidris tenuirostris (Great Knot)*		T	
149.		*Callogobius mucosus*			
150.	24734	*Calyptorhynchus latirostris (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)*		T	
151.	48400	*Calyptorhynchus sp. (white-tailed black cockatoo)*		T	
152.		*Candonocypris novaezelandiae*			
153.		*Capitella sp.*			
154.		*Capitellidae sp.*			
155.	24253	*Capra hircus (Goat)*	Y		
156.		*Capropygia unistriata*			
157.		*Carabidae sp.*			
158.		*Carcharhinus brachyurus*			
159.	34034	*Carcharias taurus (Grey Nurse Shark)*		T	
160.	25335	*Caretta caretta (Loggerhead Turtle)*		T	
161.		*Ceinidae sp.*			
162.		*Centropyxis aculeata*			
163.		*Centropyxis cassis*			Y
164.		*Centropyxis sp. b (SAP)*			
165.		*Ceratopogonidae sp.*			
166.		*Ceratopogonidae sp. A (SAP)*			
167.	24086	*Cercartetus concinnus (Western Pygmy-possum, Mundarda)*			
168.		*Cercophonius granulosus*			
169.	25551	*Cereopsis novaehollandiae (Cape Barren Goose)*		T	
170.	24320	*Cereopsis novaehollandiae subsp. grisea (Recherche Cape Barren Goose, Cape Barren Goose)*		T	
171.		*Ceriodaphnia n. sp. c (Berner sp.#1) (SAP)*			
172.	25573	*Charadrius bicinctus (Double-banded Plover)*		IA	
173.	25575	*Charadrius leschenaultii (Greater Sand Plover)*		T	
174.	25576	*Charadrius mongolus (Lesser Sand Plover)*		T	
175.	24377	*Charadrius ruficapillus (Red-capped Plover)*			
176.	24321	*Chenonetta jubata (Australian Wood Duck, Wood Duck)*			
177.	47909	*Cheramoeca leucosterna (White-backed Swallow)*			
178.		*Chironomidae sp.*			
179.		*Chironominae sp.*			
180.		*Chironomus aff. alternans (V24) (CB)*			
181.		*Chironomus occidentalis*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
182.		*Chironomus tepperi*			
183.	24980	*Christinus marmoratus (Marbled Gecko)*			
184.		*Chroicocephalus novaehollandiae*			
185.	24288	*Circus approximans (Swamp Harrier)*			
186.	24289	*Circus assimilis (Spotted Harrier)*			
187.		*Cladopelma curtivalva*			
188.	24774	*Cladorhynchus leucocephalus (Banded Stilt)*			
189.		*Cladotanytarsus sp. A (SAP)*			
190.		*Cletocamptus aff deitersi*			
191.		*Clinohelea sp.*			
192.		*Clynotis albobarbatus*			
193.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
194.	24399	*Columba livia (Domestic Pigeon)*	Y		
195.		*Colurella colurus*			
196.		*Colurella uncinata*			
197.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
198.		*Cordylophora sp.*			Y
199.		*Corixidae sp.*			
200.		*Cormocephalus michaelseni*			
201.	24416	*Corvus bennetti (Little Crow)*			
202.	25592	*Corvus coronoides (Australian Raven)*			
203.	24417	*Corvus coronoides subsp. perplexus (Australian Raven)*			
204.		*Corynoneura sp. (V49) (SAP)*			
205.	24671	*Coturnix pectoralis (Stubble Quail)*			
206.	25701	*Coturnix ypsilophora (Brown Quail)*			
207.	24673	*Coturnix ypsilophora subsp. australis (Brown Quail)*			
208.		*Coxiella glabra*			
209.		*Coxiella sp.*			
210.		*Coxiella sp. 3 (ABP)*			Y
211.		*Coxiella striatula*			
212.	24420	*Cracticus nigrogularis (Pied Butcherbird)*			
213.	25595	*Cracticus tibicen (Australian Magpie)*			
214.	24422	*Cracticus tibicen subsp. dorsalis (White-backed Magpie)*			
215.	25596	*Cracticus torquatus (Grey Butcherbird)*			
216.	25398	*Crinia georgiana (Quacking Frog)*			
217.	25399	*Crinia glauerti (Clicking Frog)*			
218.	25401	*Crinia pseudinsignifera (Bleating Froglet)*			
219.	30888	*Cryptoblepharus pulcher subsp. clarus*			
220.		*Cryptochironomus griseidorsum*			
221.	42385	*Ctenophorus chapmani (Eastern Heath Dragon)*			
222.	24883	*Ctenophorus ornatus (Ornate Crevice-Dragon)*			
223.	25047	*Ctenotus impar*			
224.	25049	*Ctenotus labillardieri*			
225.		*Culicidae sp.*			
226.		*Culicoides sp.*			
227.		*Curculionidae sp.*			
228.	24322	*Cygnus atratus (Black Swan)*			
229.		*Cyprideis australiensis*			
230.		*Cyprididae sp.*			
231.		*Cyprinotus cingalensis*			
232.		*Cyprinotus cingalensis (ex edwardi)*			
233.		*Cytherideidae sp.*			Y
234.		*Daphnia australis*			
235.		*Daphnia carinata*			
236.		*Daphnia queenslandensis*			
237.		*Daphnia sp.*			
238.		*Daphnia truncata*			
239.		*Daphnia wardi*			
240.	25673	*Daphoenositta chrysoptera (Varied Sittella)*			
241.		*Dasyhelea sp.*			
242.	24995	*Delma australis*			
243.	25766	*Delma fraseri (Fraser's Legless Lizard)*			
244.	24052	*Delphinus delphis (Common Dolphin)*			
245.		*Dermatopsis sp.*			
246.	25346	*Dermochelys coriacea (Leatherback Turtle)*		T	
247.		*Dero digitata*			
248.		*Diacypris compacta*			
249.		*Diacypris sp.*			
250.		*Diacypris sp. 581 (n. sp.) (SAP)*			Y
251.		*Diacypris spinosa*			

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252.		*Diaprepocoris barycephala*			
253.		*Diaprepocoris sp.*			
254.		*Dicrotendipes conjunctus*			
255.		*Dicrotendipes pseudoconjunctus*			
256.		*Dicrotendipes sp.*			
257.		*Dicrotendipes sp. A (V47) (SAP)*			
258.		*Diodon sp.*			
259.	25618	*Diomedea exulans (Wandering Albatross)*		T	
260.	41403	*Diplodactylus calcicolus (South Coast Gecko)*			
261.		*Dolichopodidae sp.*			
262.		*Dolichopodidae sp. B (SAP)*			
263.	24470	*Dromaius novaehollandiae (Emu)*			
264.		*Dytiscidae sp.*			
265.	25251	*Echiopsis curta (Bardick)*			
266.		*Ecnomidae sp.*			
267.		*Ecnomus pansus/turgidus*			
268.	25096	*Egernia kingii (King's Skink)*			
269.	25100	*Egernia napoleonis*			
270.		*Egretta garzetta*			
271.		*Egretta novaehollandiae*			
272.		*Elanus axillaris*			
273.	25250	*Elapognathus coronatus (Crowned Snake)*			
274.	47937	*Elseyornis melanops (Black-fronted Dotterel)*			
275.		*Emertonella maga*			
276.		*Empididae sp.*			
277.		*Enchytraeidae sp.*			
278.		*Enochrus eyrensis*			
279.		*Enochrus sp.*			
280.		*Eolophus roseicapillus*			
281.		*Ephydridae sp.*			
282.		*Ephydridae sp. 3 (SAP)*			
283.		*Ephydridae sp. 6 (SAP)*			
284.		*Ephydridae sp. 7(SAP)*			
285.	24567	*Epthianura albifrons (White-fronted Chat)*			
286.	24379	*Erythrogonys cinctus (Red-kneed Dotterel)*			
287.	47938	*Esacus magnirostris (Beach Stone-curlew, Beach Thick-knee)*			
288.	24043	*Eubalaena australis (Southern Right Whale)*		T	
289.		*Eubalichthys mosaicus*			
290.		*Euchlanis dilatata*			
291.		*Eucyclops australiensis*			
292.	25744	*Eudyptes chrysocome (Rockhopper Penguin)*			
293.	24816	*Eudyptes pachyrhynchus (Fiordland Penguin)*			
294.	24817	*Eudyptes sclateri (Erect-crested Penguin)*			Y
295.	25746	*Eudyptula minor (Little Penguin)*			
296.		*Exosphaeroma sp.*			
297.		*Eylais sp.*			
298.	25621	*Falco berigora (Brown Falcon)*			
299.	25622	*Falco cenchroides (Australian Kestrel, Nankeen Kestrel)*			
300.	25623	*Falco longipennis (Australian Hobby)*			
301.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
302.		*Favonigobius lateralis*			
303.		*Ferrissia petterdi*			
304.		*Filinia longiseta*			
305.	25727	*Fulica atra (Eurasian Coot)*			
306.	24761	*Fulica atra subsp. australis (Eurasian Coot)*			
307.		*Galaxias maculatus*			
308.	39404	*Galaxias truttaceus (Trout Minnow)*			
309.	25730	*Gallirallus philippensis (Buff-banded Rail)*			
310.	42314	*Gavicalis virescens (Singing Honeyeater)*			
311.		*Gea theridioides*			
312.		*Geogarypus taylori*			
313.	34030	*Geotria australis (Pouched Lamprey)*		P3	
314.	25530	*Gerygone fusca (Western Gerygone)*			
315.		*Gianius sp. WA9 (SAP)*			Y
316.		*Gladioferens imparipes*			
317.	47962	*Glyciphila melanops (Tawny-crowned Honeyeater)*			
318.		*Glyptophysa cf. gibbosa (SAP)*			
319.		*Gonorynchus greyi*			
320.	24443	*Grallina cyanoleuca (Magpie-lark)*			
321.	24056	*Grampus griseus (Risso's Dolphin)*			

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322.		*Gymnocthebius sp. 1 (SAP)*			
323.		*Gymnometriocnemus sp. B (=V45=sp. A&2=ortho sp. O)*			
324.		*Gymnometriocnemus spp. (not V44 or V45)*			
325.	25627	*Haematopus fuliginosus (Sooty Oystercatcher)*			
326.	24485	*Haematopus fuliginosus subsp. fuliginosus (Sooty Oystercatcher)*			
327.	24487	*Haematopus longirostris (Pied Oystercatcher)*			
328.	24293	*Haliaeetus leucogaster (White-bellied Sea-Eagle)*			
329.	24295	*Haliastur sphenurus (Whistling Kite)*			
330.		*Halicyclops sp. 1 (nr ambiguus) (SAP)*			
331.		*Haliplus fuscatus*			
332.		*Haliplus sp.*			
333.		*Haloniscus searlei*			
334.		*Haloniscus sp.*			
335.		*Harpacticoida sp*			
336.		*Helcogramma decurrens*			
337.	25410	*Heleioporus eyrei (Moaning Frog)*			
338.	25412	*Heleioporus psammophilus (Sand Frog)*			
339.		*Hellyethira litua*			
340.		*Helochares tenuistriatus*			
341.		*Hemicordulia tau*			
342.	25117	*Hemiergis peronii subsp. peronii*			
343.		*Heteroceridae sp.*			
344.		*Heteroclinus sp.*			
345.		*Hexarthra fennica*			
346.		*Hexarthra n. sp.a (cf. fennica with 7/7 unci teeth) (SAP)*			
347.	47965	*Hieraaetus morphnoides (Little Eagle)*			
348.	25734	*Himantopus himantopus (Black-winged Stilt)*			
349.		*Hirudinea sp.*			
350.	24491	*Hirundo neoxena (Welcome Swallow)*			
351.		*Histiophryne cryptacanthus*			
352.		*Hogna crispipes*			
353.		*Holasteron esperance*			Y
354.		*Hyderodes crassus*			
355.		*Hydra sp.*			
356.		*Hydrachnidae sp.*			
357.		*Hydrobiidae sp.*			
358.		*Hydrophilidae sp.*			
359.	48587	*Hydroprogne caspia (Caspian Tern)*		IA	
360.		*Hydryphantes meridianus*			
361.		*Hyphydrus elegans*			
362.		*Idiommata blackwalli*			
363.		*Ilyocryptus cf. timmsi (SAP)*			Y
364.		*Ilyocypris australiensis*			
365.		*Ilyodromus sp.*			
366.		*Ischnura heterosticta heterosticta*			
367.	48588	*Isoodon fusciventer (Quenda, southwestern brown bandicoot)*		P4	
368.		*Isopeda leishmanni*			
369.		*Karaops francesae*			
370.		*Kathetostoma laeve*			
371.		*Kennethia cristata*			
372.		*Keratella australis*			
373.		*Keratella cf. quadrata (SAP)*			
374.		*Keratella procurva*			
375.		*Keratella quadrata*			
376.		*Kiefferulus intertinctus*			
377.		*Kiefferulus martini*			
378.		*Koenikea nr australica (=verrucosa)*			
379.	24070	*Kogia breviceps (Pygmy Sperm Whale)*			
380.		*Lampona cylindrata*			
381.		*Lancetes lanceolatus*			
382.		*Lancetes sp.*			
383.	24510	*Larus dominicanus (Kelp Gull)*			
384.	24511	*Larus novaehollandiae subsp. novaehollandiae (Silver Gull)*			
385.	25638	*Larus pacificus (Pacific Gull)*			
386.	24512	*Larus pacificus subsp. georgii (Pacific Gull)*			
387.		*Lecane (M) sp. A (ESP023)*			Y
388.		*Lecane [M] sp.*			
389.		*Lecane bulla*			
390.		*Lecane luna*			
391.		*Lecane sp. s.str.*			

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392.	24557	*Leipoa ocellata (Malleefowl)*		T	
393.		*Lepadella discoidea*			
394.		*Lepadella patella*			
395.		*Lepidoblennius marmoratus*			
396.		*Lepidoptera (non-pyralid)*			
397.		*Lepidoptera (non-pyralid) sp. 3 (SAP)*			
398.		*Lepidoptera (non-pyralid) sp. 9 (SAP) (nr Pilbara sp. 3)*			
399.		*Leptatherina presbyteroides*			
400.		*Leptoceridae sp.*			
401.		*Leptocythere lacustris*			
402.		*Leptoichthys fistularius*			
403.	25131	*Lerista distinguenda*			
404.		*Lesquereusia sp.*			
405.		*Leydigia cf. leydigii (SAP)*			
406.	25659	*Lichenostomus leucotis (White-eared Honeyeater)*			
407.	25661	*Lichmera indistincta (Brown Honeyeater)*			
408.	25739	*Limicola falcinellus (Broad-billed Sandpiper)*		IA	
409.		*Limnesia dentifera*			
410.		*Limnichidae sp.*			
411.		*Limnochares australica*			
412.	25415	*Limnodynastes dorsalis (Western Banjo Frog)*			
413.		*Limnophyes vestitus (V41)*			
414.	30932	*Limosa lapponica (Bar-tailed Godwit)*		IA	
415.	25378	*Litoria adelaidensis (Slender Tree Frog)*			
416.	25383	*Litoria cyclorhyncha (Spotted-thighed Frog)*			
417.		*Lohmannella pinggi*			
418.		*Lophoictinia isura*			
419.		*Lotella rhacinus*			
420.	24132	*Macropus fuliginosus (Western Grey Kangaroo)*			
421.		*Macrothrix breviseta*			
422.		*Macrothrix cf. breviseta (SAP)*			
423.		*Macrothrix sp.*			
424.		*Macrotrachela sp. a (SAP)*			Y
425.		*Makaira sp.*			Y
426.	24326	*Malacorhynchus membranaceus (Pink-eared Duck)*			
427.	25654	*Malurus splendens (Splendid Fairy-wren)*			
428.		*Manayunkia n. sp.*			
429.	24583	*Manorina flavigula (Yellow-throated Miner)*			
430.		*Maratus chrysomelas*			
431.	25758	*Megalurus gramineus (Little Grassbird)*			
432.		*Megaporus howittii*			
433.		*Megaporus solidus*			
434.		*Megaporus sp.*			
435.		*Melita kauerti*			
436.	24736	*Melopsittacus undulatus (Budgerigar)*			
437.	25184	*Menetia greyii*			
438.		*Meridiecyclops baylyi*			
439.	24598	*Merops ornatus (Rainbow Bee-eater)*			
440.		*Mesochra baylyi*			
441.		*Mesochra nr flava*			
442.		*Mesocyclops brooksi*			
443.		*Mesostigmata sp.*			
444.		*Meuschenia hippocrepis*			
445.		*Microcarbo melanoleucos*			
446.		*Micronecta robusta*			
447.		*Micronecta sp.*			
448.	24213	*Mirounga leonina (Southern Elephant Seal)*			
449.		*Missulena granulosa*			
450.		*Missulena hoggi*			
451.		*Molycria quadricauda*			
452.		*Monohelea sp. 3 (SAP)*			
453.	25192	*Morethia obscura*			
454.	48008	*Morus serrator (Australasian Gannet)*			
455.		*Muraenichthys breviceps*			
456.	24223	*Mus musculus (House Mouse)*	Y		
457.		*Muscidae sp.*			
458.		*Muscidae sp. A (SAP)*			
459.		*Muscidae sp. D (SAP)*			
460.		*Myandra bicincta*			
461.	25610	*Myiagra inquieta (Restless Flycatcher)*			

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462.		*Mytilocypris ambiguosa*			
463.		*Mytilocypris mytiloides*			
464.		*Mytilocypris sp.*			
465.		*Naididae (ex Tubificidae)*			
466.		*Necterosoma penicillatus*			
467.		*Necterosoma sp.*			
468.		*Nematoda sp.*			
469.	25421	*Neobatrachus albipes (White-footed Trilling Frog)*			
470.	25425	*Neobatrachus kunapalari (Kunapalari Frog)*			
471.	25426	*Neobatrachus pelobatoides (Humming Frog)*			
472.	24738	*Neophema elegans (Elegant Parrot)*			
473.	24739	*Neophema petrophila (Rock Parrot)*			
474.	24210	*Neophoca cinerea (Australian Sea-lion)*		T	
475.		*Nephila edulis*			
476.		*Newnhamia fenestrata*			
477.		*Nicodamus mainae*			
478.		*Nilobezzia sp.*			
479.		*Nitocra near sp. 4 (SAP)*			
480.		*Nitocra reducta*			
481.		*Nitocra sp. 4 (SAP)*			
482.		*Nitocra sp. 5 (nr reducta) (SAP)*			
483.		*No invertebrates*			
484.		*Norfolkia incisa*			Y
485.		*Notalina spira*			
486.	48022	*Notamacropus irma (Western Brush Wallaby)*		P4	
487.	25252	*Notechis scutatus (Tiger Snake)*			
488.		*Notholca salina*			
489.	24229	*Notomys mitchellii (Mitchell's Hopping-mouse)*			
490.		*Notonectidae sp.*			
491.		*Novakiella trituberculosa*			
492.	25564	*Nycticorax caledonicus (Rufous Night Heron)*			
493.	24194	*Nyctophilus geoffroyi (Lesser Long-eared Bat)*			
494.		*Ochthebius sp.*			
495.		*Ochthebius sp. 4*			Y
496.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
497.		*Oecetis sp.*			
498.		*Oecobius navus*			
499.		*Oligochaeta sp.*			
500.		*Oniscidae sp.*			
501.		*Onychocamptus bengalensis*			
502.		*Opisthopora sp.*			
503.		*Oribatida sp.*			
504.		*Oribatida sp. 1 (PLP)*			Y
505.		*Oribatida sp. 2(PLP)*			Y
506.		*Orthetrum caledonicum*			
507.		*Orthocladiinae sp.*			
508.		*Orthocladiinae sp. G (SAP)*			
509.		*Orthocladiinae sp. I (SAP)*			
510.		*Orthocladiinae sp. J (SAP)*			
511.		*Orthocladiinae sp. P (SAP)*			
512.	24085	*Oryctolagus cuniculus (Rabbit)*	Y		
513.	34016	*Ovis aries (Sheep)*			
514.	24328	*Oxyura australis (Blue-billed Duck)*		P4	
515.	24619	*Pachycephala inornata (Gilbert's Whistler)*			
516.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
517.		*Palaemonetes australis*			
518.	48591	*Pandion cristatus (Osprey, Eastern Osprey)*		IA	
519.		*Paracyclops ?chiltoni (SAP)*			
520.		*Paralimnophyes pullulus (V42)*			
521.		*Paramatachia tubicola*			Y
522.		*Paramerina levidensis*			
523.		*Paranais litoralis*			
524.	24097	*Parantechinus apicalis (Dibbler)*		T	
525.		*Parapallene haddoni*			
526.		*Paraplesiops meleagris*			
527.		*Parartemia longicaudata*			
528.		*Parartemia sp.*			
529.		*Parastacidae sp.*			
530.	25255	*Parasuta nigriceps*			
531.	25681	*Pardalotus punctatus (Spotted Pardalote)*			

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532.	25682	*Pardalotus striatus (Striated Pardalote)*			
533.		*Paroster niger*			
534.	24642	*Passer montanus (Eurasian Tree Sparrow)*	Y		
535.	24648	*Pelecanus conspicillatus (Australian Pelican)*			
536.		*Pelsartia humeralis*			
537.		*Pempheris klunzingeri*			
538.		*Pempheris multiradiata*			
539.		*Penicipelter vittiger*			Y
540.		*Pescecyclops sp. 434 (Stuart's original arnaudi sensu Sars)*			
541.		*Pescecyclops sp. 442=462=465=CB2 (salinarum in Morton)*			
542.	48060	*Petrochelidon ariel (Fairy Martin)*			
543.	48061	*Petrochelidon nigricans (Tree Martin)*			
544.	48066	*Petroica boodang (Scarlet Robin)*			
545.		*Pezidae sp.*			
546.	25697	*Phalacrocorax carbo (Great Cormorant)*			
547.	24665	*Phalacrocorax fuscescens (Black-faced Cormorant)*			
548.	25698	*Phalacrocorax melanoleucos (Little Pied Cormorant)*			
549.	24667	*Phalacrocorax sulcirostris (Little Black Cormorant)*			
550.	25699	*Phalacrocorax varius (Pied Cormorant)*			
551.	24409	*Phaps chalcoptera (Common Bronzewing)*			
552.	25587	*Phaps elegans (Brush Bronzewing)*			
553.		*Philodinidae sp.*			
554.		*Phycodurus eques subsp. glauerti*			Y
555.	48071	*Phylidonyris niger (White-cheeked Honeyeater)*			
556.	24596	*Phylidonyris novaehollandiae (New Holland Honeyeater)*			
557.		*Phyllophryne scortea*			
558.		*Phyllopteryx taeniolatus*			
559.		*Physa acuta*			
560.		*Pictilabrus sp.*			
561.		*Placobdelloides sp.*			
562.	24841	*Platalea flavipes (Yellow-billed Spoonbill)*			
563.	24842	*Platalea regia (Royal Spoonbill)*			
564.		*Platycephalus speculator*			
565.	25720	*Platycercus icterotis (Western Rosella)*			
566.	24747	*Platycercus spurius (Red-capped Parrot)*			
567.		*Platycypris baueri*			
568.	24843	*Plegadis falcinellus (Glossy Ibis)*		IA	
569.		*Pleuroxus inermis*			
570.		*Pleuroxus jugosus*			
571.		*Pleuroxus sp.*			
572.		*Plumatella sp.*			
573.		*Plurispina chauliodis*			
574.	24381	*Pluvialis dominica (American Golden Plover)*			
575.	24382	*Pluvialis fulva (Pacific Golden Plover)*		IA	
576.	24383	*Pluvialis squatarola (Grey Plover)*		IA	
577.	25703	*Podargus strigoides (Tawny Frogmouth)*			
578.	25704	*Podiceps cristatus (Great Crested Grebe)*			
579.	24907	*Pogona minor subsp. minor (Dwarf Bearded Dragon)*			
580.	24681	*Poliocephalus poliocephalus (Hoary-headed Grebe)*			
581.		*Polypedilum nr vespertinus (M2) (SAP)*			
582.		*Polypedilum nr. convexum (SAP)*			
583.		*Polypedilum nubifer*			
584.		*Pomatiopsidae sp.*			
585.	24683	*Pomatostomus superciliosus (White-browed Babbler)*			
586.	25731	*Porphyrio porphyrio (Purple Swamphen)*			
587.	24767	*Porphyrio porphyrio subsp. bellus (Purple Swamphen)*			
588.	24769	*Porzana fluminea (Australian Spotted Crake)*			
589.	24771	*Porzana tabuensis (Spotless Crake)*			
590.		*Pristina jenkinae*			
591.		*Pristina longiseta*			
592.		*Procladius paludicola*			
593.		*Procladius villosimanus*			
594.		*Protogarypinus giganteus*			
595.		*Protozoan sp*			
596.		*Pseudocaranx dentex*			
597.		*Pseudogobius olorum*			
598.	44625	*Pseudohydryphantes doegi (Doeg's Watermite)*		P2	
599.		*Pseudolabrus parilus*			Y
600.	24230	*Pseudomys albocinereus (Ash-grey Mouse)*			
601.	25259	*Pseudonaja affinis subsp. affinis (Dugite)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
602.	25263	*Pseudonaja modesta (Ringed Brown Snake)*			
603.	25433	*Pseudophryne guentheri (Crawling Toadlet)*			
604.		*Pseudophycis breviuscula*			
605.		*Pseudorhombus jenynsii*			
606.		*Psychodidae sp.*			
607.	24711	*Puffinus assimilis subsp. assimilis (Little Shearwater)*			
608.	42344	*Purnella albifrons (White-fronted Honeyeater)*			
609.		*Purpureicephalus spurius*			
610.	25008	*Pygopus lepidopodus (Common Scaly Foot)*			
611.		*Pyralidae sp.*			
612.	24243	*Rattus fuscipes (Western Bush Rat)*			
613.	24245	*Rattus rattus (Black Rat)*	Y		
614.		*Raveniella cirrata*			
615.	24776	*Recurvirostra novaehollandiae (Red-necked Avocet)*			
616.		*Reticypris ?pinguis (SAP)*			
617.		*Reticypris clava*			
618.		*Reticypris sp. 557 (n. sp.) (SAP)*			
619.		*Reticypris walbu*			
620.		*Rhantus suturalis*			
621.	30818	*Rhinoplocephalus bicolor (Square-nosed Snake)*			
622.	48096	*Rhipidura albiscapa (Grey Fantail)*			
623.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
624.		*Rhombognathus delicatulus*			
625.		*Rhombognathus tener*			Y
626.		*Rhombognathus vulgaris*			
627.		*Saldula brevicornis*			
628.		*Salmo trutta*			
629.		*Sarscypridopsis aculeata*			
630.		*Scatopsidae sp.*			
631.		*Schizopera clandestina*			
632.		*Sciomyzidae sp.*			
633.		*Scirtidae sp.*			
634.		*Scobinichthys granulatus*			
635.		*Scomber australasicus*			
636.		*Scomberomorus semifasciatus*			
637.	25534	*Sericornis frontalis (White-browed Scrubwren)*			
638.	24279	*Sericornis frontalis subsp. maculatus (White-browed Scrubwren)*			
639.		*Sigara sp.*			
640.		*Sillago bassensis*			
641.		*Simocephalus elizabethae*			
642.		*Simuliidae sp.*			
643.		*Siphonognathus argyrophanes*			
644.		*Siphonognathus radiatus*			
645.	30948	*Smicrornis brevirostris (Weebill)*			
646.	24108	*Sminthopsis crassicaudata (Fat-tailed Dunnart)*			
647.		*Sphaeriidae sp.*			
648.		*Sphaeromatidae sp.*			
649.	24645	*Stagonopleura oculata (Red-eared Firetail)*			
650.		*Staphylinidae sp.*			
651.		*Steatoda grossa*			
652.	48116	*Stercorarius antarcticus (Brown Skua)*		P4	
653.	25643	*Sterna hybrida (Whiskered Tern)*			
654.		*Sternopriscus multimaculatus*			
655.		*Sternopriscus sp.*			
656.	48594	*Sternula nereis (Fairy Tern)*			
657.	24329	*Stictonetta naevosa (Freckled Duck)*			
658.	25655	*Stipiturus malachurus (Southern Emu-wren)*			
659.	24554	*Stipiturus malachurus subsp. westernensis (Southern Emu-wren)*			
660.		*Storena fungina*			
661.		*Stratiomyidae sp.*			
662.	25597	*Strepera versicolor (Grey Currawong)*			
663.	25590	*Streptopelia senegalensis (Laughing Turtle-Dove)*	Y		
664.	25518	*Strophurus spinigerus*			
665.	24943	*Strophurus spinigerus subsp. inornatus*			
666.	24259	*Sus scrofa (Pig)*	Y		
667.		*Symphitoneuria wheeleri*			
668.		*Synsphyronus callus*			
669.		*Synsphyronus leo*			Y
670.		*Synsphyronus mimulus*			
671.		*Tabanidae sp.*			

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672.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
673.	24331	*Tadorna tadornoides (Australian Shelduck, Mountain Duck)*			
674.		*Talitridae sp.*			
675.		*Tanypodinae sp.*			
676.		*Tanytarsus barbitarsis*			
677.		*Tanytarsus fuscithorax/semibarbitarsus*			
678.		*Tanytarsus nr bispinosus (SAP)*			
679.		*Tardigrada sp.*			
680.	24167	*Tarsipes rostratus (Honey Possum, Noolbenger)*			
681.		*Tasmanocoenis tillyardi*			
682.		*Testudinella patina*			
683.		*Tetragnatha nitens*			
684.		*Tetragnatha valida*			
685.	34007	*Thalassarche chlororhynchos (Atlantic Yellow-nosed Albatross)*		T	
686.	48597	*Thalasseus bergii (Crested Tern)*		IA	
687.	48135	*Thinornis rubricollis (Hooded Plover, Hooded Dotterel)*		P4	
688.		*Threpterius maculosus*			
689.	24845	*Threskiornis spinicollis (Straw-necked Ibis)*			
690.	25203	*Tiliqua occipitalis (Western Bluetongue)*			
691.	25207	*Tiliqua rugosa subsp. rugosa*			
692.		*Tipulidae sp.*			
693.		*Tipulidae type F (SAP)*			
694.		*Tipulidae type J (SAP)*			Y
695.	25549	*Todiramphus sanctus (Sacred Kingfisher)*			
696.	24309	*Todiramphus sanctus subsp. sanctus (Sacred Kingfisher)*			
697.	48141	*Tribonyx ventralis (Black-tailed Native-hen)*			
698.		*Trichocerca sp.*			
699.	24803	*Tringa brevipes (Grey-tailed Tattler)*		P4	
700.	24806	*Tringa glareola (Wood Sandpiper)*		IA	
701.	24808	*Tringa nebularia (Common Greenshank, greenshank)*		IA	
702.	24809	*Tringa stagnatilis (Marsh Sandpiper, little greenshank)*		IA	
703.		*Triplectides australis*			
704.		*Turbellaria sp.*			
705.	48147	*Turnix varius (Painted Button-quail)*			
706.	24851	*Turnix velox (Little Button-quail)*			
707.	30954	*Tursiops aduncus (Indo-Pacific Bottlenose Dolphin)*			
708.	24069	*Tursiops truncatus (Bottlenose Dolphin)*			
709.	24983	*Underwoodisaurus milii (Barking Gecko)*			
710.		*Upeneichthys lineatus*			
711.		*Urodacus novaehollandiae*			
712.	25577	*Vanellus miles (Masked Lapwing)*			
713.	24385	*Vanellus miles subsp. novaehollandiae (Masked Lapwing)*			
714.	24386	*Vanellus tricolor (Banded Lapwing)*			
715.	25225	*Varanus rosenbergi (Heath Monitor)*			
716.		*Venatrix pullastra*			
717.	24206	*Vespadelus regulus (Southern Forest Bat)*			
718.		*Vincentia punctata*			
719.	24040	*Vulpes vulpes (Red Fox)*	Y		
720.	34113	*Westralunio carteri (Carter's Freshwater Mussel)*		T	
721.		*Xanthagrion erythroneurum*			
722.		*Zeus faber*			
723.		*Zonocypris sp BOS082*			Y
724.	25765	*Zosterops lateralis (Grey-breasted White-eye, Silvereye)*			

Chromista

725.	26443	*Acrocarpia robusta*			
726.	26586	*Caulocystis uvifera*			
727.	35912	*Cladosiphon vermicularis*			
728.	26717	*Cystophora brownii*			
729.	26719	*Cystophora gracilis*			
730.	26722	*Cystophora monilifera*			
731.	26724	*Cystophora pectinata*			
732.	26726	*Cystophora racemosa*			
733.	26727	*Cystophora retorta*			
734.	26729	*Cystophora subfarcinata*			
735.	26764	*Dictyopteris australis*			
736.	26765	*Dictyopteris gracilis*			
737.	26766	*Dictyopteris muelleri*			
738.	26767	*Dictyopteris plagiogramma*			
739.	26776	*Dictyota dichotoma*			
740.	27392	*Dictyota dichotoma var. intricata*			

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741.	29537	*Dictyota fastigiata*			
742.	26778	*Dictyota furcellata*			
743.	35218	*Dictyota nigricans*			
744.	35216	*Dictyota paniculata*			
745.	35223	*Dictyota polyclada*			
746.	29536	*Dictyota robusta*			
747.		*Dilophus marginatus*			Y
748.	26791	*Distromium flabellatum*			
749.	26792	*Distromium multifidum*			
750.	26805	*Ecklonia radiata*			
751.	26810	*Encyothalia cliftonii*			
752.	26947	*Hormosira banksii*			
753.	26949	*Hydroclathrus clathratus*			
754.	27043	*Lobophora variegata*			
755.	27044	*Lobospira bicuspidata*			
756.	27090	*Myriodesma quercifolium*			
757.	27092	*Myriodesma tuberosum*			
758.	27105	*Notheia anomala*			
759.	27152	*Platythalia quercifolia*			
760.	27164	*Polycerea zostericola*			
761.	27239	*Sargassum fallax*			
762.	27246	*Sargassum lacerifolium*			
763.	27254	*Sargassum podacanthum*			
764.	27264	*Scaberia agardhii*			
765.	27271	*Scoresbyella profunda*			
766.	27273	*Scytothalia dorycarpa*			
767.	27304	*Sporochnus comosus*			
768.	27305	*Sporochnus radiciformis*			
769.	36138	*Zonaria angustata*			
770.	27371	*Zonaria crenata*			
771.	27372	*Zonaria spiralis*			
772.	27373	*Zonaria turneriana*			
Fungi					
773.		*Agaricus sp.*			
774.	38754	*Amanita conicobulbosa*			
775.	38758	*Anthracophyllum archeri*			
776.		*Armillaria luteobubalina*			
777.	38762	*Auriscalpium barbatum*			
778.	42106	*Austroparmelina conlabrosa*			
779.	38848	*Bolbitius titubans*			
780.		*Boletus sp.*			
781.	27597	*Buellia disciformis*			
782.		*Caloplaca sp.*			
783.	27663	*Cladia aggregata*			
784.	48177	*Cladia muelleri*			
785.	28208	*Cladonia cervicornis subsp. verticillata*			
786.		*Claviceps purpurea*			
787.		*Coltricia cinnamomea*			
788.		*Coprinus comatus*			
789.	27726	*Diplotomma alboatrum*			
790.	27744	*Flavoparmelia ferax*			
791.	27748	*Flavoparmelia rutidota*			
792.	27750	*Flavoparmelia secalonica*			
793.		*Fusarium avenaceum*			
794.		*Geastrum sp.*			
795.	38789	*Gymnopilus junonius*			
796.	27777	*Heterodermia obscurata*			
797.	28219	*Hypogymnia subphysodes var. subphysodes*			
798.	45301	*Jackelixia ligulata*			
799.	38802	*Laccocephalum tumulosum*			
800.		*Lecidea sp.*			
801.	46454	*Leucoagaricus leucothites*			
802.	38808	*Limacella pitereka*			
803.	49003	*Macrolepiota turbinata*			
804.	38816	*Omphalotus nidiformis*			
805.	49073	*Peziza austrogeaster*			
806.		*Physcia sp.*			
807.		*Phytophthora cinnamomi*			
808.		*Pisolithus sp.*			
809.		*Placoasterella baileyi*			

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810.	38824	*Pleurotus australis*			
811.	48835	*Pycnoporus coccineus*			
812.	28027	*Ramalina celastri*			
813.	28224	*Ramalina inflata subsp. australis*			
814.	28034	*Ramboldia crassithallina*			
815.		*Rhizopogon luteolus*			
816.		*Schizophyllum commune*			
817.	28065	*Teloschistes chrysophthalmus*			
818.	28066	*Teloschistes sieberianus*			
819.	28069	*Thelotrema lepadinum*			
820.	45838	*Tilletia ehrhartae*			
821.		*Uromycladium tepperianum*			
822.	28086	*Usnea dasaea*			
823.	28087	*Usnea inermis*			
824.	45909	*Ustilago tritici*			
825.		*Verrucaria sp.*			
826.	29970	*Xanthoparmelia conranensis*			
Plantae					
827.	14608	*Acacia aemula subsp. aemula*			
828.	3239	*Acacia biflora*			
829.	3244	*Acacia brachyclada*			
830.	3262	*Acacia cochlearis (Rigid Wattle)*			
831.	3268	*Acacia conniana*			
832.	3276	*Acacia crassuloides*			
833.	3277	*Acacia crispula*			
834.	12672	*Acacia cupularis*			
835.	3282	*Acacia cyclops (Coastal Wattle)*			
836.	3289	*Acacia delphina*			
837.	3296	*Acacia dermatophylla*			
838.	16123	*Acacia evenulosa*			
839.	3349	*Acacia glaucoptera (Flat Wattle)*			
840.	3353	*Acacia gonophylla*			
841.	3368	*Acacia heteroclita*			
842.	15475	*Acacia heteroclita subsp. heteroclita*			
843.	3408	*Acacia lasiocalyx (Silver Wattle, Wilyurwur)*			
844.	11519	*Acacia lasiocarpa var. bracteolata*			
845.	15476	*Acacia latipes subsp. latipes*			
846.	3453	*Acacia myrtifolia*			
847.	3457	*Acacia nigricans*			
848.	16138	*Acacia pachyphylla*			
849.	12265	*Acacia patagiata*			
850.	16139	*Acacia pinguiculosa subsp. teretifolia*			
851.	16141	*Acacia pravifolia*			
852.	3496	*Acacia preissiana*			
853.	3498	*Acacia pritzeliana*			
854.	15482	*Acacia pulchella var. goadbyi*			
855.	3504	*Acacia pycnantha (Golden Wattle)*	Y		
856.	16147	*Acacia rostellata*			
857.	3525	*Acacia rostellifera (Summer-scented Wattle)*			
858.	3527	*Acacia saligna (Orange Wattle, Kudjong)*			
859.	30034	*Acacia saligna subsp. pruinescens*			
860.	30032	*Acacia saligna subsp. saligna*			
861.	3548	*Acacia sorophylla*			
862.	3564	*Acacia subcaerulea*			
863.	13505	*Acacia sulcata var. planoconvexa*			
864.	3582	*Acacia triptycha*			
865.	15715	*Acacia varia var. parviflora*			
866.	7812	*Achillea millefolium (Yarrow, Milfoil)*	Y		
867.	6295	*Acrotriche cordata (Coast Ground Berry)*			
868.	6203	*Actinotus glomeratus*			
869.	26449	*Adelophycus corneus*			
870.	43201	*Adelphacme minima*		P3	
871.	1773	*Adenanthos cuneatus (Coastal Jugflower)*			
872.	4582	*Adriana quadripartita (Bitter Bush)*			
873.	20331	*Aeonium arboreum*	Y		
874.	20330	*Agonis baxteri*			
875.	23501	*Agrostocrinum scabrum subsp. scabrum*			
876.	184	*Aira caryophyllea (Silvery Hairgrass)*	Y		
877.	185	*Aira cupaniana (Silvery Hairgrass)*	Y		
878.	187	*Aira praecox (Early Hairgrass)*			

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			Y		
879.	1719	*Allocasuarina acuaria*			
880.	1730	*Allocasuarina helmsii*			
881.	1731	*Allocasuarina huegeliana (Rock Sheoak, Kwowl)*			
882.	1732	*Allocasuarina humilis (Dwarf Sheoak)*			
883.	13907	*Allocasuarina lehmanniana subsp. ecarinata*			
884.	1739	*Allocasuarina thuyoides (Horned Sheoak)*			
885.	1740	*Allocasuarina trichodon*			
886.	48624	*Althenia cylindrocarpa*			
887.	48620	*Althenia preissii*			
888.	4905	*Alyogyne hakeifolia*			
889.	35909	*Amansia pinnatifida*			
890.	2655	*Amaranthus albus (Tumbleweed)*	Y		
891.	37280	*Amaranthus muricatus*	Y		Y
892.	2669	*Amaranthus retroflexus (Redroot Amaranth)*	Y		
893.	126	*Amphibolis antarctica (Sea Nymph)*			
894.	127	*Amphibolis griffithii*			
895.	13380	*Amphibromus nervosus*			
896.	195	*Amphipogon avenaceus*			
897.	200	*Amphipogon turbinatus*			
898.	26458	*Amphiroa anceps*			
899.	1058	*Anarthria gracilis*			
900.	1059	*Anarthria humilis*			
901.	1060	*Anarthria laevis*			
902.	1061	*Anarthria polyphylla*			
903.	1062	*Anarthria prolifera*			
904.	1063	*Anarthria scabra*			
905.	6316	*Andersonia macranthera*			
906.	6318	*Andersonia parvifolia*			
907.	29108	*Andersonia sp. Kulin (J.M. Powell 2588)*			
908.	6321	*Andersonia sprengelioides*			
909.	40903	*Androcalva aphrix*			
910.	7833	*Angianthus preissianus*			
911.	12102	*Anigozanthos bicolor subsp. minor*		T	
912.	1415	*Anigozanthos rufus (Red Kangaroo Paw)*			
913.	6949	*Anthocercis littorea (Yellow Tailflower)*			
914.	11555	*Anthocercis viscosa subsp. caudata*			
915.	7411	*Anthotium humile (Dwarf Anthotium)*			
916.	26475	*Antithamnion hanovioides*			
917.	19627	*Aotus sp. Esperance (P.G. Wilson 7904)*			
918.	43548	*Aphelia sp. Albany (B.G. Briggs 596)*			
919.	6210	*Apium annuum*			
920.	6211	*Apium prostratum (Sea Celery)*			
921.	12040	*Apium prostratum subsp. prostratum var. prostratum (Sea Celery)*			
922.	7838	*Arctotheca calendula (Cape Weed, African Marigold)*	Y		
923.	7839	*Arctotheca populifolia (Dune Arctotheca, Beach Pumpkin, Coast Capeweed, Beach Daisy)*	Y		
924.	26483	*Areschougia congesta*			
925.	26484	*Areschougia ligulata*			
926.	13327	*Argentipallium niveum*			
927.	13329	*Argentipallium tephrodes*			
928.	26485	*Asparagopsis armata*			
929.	8779	*Asparagus asparagoides (Bridal Creeper)*	Y		
930.	1364	*Asphodelus fistulosus (Onion Weed)*	Y		
931.	20347	*Astartea astarteoides*			
932.	5330	*Astartea fascicularis (Recherche Astartea)*			
933.	42787	*Astartea reticulata*		P3	
934.	7850	*Asteridea nivea*			
935.	6326	*Astroloma epacridis*			
936.	6335	*Astroloma prostratum (Cranberry Heath)*			
937.	14503	*Astroloma sp. Grass Patch (A.J.G. Wilson 110)*		P2	
938.	6338	*Astroloma tectum*			
939.	2457	*Atriplex exilifolia*			
940.	2471	*Atriplex prostrata (Hastate Orache)*	Y		
941.	2475	*Atriplex semibaccata (Berry Saltbush)*			
942.	17231	*Austrostipa acrociliata*			
943.	17236	*Austrostipa drummondii*			
944.	17240	*Austrostipa flavescens*			
945.	17241	*Austrostipa hemipogon*			
946.	17242	*Austrostipa juncifolia*			

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947.	17244	*Austrostipa macalpinei*			
948.	35317	*Austrostipa mundula*		P3	
949.	231	*Avellinia michelii*	Y		
950.	233	*Avena barbata (Bearded Oat)*	Y		
951.	234	*Avena fatua (Wild Oat)*	Y		
952.	5352	*Baeckea latens*			
953.	20674	*Baeckea sp. Esperance (A.G. Gunness AG 2435)*			
954.	20620	*Baeckea sp. Gibson (K.R. Newbey 11084)*		P1	
955.	5373	*Baeckea uncinella*			
956.	32681	*Banksia armata (Prickly Dryandra)*			
957.	32683	*Banksia armata var. ignicida*			
958.	1805	*Banksia blechnifolia*			
959.	32621	*Banksia cirsioides*			
960.	1832	*Banksia media (Southern Plains Banksia)*			
961.	32203	*Banksia nivea subsp. nivea*			
962.	1836	*Banksia nutans (Nodding Banksia)*			
963.	11360	*Banksia nutans var. nutans (Nodding Banksia)*			
964.	32198	*Banksia obovata (Wedge-leaved Dryandra)*			
965.	32197	*Banksia obtusa (Shining Honeypot)*			
966.	1837	*Banksia occidentalis (Red Swamp Banksia)*			
967.	1839	*Banksia petiolaris*			
968.	1840	*Banksia pilostylis*			
969.	32143	*Banksia prolata*			
970.	32145	*Banksia prolata subsp. calcicola*		P4	
971.	1843	*Banksia pulchella (Teasel Banksia)*			
972.	1845	*Banksia repens (Creeping Banksia)*			
973.	1850	*Banksia speciosa (Showy Banksia)*			
974.	32035	*Banksia tenuis*			
975.	32036	*Banksia tenuis var. tenuis*			
976.	1856	*Banksia violacea (Violet Banksia)*			
977.	32315	*Barbula calycina*			
978.	32320	*Barbula subcalycina*			
979.	741	*Baumea articulata (Jointed Rush)*			
980.	743	*Baumea juncea (Bare Twigrush)*			
981.	745	*Baumea preissii*			
982.	5383	*Beaufortia empetrifolia (South Coast Beaufortia)*			
983.	5388	*Beaufortia micrantha (Little Bottlebrush, Small-leaved Beaufortia)*			
984.	5391	*Beaufortia schaueri (Pink Beaufortia, Pink Bottlebrush)*			
985.	34262	*Beyeria physaphylla*		P1	
986.	34297	*Beyeria sulcata var. gracilis*			
987.	4601	*Beyeria viscosa (Pinkwood)*			
988.	3154	*Billardiera coriacea*			
989.	25798	*Billardiera fusiformis (Australian Bluebell)*			
990.	25796	*Billardiera heterophylla (Australian Bluebell)*			
991.	3160	*Billardiera lehmanniana (Kurup)*			
992.	7856	*Blennospora drummondii*			
993.	749	*Bolboschoenus caldwellii (Marsh Club-rush)*			
994.	4403	*Boronia alata (Winged Boronia)*			
995.	4404	*Boronia albiflora*			
996.	16627	*Boronia baeckeacea subsp. baeckeacea*			
997.	4409	*Boronia coerulescens*			
998.	4411	*Boronia crassifolia*			
999.	4416	*Boronia denticulata*			
1000.	4425	*Boronia inornata (Desert Boronia)*			
1001.	11381	*Boronia ramosa subsp. anethifolia*			
1002.	4441	*Boronia spathulata (Boronia)*			
1003.	4446	*Boronia tetrandra (Yellow Boronia)*			
1004.	1267	*Borya constricta*			
1005.	1271	*Borya nitida (Pincushions)*			
1006.	30234	*Bossiaea barbarae*			
1007.	3707	*Bossiaea dentata*			
1008.	3716	*Bossiaea preissii*			
1009.	3718	*Bossiaea rufa*			
1010.	26518	*Botryocladia sonderi*			
1011.	30138	*Brachyloma geissoloma*			
1012.	17922	*Brachyloma mogin*		P3	
1013.	7871	*Brachyscome ciliaris*			
1014.	7874	*Brachyscome eyrensis*			
1015.	11187	*Brassica barrelieri subsp. oxyrrhina (Smooth-stem Turnip)*	Y		
1016.	2999	*Brassica rapa*	Y		

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1017.	3000	*Brassica tournefortii (Mediterranean Turnip)*	Y		
1018.	2995	*Brassica x napus*	Y		
1019.	244	*Briza maxima (Blowfly Grass)*	Y		
1020.	245	*Briza minor (Shivery Grass)*	Y		
1021.	248	*Bromus catharticus (Prairie Grass)*	Y		
1022.	249	*Bromus diandrus (Great Brome)*	Y		
1023.	250	*Bromus hordeaceus (Soft Brome)*	Y		
1024.	26525	*Bryopsis plumosa*			
1025.	1277	*Caesia occidentalis*			
1026.	3001	*Cakile edentula (American Sea Rocket)*	Y		
1027.	3002	*Cakile maritima (Sea Rocket)*	Y		
1028.	13853	*Caladenia arrecta*			
1029.	1580	*Caladenia cairnsiana (Zebra Orchid)*			
1030.	15343	*Caladenia decora*			
1031.	15348	*Caladenia flava subsp. flava*			
1032.	1594	*Caladenia graminifolia*			
1033.	15353	*Caladenia heberleana*			
1034.	18023	*Caladenia horistes*			
1035.	1599	*Caladenia latifolia (Pink Fairy Orchid)*			
1036.	15362	*Caladenia longicauda subsp. crassa*			
1037.	13860	*Caladenia longicauda subsp. rigidula*			
1038.	1605	*Caladenia marginata (White Fairy Orchid)*			
1039.	15374	*Caladenia pachychila*			
1040.		*Caladenia sp.*			
1041.	1589	*Caladenia x ericksoniae*			
1042.	2845	*Calandrinia brevipedata (Short-stalked Purslane)*			
1043.	2846	*Calandrinia calyptrata (Pink Purslane)*			
1044.	2848	*Calandrinia corrigioloides (Strap Purslane)*			
1045.	48569	*Calandrinia sp. Gypsum (F. Obbens & L. Hancock FO 10/14)*			
1046.	16365	*Calandrinia sp. Kenwick (G.J. Keighery 10905)*			
1047.	40827	*Calandrinia tholiformis*			
1048.	10861	*Callistachys lanceolata (Wonnich)*			
1049.	93	*Callitris drummondii (Drummond's Cypress Pine)*			
1050.	96	*Callitris preissii (Rottnest Island Pine, Maro)*			
1051.	97	*Callitris roei (Roe's Cypress Pine)*			
1052.	26534	*Callophycus dorsifer*			
1053.		*Callophyllis lambertii*			
1054.	26538	*Callophyllis rangiferina*			
1055.	5407	*Calothamnus gibbosus*			
1056.	5409	*Calothamnus gracilis*			
1057.	35816	*Calothamnus quadrifidus subsp. quadrifidus*			
1058.	5449	*Calytrix decandra (Pink Starflower)*			
1059.	5450	*Calytrix depressa*			
1060.	48451	*Calytrix hirta*			
1061.	5465	*Calytrix leschenaultii*			
1062.	5483	*Calytrix tetragona (Common Fringe-myrtle)*			
1063.	3003	*Camelina sativa (False Flax)*	Y		
1064.	32461	*Campylopus bicolor var. bicolor*			
1065.	32338	*Campylopus introflexus*	Y		
1066.	43241	*Carex thecata*			
1067.	2796	*Carpobrotus modestus (Inland Pigface)*			
1068.	2798	*Carpobrotus virescens (Coastal Pigface, Kolboko, Bain)*			
1069.	26546	*Carpopeltis elata*			
1070.	26547	*Carpopeltis phyllophora*			
1071.	3008	*Carrichtera annua (Ward's Weed)*	Y		
1072.	2952	*Cassytha glabella (Tangled Dodder Laurel)*			
1073.	11211	*Cassytha glabella forma dispar*			
1074.	2957	*Cassytha racemosa (Dodder Laurel)*			
1075.	11242	*Cassytha racemosa forma pilosa*			
1076.	13685	*Catapodium rigidum (Rigid Fescue)*	Y		
1077.	26555	*Caulerpa brownii*			
1078.	26562	*Caulerpa fergusonii*			
1079.	26563	*Caulerpa flexilis*			
1080.	48455	*Caulerpa geminata*			
1081.	26564	*Caulerpa hedleyi*			
1082.	26570	*Caulerpa obscura*			
1083.	26571	*Caulerpa papillosa*			
1084.	26573	*Caulerpa racemosa*			
1085.	26574	*Caulerpa scalpelliformis*			
1086.	26583	*Caulerpa vesiculifera*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1087.	760	*Caustis dioica*			
1088.	7915	*Centaurea calcitrapa (Star Thistle)*	Y		
1089.	7916	*Centaurea melitensis (Maltese Cockspur, Malta Thistle)*	Y		
1090.	6539	*Centaurium erythraea (Common Centaury)*	Y		
1091.	6214	*Centella asiatica*			
1092.	35322	*Centranthus ruber subsp. ruber*	Y		
1093.	1121	*Centrolepis aristata (Pointed Centrolepis)*			
1094.	13122	*Centrolepis cephaloformis subsp. cephaloformis*			
1095.	1130	*Centrolepis humillima (Dwarf Centrolepis)*			
1096.	1134	*Centrolepis polygyna (Wiry Centrolepis)*			
1097.	13125	*Centrolepis strigosa subsp. strigosa*			
1098.	26599	*Ceramium puberulum*			
1099.	26604	*Ceramium tasmanicum*			
1100.	2889	*Cerastium glomeratum (Mouse Ear Chickweed)*	Y		
1101.	26607	*Chaetomorpha aerea*			
1102.	1280	*Chamaescilla corymbosa (Blue Squill)*			
1103.	11299	*Chamaescilla corymbosa var. corymbosa*			
1104.	1281	*Chamaescilla spiralis*			
1105.	5489	*Chamelaucium axillare (Esperance Waxflower)*			
1106.	5491	*Chamelaucium ciliatum*			
1107.	5495	*Chamelaucium megalopetalum (Large Waxflower)*			
1108.	26620	*Champia viridis*			Y
1109.	26621	*Champia zostericola*			
1110.	1513	*Chasmanthe floribunda (African Cornflag)*	Y		
1111.	31	*Cheilanthes austrotenuifolia*			
1112.	2490	*Chenopodium glaucum (Glaucous Goosefoot)*	Y		
1113.	2494	*Chenopodium murale (Nettle-leaf Goosefoot)*	Y		
1114.	26625	*Chiracanthia arborea*			
1115.	272	*Chloris virgata (Feathertop Rhodes Grass)*	Y		
1116.	7925	*Chondrilla juncea (Skeleton Weed)*	Y		
1117.	17689	*Chordifex laxus*			
1118.	17834	*Chordifex sphacelatus*			
1119.	763	*Chorizandra enodis (Black Bristlerush)*			
1120.	13112	*Chorizema aciculare subsp. aciculare*			
1121.	3758	*Chorizema ilicifolium (Holly Flame Pea)*			
1122.	3759	*Chorizema nervosum*			
1123.	13108	*Chorizema obtusifolium*			
1124.	3763	*Chorizema uncinatum*			
1125.	6543	*Cicendia filiformis (Slender Cicendia)*	Y		
1126.	7937	*Cirsium vulgare (Spear Thistle, Scotch Thistle)*	Y		
1127.	48668	*Cladophora subsimplex*			
1128.	26663	*Cladurus elatus*			
1129.	26664	*Claudea elegans*			
1130.	10804	*Clematis linearifolia*			
1131.	2929	*Clematis pubescens (Common Clematis)*			
1132.	26666	*Cliftonaea pectinata*			
1133.	26672	*Codium galeatum*			
1134.	26678	*Codium muelleri*			
1135.	26679	*Codium perriniae*			
1136.	26683	*Codium spongiosum*			
1137.	26685	*Coelarthrum cliftonii*			
1138.	26686	*Coelarthrum opuntia*			
1139.	6342	*Coleanthera coelophylla*		P1	
1140.	14664	*Comesperma calcicola*		P3	
1141.	4552	*Comesperma confertum*			
1142.	4553	*Comesperma drummondii (Drummond's Milkwort)*			
1143.	4554	*Comesperma flavum*			
1144.	14663	*Comesperma griffinii*		P2	
1145.	4555	*Comesperma integerrimum*			
1146.	4564	*Comesperma virgatum (Milkwort)*			
1147.	4566	*Comesperma volubile (Love Creeper)*			
1148.	48634	*Commersonia corniculata*			
1149.	40923	*Commersonia craurophylla (Brittle Leaved Rulingia)*			
1150.	40924	*Commersonia rotundifolia (Round-leaved Rulingia)*		P3	
1151.	1868	*Conospermum distichum*			
1152.	16349	*Conospermum leianthum subsp. leianthum*			
1153.	16350	*Conospermum leianthum subsp. orientale*			
1154.	14003	*Conospermum quadripetalum*		P2	
1155.	15611	*Conospermum stoechadis subsp. stoechadis (Common Smokebush)*			
1156.	1883	*Conospermum teretifolium (Spider Smokebush)*			

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1157.	6346	*Conostephium marchantiorum*		P3	
1158.	1424	*Conostylis bealiana*			
1159.	1426	*Conostylis breviscapa*			
1160.	1439	*Conostylis lepidospermoides (Sedge Conostylis)*		T	
1161.	1445	*Conostylis phathyrantha*			
1162.	11923	*Conostylis seorsiflora subsp. seorsiflora*			
1163.	1453	*Conostylis serrulata*			
1164.	5500	*Conothamnus aureus*			
1165.	7939	*Conyza bonariensis (Flaxleaf Fleabane)*	Y		
1166.		*Conyza sp.*			
1167.	20074	*Conyza sumatrensis*	Y		
1168.	7418	*Coopernookia polygalacea*			
1169.	7419	*Coopernookia strophiolata*			
1170.	2891	*Corrigiola litoralis (Strapwort)*	Y		
1171.	1624	*Corybas despectans*			
1172.	12012	*Corynotheca micrantha var. panda*			
1173.	7943	*Cotula australis (Common Cotula)*			
1174.	7944	*Cotula bipinnata (Ferny Cotula)*	Y		
1175.	7945	*Cotula coronopifolia (Waterbuttons)*	Y		
1176.	7946	*Cotula cotuloides (Smooth Cotula)*			
1177.	26701	*Craspedocarpus blepharicarpus*			
1178.	26704	*Craspedocarpus venosus*			
1179.	3136	*Crassula alata*	Y		
1180.	3137	*Crassula colorata (Dense Stonecrop)*			
1181.	11349	*Crassula decumbens var. decumbens*			
1182.	3139	*Crassula exserta*			
1183.	20271	*Crassula extrorsa*			
1184.	3142	*Crassula natans*	Y		
1185.	15706	*Crassula natans var. minus*	Y		
1186.	16188	*Cryptandra minutifolia subsp. brevistyla*			
1187.	9076	*Cryptandra myriantha*			
1188.	4809	*Cryptandra pungens*			
1189.	26709	*Cryptonemia undulata*			
1190.	48865	*Cucumis myriocarpus subsp. myriocarpus*	Y		
1191.	26712	*Curdiea obesa*			
1192.	20717	*Cyanicula aperta*			
1193.	15114	*Cyanicula gemmata*			
1194.	769	*Cyathochaeta clandestina*			
1195.	17618	*Cyathochaeta equitans*			
1196.	42220	*Cyathostemon ambiguus*			
1197.	43962	*Cyathostemon sp. Esperance (A. Fairall 2431)*		P1	
1198.	20422	*Cyathostemon tenuifolius*			
1199.	40661	*Cycnogeton lineare*			
1200.	283	*Cynodon dactylon (Couch)*	Y		
1201.	6680	*Cynoglossum australe (Australian Hound's-tongue)*			
1202.	783	*Cyperus congestus (Dense Flat-sedge)*	Y		
1203.	801	*Cyperus laevigatus*	Y		
1204.	815	*Cyperus tenellus (Tiny Flatsedge)*	Y		
1205.	2779	*Cypselocarpus haloragoides*			
1206.	10964	*Cyrtostylis robusta*			
1207.	10942	*Cyrtostylis tenuissima*			
1208.	287	*Dactylis glomerata (Cocksfoot)*	Y		
1209.	7431	*Dampiera decurrens*		P2	
1210.	7439	*Dampiera fasciculata (Bundled-leaf Dampiera)*			
1211.	7461	*Dampiera parvifolia (Many-bracted Dampiera)*			
1212.	7471	*Dampiera sacculata (Pouched Dampiera)*			
1213.	7474	*Dampiera sericantha*		P3	
1214.	7485	*Dampiera triloba*		P3	
1215.	5510	*Darwinia diosmoides*			
1216.	20451	*Darwinia sp. Gibson (R.D. Royce 3569)*		P1	
1217.	35618	*Darwinia sp. Karonie (K. Newbey 8503)*			
1218.	18574	*Darwinia sp. Ravensthorpe (G.J. Keighery 8030)*			
1219.	5533	*Darwinia vestita (Pom-pom Darwinia)*			
1220.	26734	*Dasya clavigera*			
1221.	26735	*Dasya cliftonii*			
1222.	26736	*Dasya crinita*			Y
1223.	26738	*Dasya elongata*			
1224.	26739	*Dasya extensa*			
1225.	26749	*Dasya villosa*			
1226.	6218	*Daucus glochidiatus (Australian Carrot)*			

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1227.	16736	*Daviesia apiculata*			
1228.	15507	*Daviesia incrassata subsp. reversifolia*			
1229.	3818	*Daviesia lancifolia*			
1230.	14892	*Daviesia major*			
1231.	3823	*Daviesia nematophylla*			
1232.	12817	*Daviesia pauciflora*		P3	
1233.	3844	*Daviesia teretifolia*			
1234.	26756	*Delisea hypneoides*			
1235.	26757	*Delisea pulchra*			
1236.	16595	*Desmocladus flexuosus*			
1237.	46362	*Desmocladus lateriflorus*			
1238.	299	*Deyeuxia quadriseta (Reed Bentgrass)*			
1239.	16326	*Dianella brevicaulis*			
1240.	6616	*Dichondra repens (Kidney Weed)*			
1241.	26761	*Dictyomenia harveyana*			
1242.	26762	*Dictyomenia sonderi*			
1243.	26770	*Dictyosphaeria sericea*			
1244.	32346	*Didymodon torquatus*			
1245.	38260	*Dielsiodoxa oligarrhenoides*			
1246.	3864	*Dillwynia divaricata*			
1247.	3866	*Dillwynia uncinata (Silky Parrot Pea)*			
1248.	3012	*Diplotaxis tenuifolia (Sand Rocket)*	Y		
1249.	3867	*Dipogon lignosus (Dolichos Pea)*	Y		
1250.	19649	*Disa bracteata*	Y		
1251.	7054	*Dischisma arenarium*	Y		
1252.	11681	*Disphyma crassifolium subsp. clavellatum*			
1253.	7961	*Dittrichia graveolens (Stinkwort)*	Y		
1254.	12942	*Diuris concinna*			
1255.	12941	*Diuris conspicillata*			Y
1256.	42231	*Diuris decrementa*			
1257.	33159	*Diuris immaculata*			Y
1258.	1634	*Diuris laxiflora (Bee Orchid)*			
1259.	46873	*Diuris littoralis*			
1260.	12937	*Diuris pulchella*			
1261.	4756	*Dodonaea caespitosa*			
1262.	4757	*Dodonaea ceratocarpa*			
1263.	26795	*Doxodasya bolbochaete*			
1264.	26796	*Doxodasya lanuginosa*			
1265.	1640	*Drakaea glyptodon (King-in-his-carriage)*			
1266.	48726	*Drosera australis*			
1267.	48751	*Drosera drummondii*			
1268.	3098	*Drosera glanduligera (Pimpernel Sundew)*			
1269.	3102	*Drosera huegelii (Bold Sundew)*			
1270.	3105	*Drosera leucoblasta (Wheel Sundew)*			
1271.	3109	*Drosera menziesii (Pink Rainbow)*			
1272.	3113	*Drosera neesii (Jewel Rainbow)*			
1273.	3114	*Drosera nitidula (Shining Sundew)*			
1274.	3128	*Drosera ramellosa (Branched Sundew)*			
1275.	13227	*Drosera sargentii*			Y
1276.	3130	*Drosera scorpioides (Shaggy Sundew)*			
1277.	49090	*Drosera sp. Branched styles (S.C. Coffey 193)*			
1278.	48708	*Drosera trichocaulis*			
1279.	3135	*Drosera zonaria (Painted Sundew)*			
1280.	33501	*Dysphania cristata (Crested Goosefoot)*			
1281.	33480	*Dysphania pumilio (Clammy Goosefoot)*			
1282.	32351	*Eccremidium pulchellum*			
1283.	26803	*Echinothamnion hystrix*			
1284.	347	*Ehrharta calycina (Perennial Veldt Grass)*	Y		
1285.	349	*Ehrharta longiflora (Annual Veldt Grass)*	Y		
1286.		*Ehrharta sp.*			
1287.	822	*Eleocharis acuta (Common Spikerush)*			
1288.	831	*Eleocharis sphacelata (Tall Spikerush, Djabren)*			
1289.	1643	*Elythranthera brunonis (Purple Enamel Orchid)*			
1290.	1644	*Elythranthera emarginata (Pink Enamel Orchid)*			
1291.	1645	*Epiblema grandiflorum (Babe-in-a-cradle)*			
1292.	11570	*Epilobium billardiereanum subsp. billardiereanum (Smooth Willow Herb)*			
1293.	374	*Eragrostis cilianensis (Stinkgrass)*	Y		
1294.	376	*Eragrostis curvula (African Lovegrass)*	Y		
1295.	7180	*Eremophila alternifolia (Poverty Bush)*			
1296.	7264	*Eremophila saligna (Willowy Eremophila)*			

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1297.	14633	*Eremophila subfloccosa subsp. glandulosa*			
1298.	1646	*Eriochilus dilatatus (White Bunny Orchid)*			
1299.	15413	*Eriochilus dilatatus subsp. undulatus*			
1300.	13866	*Eriochilus pulchellus*			
1301.	4333	*Erodium cicutarium (Common Storksbill)*	Y		
1302.	4336	*Erodium moschatum (Musky Crowfoot)*	Y		
1303.	26821	*Erythroclonium muelleri*			
1304.	26823	*Erythroclonium sonderi*			
1305.	5550	*Eucalyptus angulosa (Ridge-fruited Mallee, Kwararl)*			
1306.	19508	*Eucalyptus calycogona subsp. calycogona*			
1307.	13518	*Eucalyptus captiosa*			
1308.	5597	*Eucalyptus conferruminata (Bald Island Marlock)*			
1309.	33520	*Eucalyptus conferruminata subsp. recherche*			
1310.	20292	*Eucalyptus conglobata subsp. conglobata*			
1311.	20293	*Eucalyptus conglobata subsp. perata*			
1312.	5604	*Eucalyptus cooperiana (Many-flowered Mallee, Merrit)*			
1313.	5605	*Eucalyptus cornuta (Yate, Yeid)*			
1314.	5611	*Eucalyptus cylindriflora (White Mallee)*			
1315.	5616	*Eucalyptus decurva (Slender Mallee)*			
1316.	12870	*Eucalyptus densa*			
1317.	12869	*Eucalyptus densa subsp. densa*			
1318.	13517	*Eucalyptus dolichorhyncha*		P4	
1319.	5627	*Eucalyptus doratoxylon (Spearwood Mallee, Keidjngund)*			
1320.	5637	*Eucalyptus eremophila (Tall Sand Mallee)*			
1321.	12377	*Eucalyptus extensa*			
1322.	16043	*Eucalyptus famelica*		P3	
1323.	5648	*Eucalyptus flocktoniae (Merrit, Merid)*			
1324.	13022	*Eucalyptus foliosa*		P3	
1325.	5652	*Eucalyptus forrestiana (Fuchsia Gum)*			
1326.	14277	*Eucalyptus fraseri subsp. fraseri*			
1327.	18216	*Eucalyptus globulus*	Y		
1328.	5659	*Eucalyptus gomphocephala (Tuart, Duart)*			
1329.	5675	*Eucalyptus incrassata (Lerp Mallee)*			
1330.	14299	*Eucalyptus kessellii*			
1331.	13065	*Eucalyptus kessellii subsp. eugnosta*			
1332.	5695	*Eucalyptus leptocalyx (Hopetoun Mallee)*			
1333.	19811	*Eucalyptus leptocalyx subsp. leptocalyx*			
1334.	12696	*Eucalyptus litorea*		P2	
1335.	5704	*Eucalyptus macrandra (Long-flowered Marlock, Dwed)*			
1336.	5712	*Eucalyptus merrickiae (Goblet Mallee)*		T	
1337.	5713	*Eucalyptus micranthera (Alexander River Mallee)*			
1338.	13023	*Eucalyptus misella*		P1	
1339.	5723	*Eucalyptus occidentalis (Flat-topped Yate, Moidj)*			
1340.	5745	*Eucalyptus pileata (Capped Mallee)*			
1341.	18551	*Eucalyptus platypus subsp. platypus*			
1342.	16180	*Eucalyptus pleurocarpa*			
1343.	15068	*Eucalyptus preissiana subsp. lobata*		P4	
1344.	13525	*Eucalyptus quadrans*			
1345.	12694	*Eucalyptus rigens (Saltlake Mallee)*			
1346.	5767	*Eucalyptus salubris (Gimlet)*			
1347.	10834	*Eucalyptus scyphocalyx (Goblet Mallee)*			
1348.	13014	*Eucalyptus semiglobosa*		P3	
1349.		*Eucalyptus sp.*			
1350.	41523	*Eucalyptus sp. Southern Wheatbelt (D. Nicolle & M. French DN 5507)*			
1351.	14189	*Eucalyptus sporadica*			
1352.	13030	*Eucalyptus suggrandis subsp. suggrandis*			
1353.	13027	*Eucalyptus tenera*			
1354.	5788	*Eucalyptus tetraptera (Four-winged Mallee)*			
1355.	12889	*Eucalyptus tumida*			
1356.	5796	*Eucalyptus uncinata (Hook-leaved Mallee)*			
1357.	18085	*Eucalyptus utilis*			
1358.	15808	*Eucalyptus valens*			
1359.	12864	*Eucalyptus varia*			
1360.	12862	*Eucalyptus varia subsp. salsuginosa*			
1361.	12863	*Eucalyptus varia subsp. varia*			
1362.	8587	*Eucalyptus x erythrandra*			
1363.	19661	*Eucalyptus x missilis*		P4	
1364.	15137	*Euchiton sphaericus*			
1365.	4636	*Euphorbia paralias (Sea Spurge)*	Y		
1366.	4638	*Euphorbia peplus (Petty Spurge)*	Y		

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1367.	4643	*Euphorbia segetalis (Shortstemmed Carnation Weed)*	Y		Y
1368.	4648	*Euphorbia terracina (Geraldton Carnation Weed)*	Y		
1369.	11271	*Euphrasia collina subsp. tetragona*			
1370.	26830	*Euptilota articulata*			
1371.	37740	*Eutaxia inuncta*			
1372.	20214	*Eutaxia myrtifolia*			
1373.	3879	*Eutaxia parvifolia*			
1374.	10765	*Exocarpos sparteus (Broom Ballart, Djuk)*			
1375.	20162	*Fabronia hampeana*		P2	
1376.	8850	*Fallopia convolvulus*	Y		
1377.	20216	*Ficinia nodosa (Knotted Club Rush)*			
1378.	5209	*Frankenia pauciflora (Seaheath)*			
1379.	5213	*Frankenia tetrapetala (Four Petaled Frankenia)*			
1380.	1944	*Franklandia fucifolia (Lanoline Bush)*			
1381.	899	*Gahnia ancistrophylla (Hooked-leaf Saw Sedge)*			
1382.	16249	*Gahnia sp. Headland (G.J. Keighery 8501)*			
1383.	43205	*Gahnia sp. South West (K.L. Wilson & K. Frank KLW 9266)*			
1384.	907	*Gahnia trifida (Coast Saw-sedge)*			
1385.	7323	*Galium murale (Small Goosegrass)*	Y		
1386.	3891	*Gastrolobium bilobum (Heart Leaf Poison)*			
1387.	19702	*Gastrolobium discolor*			
1388.	11044	*Gastrolobium heterophyllum*			
1389.	20453	*Gastrolobium latifolium*			
1390.	19725	*Gastrolobium musaceum*			
1391.	10981	*Gastrolobium parviflorum*			
1392.	20487	*Gastrolobium punctatum*			
1393.	3924	*Gastrolobium spinosum (Prickly Poison)*			
1394.	16311	*Gazania linearis*	Y		
1395.	26850	*Gelinaria ulvoidea*			
1396.	4341	*Geranium solanderi (Native Geranium)*			
1397.	1518	*Gladiolus angustus (Long Tubed Painted Lady)*	Y		
1398.	33620	*Glischrocaryon angustifolium*			
1399.	6143	*Glischrocaryon aureum (Common Popflower)*			
1400.	6145	*Glischrocaryon roei*			
1401.	26859	*Gloiocladia australe*			
1402.	26860	*Gloiocladia halymenioides*			
1403.	26864	*Gloiosaccion brownii*			
1404.	7983	*Gnaphalium indutum (Tiny Cudweed)*			
1405.	7991	*Gnephosis drummondii*			
1406.	8003	*Gnephosis tridens*			
1407.	6587	*Gomphocarpus fruticosus (Narrowleaf Cottonbush)*	Y		
1408.	3946	*Gompholobium baxteri*			
1409.	10909	*Gompholobium confertum*			
1410.	3950	*Gompholobium knightianum*			
1411.	3951	*Gompholobium marginatum*			
1412.	3954	*Gompholobium polymorphum*			
1413.	11083	*Gompholobium scabrum*			
1414.	3957	*Gompholobium tomentosum (Hairy Yellow Pea)*			
1415.	6163	*Gonocarpus pycnostachyus*		P3	
1416.	6165	*Gonocarpus scordioides*			
1417.	7488	*Goodenia affinis (Silver Goodenia)*			
1418.	7499	*Goodenia concinna (Elegant Goodenia)*			
1419.	7503	*Goodenia decursiva*			
1420.	7517	*Goodenia incana (Hoary Goodenia)*			
1421.	12551	*Goodenia micrantha*			
1422.	7537	*Goodenia pterigosperma*			
1423.	7542	*Goodenia quadrilocularis*		P2	
1424.	19051	*Goodenia scapigera subsp. scapigera*			
1425.	7562	*Goodenia viscida (Viscid Goodenia)*			
1426.	26868	*Gracilaria cliftonii*			
1427.	1961	*Grevillea baxteri (Cape Arid Grevillea)*		P4	
1428.	1991	*Grevillea disjuncta*			
1429.	2018	*Grevillea huegelii*			
1430.	2053	*Grevillea oligantha*			
1431.	2061	*Grevillea pectinata (Comb-leaved Grevillea)*			
1432.	19491	*Grevillea plurijuga subsp. superba*			
1433.	26879	*Griffithsia balara*			Y
1434.	26883	*Griffithsia monilis*			
1435.	26886	*Griffithsia teges*			
1436.	32386	*Grimmia laevigata*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1437.	5011	*Guichenotia ledifolia*			
1438.	5013	*Guichenotia micrantha (Small Flowered Guichenotia)*			
1439.	2804	*Gunniopsis glabra*			
1440.	2787	*Gyrostemon sheathii*			
1441.	1464	*Haemodorum brevisepalum*			
1442.	1475	*Haemodorum spicatum (Mardja)*			
1443.	2126	*Hakea adnata*			
1444.	2139	*Hakea cinerea (Ashy Hakea)*			
1445.	2141	*Hakea clavata (Coastal Hakea)*			
1446.	2145	*Hakea corymbosa (Cauliflower Hakea)*			
1447.	12226	*Hakea denticulata*			
1448.	12227	*Hakea drupacea*			
1449.	2160	*Hakea ferruginea*			
1450.	2171	*Hakea laurina (Pincushion Hakea, Kodjet)*			
1451.	2175	*Hakea lissocarpha (Honey Bush)*			
1452.	2187	*Hakea nitida (Frog Hakea)*			
1453.	2188	*Hakea obliqua (Needles and Corks)*			
1454.	13335	*Hakea obliqua subsp. obliqua*			
1455.	2193	*Hakea pandanicarpa*			
1456.	16910	*Hakea pandanicarpa subsp. pandanicarpa*			
1457.	2197	*Hakea prostrata (Harsh Hakea)*			
1458.	2203	*Hakea ruscifolia (Candle Hakea)*			
1459.	2212	*Hakea sulcata (Furrowed Hakea)*			
1460.	2214	*Hakea trifurcata (Two-leaf Hakea)*			
1461.	2216	*Hakea varia (Variable-leaved Hakea)*			
1462.	2218	*Hakea victoria (Royal Hakea, Dalyongurd)*			
1463.	6684	*Halgania andromedifolia*			
1464.	161	*Halophila australis*			
1465.	26900	*Haloplegma preissii*			
1466.	6171	*Haloragis digyna*			
1467.	26903	*Halydictyon arachnoideum*			
1468.	48666	*Halymenia harveyana*			
1469.	8008	*Helianthus annuus (Sunflower, Common Sunflower)*	Y		
1470.	3016	*Heliophila pusilla*	Y		
1471.	6707	*Heliotropium curassavicum (Smooth Heliotrope)*			
1472.	6710	*Heliotropium europaeum (Common Heliotrope)*	Y		
1473.	26913	*Helminthora australis*			
1474.	439	*Hemarthria uncinata (Matgrass)*			
1475.	11451	*Hemarthria uncinata var. uncinata*			
1476.	2689	*Hemichroa pentandra (Trailing Jointweed)*			
1477.	26915	*Hennedya crispa*			
1478.	26933	*Heterosiphonia gunniana*			
1479.	26936	*Heterosiphonia muelleri*			
1480.	26938	*Heterosiphonia wrangelioides*			
1481.	5108	*Hibbertia acerosa (Needle Leaved Guinea Flower)*			
1482.	5110	*Hibbertia andrewsiana*			
1483.	5117	*Hibbertia cuneiformis (Cutleaf Hibbertia)*			
1484.	5122	*Hibbertia eatoniae*			
1485.	5131	*Hibbertia gracilipes*			
1486.	20059	*Hibbertia hemignosta*			
1487.	20049	*Hibbertia hibbertioides var. meridionalis*			
1488.	5143	*Hibbertia lineata*			
1489.	20417	*Hibbertia oligantha*			
1490.	20349	*Hibbertia psilocarpa*			
1491.	5162	*Hibbertia racemosa (Stalked Guinea Flower)*			
1492.		*Hibbertia sp.*			
1493.	5173	*Hibbertia subvaginata*			
1494.	20036	*Hibbertia turleyana*		P2	Y
1495.	19433	*Hibbertia ulicifolia*			
1496.	13773	*Hopkinsia adscendens*		P3	
1497.	449	*Hordeum leporinum (Barley Grass)*	Y		
1498.	3966	*Hovea pungens (Devil's Pins, Puyenak)*			
1499.	3968	*Hovea trisperma (Common Hovea)*			
1500.	12742	*Hyalosperma demissum*			
1501.	6223	*Hydrocotyle alata*			
1502.	6234	*Hydrocotyle medicaginoides (Trefoil Pennywort)*			
1503.	26959	*Hymenena multipartita*			
1504.	26962	*Hymenocladia dactyloides*			
1505.	26965	*Hymenocladia usnea*			
1506.	452	*Hyparrhenia hirta (Tambookie Grass)*	Y		

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1507.	26971	*Hypnea ramentacea*			
1508.	26973	*Hypnea valentiae*			
1509.	5827	*Hypocalymma strictum*			
1510.	8086	*Hypochaeris glabra (Smooth Catsear)*	Y		
1511.	9352	*Hypochaeris radicata (Flat Weed, Cats-ear)*	Y		
1512.	1070	*Hypolaena exsulca*			
1513.	1071	*Hypolaena fastigiata*			
1514.	17844	*Hypolaena humilis*			
1515.	910	*Isolepis cernua (Nodding Club-rush)*			
1516.	912	*Isolepis cyperoides*			
1517.	917	*Isolepis marginata (Coarse Club-rush)*			
1518.	2220	*Isopogon alcicornis (Elkhorn Coneflower)*		P3	
1519.	16880	*Isopogon formosus subsp. formosus*			
1520.	2234	*Isopogon polycephalus (Clustered Coneflower)*			
1521.	2240	*Isopogon trilobus (Barrel Coneflower)*			
1522.	7399	*Isotoma scapigera (Long-scaped Isotome)*			
1523.	3992	*Isotropis cuneifolia (Granny Bonnets)*			
1524.	3993	*Isotropis drummondii (Lamb Poison)*			
1525.	8092	*Ixiolaena viscosa (Sticky Ixiolaena)*			
1526.	3997	*Jacksonia alata*			
1527.	4002	*Jacksonia capitata*			
1528.	4005	*Jacksonia condensata*			
1529.	4028	*Jacksonia spinosa*			
1530.	14741	*Jacksonia venosa*			
1531.	14777	*Jacksonia viscosa*			
1532.	36141	*Jania pulchella*			
1533.	1295	*Johnsonia acaulis*			
1534.	1175	*Juncus acutus (Spiny Rush)*	Y		
1535.	20454	*Juncus acutus subsp. acutus*	Y		
1536.	1178	*Juncus bufonius (Toad Rush)*	Y		
1537.	1179	*Juncus caespiticius (Grassy Rush)*			
1538.	1180	*Juncus capitatus (Capitate Rush)*	Y		
1539.	11922	*Juncus kraussii subsp. australiensis*			
1540.	1188	*Juncus pallidus (Pale Rush)*			
1541.	1194	*Juncus radula*			
1542.	4035	*Kennedia beckxiana (Cape Arid Kennedia)*		P4	
1543.	4037	*Kennedia coccinea (Coral Vine)*			
1544.	37961	*Kennedia coccinea subsp. esotera*			
1545.	4042	*Kennedia nigricans (Black Kennedia)*			
1546.	4044	*Kennedia prostrata (Scarlet Runner)*			
1547.	42680	*Kennedia sp. South coast (T.R. Lally 1576 & I.P. Lally)*			
1548.	26995	*Kuetzingia canaliculata*			
1549.	5830	*Kunzea affinis*			
1550.	5831	*Kunzea baxteri (Baxter's Kunzea)*			
1551.	5839	*Kunzea preissiana*			
1552.	38222	*Kunzea salina*		P3	
1553.	11528	*Labichea lanceolata subsp. brevifolia*			
1554.	467	*Lagurus ovatus (Hare's Tail Grass)*	Y		
1555.	13647	*Lambertia echinata subsp. echinata*		T	
1556.	2248	*Lambertia inermis (Chittick, Djidiok)*			
1557.	16870	*Lambertia inermis var. drummondii*			
1558.	16871	*Lambertia inermis var. inermis*			
1559.	5030	*Lasiopetalum discolor*			
1560.	5035	*Lasiopetalum indutum*			
1561.	5047	*Lasiopetalum rosmarinifolium*			
1562.	35642	*Lasiopetalum sp. Mt Ragged (T.E.H. Aplin 4349)*			
1563.	26997	*Laurencia arbuscula*			
1564.	26998	*Laurencia brongniartii*			
1565.	48408	*Laurencia dendroidea*			
1566.	27000	*Laurencia elata*			
1567.	27001	*Laurencia filiformis*			
1568.	27002	*Laurencia forsteri*			
1569.	4954	*Lawrencia diffusa*			
1570.	4958	*Lawrencia spicata*			
1571.	4959	*Lawrencia squamata*			
1572.	1301	*Laxmannia brachyphylla (Stilted Paper-lily)*			
1573.	1304	*Laxmannia minor*			
1574.	1305	*Laxmannia omnifertilis*			
1575.	1307	*Laxmannia ramosa (Branching Lily)*			
1576.	12029	*Laxmannia ramosa subsp. deflexa*			

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1577.	7575	*Lechenaultia formosa (Red Leschenaultia)*			
1578.	7590	*Lechenaultia tubiflora (Heath Leschenaultia)*			
1579.	1051	*Lemna disperma (Duckweed)*			
1580.	27011	*Lenormandia latifolia*			
1581.	35864	*Lenormandia muelleri*			
1582.	27013	*Lenormandia spectabilis*			
1583.	8099	*Leontodon saxatilis (Hairy Hawkbit)*	Y		
1584.	3018	*Lepidium africanum (Rubble Peppercress)*	Y		
1585.	3021	*Lepidium bonariense (Peppercress)*	Y		
1586.	3026	*Lepidium fasciculatum (Bundled Peppercress)*		P3	
1587.	3027	*Lepidium foliosum (Leafy Peppercress)*			
1588.	3044	*Lepidium rotundum (Veined Peppercress)*			
1589.	1073	*Lepidobolus chaetocephalus (Bristle-headed Chaff Rush)*			
1590.	1075	*Lepidobolus preissianus*			
1591.	933	*Lepidosperma gladiatum (Coast Sword-sedge, Kerbin)*			
1592.	936	*Lepidosperma leptostachyum*			
1593.	939	*Lepidosperma pruinosum*			
1594.		*Lepidosperma sp.*			
1595.	945	*Lepidosperma squamatum*			
1596.	947	*Lepidosperma tenue*			
1597.	949	*Lepidosperma tuberculatum*			
1598.	1653	*Leporella fimbriata (Hare Orchid)*			
1599.	1078	*Leptocarpus coangustatus*			
1600.	46381	*Leptocarpus crebriculmis*			
1601.	2349	*Leptomeria pachyclada*			
1602.	2350	*Leptomeria pauciflora (Sparse-flowered Currant Bush)*			
1603.	5849	*Leptospermum incanum*			
1604.	5850	*Leptospermum laevigatum (Coast Teatree)*	Y		
1605.	5851	*Leptospermum maxwellii*			
1606.	5853	*Leptospermum oligandrum*			
1607.	5856	*Leptospermum sericeum (Silver Teatree)*			
1608.	5857	*Leptospermum spinescens*			
1609.	1088	*Lepyrodia macra (Large Scale Rush)*			
1610.	16449	*Leucophyta brownii*			
1611.	6357	*Leucopogon apiculatus*		P3	
1612.	6358	*Leucopogon assimilis*			
1613.	6368	*Leucopogon carinatus*			
1614.	6373	*Leucopogon concinnus*			
1615.	6374	*Leucopogon conostephioides*			
1616.	44222	*Leucopogon corymbiformis*		P2	
1617.	6383	*Leucopogon cuneifolius*			
1618.	6386	*Leucopogon dielsianus*			
1619.	6406	*Leucopogon interruptus*		P3	
1620.	40940	*Leucopogon obovatus subsp. obovatus*			
1621.	6419	*Leucopogon obtusatus*			
1622.	6427	*Leucopogon parviflorus (Coast Beard-heath)*			
1623.	6442	*Leucopogon rotundifolius*		P3	
1624.	14637	*Leucopogon sp. Coujinup (M.A. Burgman 1085)*			
1625.	41769	*Leucopogon sp. Lake Magenta (K.R. Newbey 3387)*		P1	
1626.	14205	*Leucopogon sp. Mount Heywood (M.A. Burgman 1211)*			
1627.	34163	*Leucopogon sp. Newdegate (M. Hislop 3585)*			
1628.	6455	*Leucopogon woodsii (Nodding Beard-heath)*			
1629.	7670	*Levenhookia dubia (Hairy Stylewort)*			
1630.	7673	*Levenhookia pauciflora (Deceptive Stylewort)*			
1631.	7676	*Levenhookia pusilla (Midget Stylewort)*			
1632.	27023	*Liagora harveyana*			
1633.	4362	*Linum marginale (Wild Flax)*			
1634.	20647	*Lissanthe rubicunda*			
1635.	9289	*Lobelia anceps (Angled Lobelia)*			
1636.	36862	*Lobelia archeri*		P1	Y
1637.	7402	*Lobelia gibbosa (Tall Lobelia)*			
1638.	7403	*Lobelia heterophylla (Wing-seeded Lobelia)*			
1639.	7405	*Lobelia rarifolia*			
1640.	3048	*Lobularia maritima (Sweet Alyssum)*	Y		
1641.	6504	*Logania buxifolia*			
1642.	6507	*Logania fasciculata*			
1643.	6509	*Logania micrantha*			
1644.	13129	*Logania perryana*			
1645.	6513	*Logania stenophylla*			
1646.	6515	*Logania vaginalis (White Spray)*			

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1647.	8682	*Lolium loliaceum (Stiff Ryegrass)*	Y		
1648.	478	*Lolium rigidum (Wimmera Ryegrass)*	Y		
1649.		*Lolium sp.*			
1650.	11384	*Lolium temulentum forma temulentum*	Y		
1651.	1224	*Lomandra collina (Pale Mat Rush)*			
1652.	1227	*Lomandra hastilis*			
1653.	14543	*Lomandra micrantha subsp. teretifolia*			
1654.	1233	*Lomandra mucronata*			
1655.	1234	*Lomandra nigricans*			
1656.	1241	*Lomandra rigida (Stiff Mat Rush)*			
1657.	15835	*Loxocarya striata*			
1658.	6968	*Lycium ferocissimum (African Boxthorn)*	Y		
1659.	1097	*Lyginia barbata*			
1660.	18049	*Lyginia imberbis*			
1661.	36375	*Lysimachia arvensis (Pimpernel)*	Y		
1662.	6456	*Lysinema ciliatum (Curry Flower)*			
1663.	34736	*Lysinema pentapetalum*			
1664.	5281	*Lythrum hyssopifolia (Lesser Loosestrife)*	Y		
1665.	2838	*Macarthuria apetala*			
1666.	27053	*Macrothamnion pellucidum*			
1667.	14366	*Macrozamia dyeri*			
1668.	2542	*Maireana erioclada*			
1669.	2553	*Maireana oppositifolia*			
1670.	36480	*Malva arborea (Tree Mallow)*	Y		
1671.	4961	*Malva parviflora (Marshmallow)*	Y		
1672.	19421	*Marianthus bicolor (Painted Marianthus)*			
1673.		*Marsilea sp.*			
1674.	4076	*Medicago lupulina (Black Medic)*	Y		
1675.	4079	*Medicago polymorpha (Burr Medic)*	Y		
1676.	4080	*Medicago sativa (Alfalfa)*	Y		
1677.	4083	*Medicago truncatula (Barrel Medic)*	Y		
1678.	5881	*Melaleuca brevifolia*			
1679.	5885	*Melaleuca calycina*			
1680.	5900	*Melaleuca cuticularis (Saltwater Paperbark)*			
1681.	15693	*Melaleuca dempta*		P3	
1682.	5909	*Melaleuca elliptica (Granite Bottlebrush, Ngow)*			
1683.	15603	*Melaleuca fulgens subsp. fulgens*			
1684.	5913	*Melaleuca glaberrima*			
1685.	5918	*Melaleuca haplantha*			
1686.	13272	*Melaleuca incana subsp. tenella*			
1687.	5922	*Melaleuca lanceolata (Rottnest Teatree, Moonah)*			
1688.	5948	*Melaleuca pentagona*			
1689.	11686	*Melaleuca pentagona var. latifolia*			
1690.	15993	*Melaleuca pentagona var. pentagona*			
1691.	19609	*Melaleuca plumea*			
1692.	5955	*Melaleuca pulchella (Claw Flower)*			
1693.	5961	*Melaleuca scabra (Rough Honeymyrtle, Wurru Bush)*			
1694.	18165	*Melaleuca societatis*			
1695.	5971	*Melaleuca striata*			
1696.	5973	*Melaleuca suberosa (Corky Honeymyrtle)*			
1697.	19399	*Melaleuca thapsina*			
1698.	5980	*Melaleuca thymoides*			
1699.	5982	*Melaleuca torquata*			
1700.	18126	*Melaleuca tuberculata var. macrophylla*			
1701.	5985	*Melaleuca undulata (Hidden Honey-myrtle)*			
1702.	5987	*Melaleuca viminea (Mohan)*			
1703.	15876	*Melaleuca viminea subsp. demissa*			
1704.	4084	*Melilotus albus*	Y		
1705.	4085	*Melilotus indicus*	Y		
1706.	6883	*Mentha pulegium (Pennyroyal)*	Y		
1707.	2813	*Mesembryanthemum crystallinum (Iceplant)*	Y		
1708.	956	*Mesomelaena stygia*			
1709.	11473	*Mesomelaena stygia subsp. stygia*			
1710.	957	*Mesomelaena tetragona (Semaphore Sedge)*			
1711.	27069	*Metagoniolithon stelliferum*			
1712.	27070	*Metamastophora flabellata*			
1713.	6887	*Microcorys barbata*			
1714.	6893	*Microcorys glabra*			
1715.	6902	*Microcorys subcanescens*			
1716.	13785	*Microcybe pauciflora subsp. pauciflora*			

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1717.	5993	*Micromyrtus elobata*			
1718.	20543	*Micromyrtus elobata subsp. elobata*			
1719.	5998	*Micromyrtus imbricata*			
1720.	34158	*Microtis alboviridis*			
1721.	1658	*Microtis atrata (Swamp Mignonette Orchid)*			
1722.	8814	*Microtis brownii*			
1723.	12199	*Microtis familiaris*			
1724.	10954	*Microtis media (Tall Mignonette Orchid)*			
1725.	15419	*Microtis media subsp. media*			
1726.	1660	*Microtis orbicularis (Dark Mignonette Orchid)*			
1727.	8106	*Millotia tenuifolia (Soft Millotia)*			
1728.	14344	*Millotia tenuifolia var. tenuifolia (Soft Millotia)*			
1729.	4090	*Mirbelia dilatata (Holly-leaved Mirbelia)*			
1730.	4096	*Mirbelia ovata*			
1731.	29418	*Monoculus monstrosus*	Y		
1732.	4667	*Monotaxis paxii*			
1733.	19179	*Moraea flaccida (One-leaf Cape Tulip)*	Y		
1734.	2412	*Muehlenbeckia adpressa (Climbing Lignum)*			
1735.	27077	*Mychodea aciculare*			
1736.	27079	*Mychodea carnosa*			
1737.	27080	*Mychodea disticha*			
1738.	7291	*Myoporum insulare (Blueberry Tree, boobialla)*			
1739.	7295	*Myoporum tetrandrum (Boobialla)*			
1740.	6722	*Myosotis australis (Southern Forget-me-not)*		P4	
1741.	27095	*Myriogramme gunniana*			
1742.	6196	*Myriophyllum muelleri (Hooded Water Milfoil)*		P1	
1743.	6464	*Needhamiella pumilio*			
1744.	4492	*Nematolepis phebalioides*			
1745.	492	*Neurachne alopecuroidea (Foxtail Mulga Grass)*			
1746.	4366	*Nitraria billardierei (Nitre Bush)*			
1747.	2401	*Nuytsia floribunda (Christmas Tree, Mudja)*			
1748.	6138	*Oenothera drummondii (Beach Evening Primrose)*	Y		
1749.	14292	*Oenothera stricta subsp. stricta*	Y		
1750.	2365	*Olax benthamiana*			
1751.	2366	*Olax phyllanthi*			
1752.	8127	*Olearia axillaris (Coastal Daisybush)*			
1753.	8137	*Olearia imbricata (Imbricate Daisy Bush)*			
1754.	44401	*Olearia sp. Eremicola (Diels & Pritzel s.n. PERTH 00449628)*			
1755.	6465	*Oligarrhena micrantha*			
1756.	20661	*Oncosiphon suffruticosum (Calomba Daisy)*	Y		
1757.	7348	*Opercularia hispidula (Hispid Stinkweed)*			
1758.	18256	*Opercularia spermacocea*			
1759.	18255	*Opercularia vaginata (Dog Weed)*			
1760.	46217	*Orianthera callosa*			
1761.	46255	*Orianthera campanulata*			
1762.	46316	*Orianthera serpyllifolia subsp. angustifolia*			
1763.	36181	*Ornduffia parnassifolia*			
1764.	4113	*Ornithopus compressus (Yellow Serradella)*	Y		
1765.	4115	*Ornithopus sativus (French Serradella)*	Y		
1766.	7122	*Orobanche minor (Lesser Broomrape)*	Y		
1767.	1539	*Orthrosanthus multiflorus (Morning Iris)*			
1768.	27107	*Osmundaria prolifera*			
1769.	27108	*Osmundaria spiralis*			
1770.	30375	*Oxalis exilis*			
1771.	4355	*Oxalis perennans*			
1772.	34841	*Oxymyrrhine gracilis*			
1773.	12645	*Ozothamnus lepidophyllus*			
1774.	502	*Panicum capillare (Witchgrass)*	Y		
1775.	2964	*Papaver hybridum (Rough Poppy)*	Y		
1776.	1667	*Paracaleana nigrita (Flying Duck Orchid)*			
1777.	23499	*Paracaleana parvula*		P2	
1778.	516	*Parapholis incurva (Coast Barbgrass)*	Y		
1779.	17114	*Paraserianthes lophantha subsp. lophantha*			
1780.	1762	*Parietaria debilis (Pellitory)*			
1781.	527	*Paspalum dilatatum*	Y		
1782.	1545	*Patersonia inaequalis (Unequal Bract Patersonia)*		P2	
1783.	1546	*Patersonia juncea (Rush Leaved Patersonia)*			
1784.	19670	*Patersonia lanata forma calvata*			
1785.	19669	*Patersonia lanata forma lanata*			
1786.	1549	*Patersonia maxwellii*			

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1787.	1550	*Patersonia occidentalis (Purple Flag, Koma)*			
1788.	30472	*Patersonia occidentalis var. occidentalis*			
1789.	1552	*Patersonia rudis (Hairy Flag)*			
1790.	4343	*Pelargonium capitatum (Rose Pelargonium)*	Y		
1791.	4344	*Pelargonium drummondii*			
1792.	4346	*Pelargonium littorale*			
1793.	40423	*Pentameris airoides (False Hairgrass)*	Y		
1794.	11052	*Persicaria prostrata*			
1795.	2275	*Persoonia scabra*		P3	
1796.	2296	*Petrophile fastigiata*			
1797.	2311	*Petrophile squamata*			
1798.	20053	*Petrophile squamata subsp. northern (J. Monks 40)*			
1799.	2313	*Petrophile teretifolia*			
1800.	27129	*Peyssonnelia novae-hollandiae*			
1801.	551	*Phalaris minor (Lesser Canary Grass)*	Y		
1802.	4501	*Phebalium lepidotum*			
1803.	18536	*Philotheca fitzgeraldii*			
1804.	18532	*Philotheca nodiflora subsp. lasiocalyx*			
1805.	1173	*Philydrella pygmaea (Butterfly Flowers)*			
1806.	555	*Phragmites australis (Common Reed)*	Y		
1807.	16825	*Phyllangium divergens*			
1808.	4675	*Phyllanthus calycinus (False Boronia)*			
1809.	4685	*Phyllanthus scaber*			
1810.	4	*Phylloglossum drummondii (Pigmy Clubmoss)*			
1811.	6007	*Phymatocarpus maxwellii*			
1812.	5231	*Pimelea angustifolia (Narrow-leaved Pimelea)*			
1813.	5232	*Pimelea argentea (Silvery Leaved Pimelea)*			
1814.	5234	*Pimelea brachyphylla*			
1815.	11282	*Pimelea brevifolia subsp. brevifolia*			
1816.	5239	*Pimelea clavata*			
1817.	5241	*Pimelea drummondii*			
1818.	5242	*Pimelea erecta*			
1819.	5243	*Pimelea ferruginea*			
1820.	11402	*Pimelea imbricata var. piligera*			
1821.	5267	*Pimelea subvillifera*			
1822.	6804	*Pityrodia chrysocalyx*		P3	
1823.	7299	*Plantago debilis*			
1824.	7301	*Plantago exilis*			
1825.	7302	*Plantago hispida*			
1826.	6249	*Platysace compressa (Tapeworm Plant)*			
1827.	6252	*Platysace effusa*			
1828.	27150	*Platysiphonia victoriae*			
1829.	27154	*Plocamium angustum*			
1830.	27156	*Plocamium mertensii*			
1831.	27157	*Plocamium preissianum*			
1832.	571	*Poa annua (Winter Grass)*	Y		
1833.	577	*Poa poiformis (Coastal Poa)*			
1834.	578	*Poa porphyroclados*			
1835.	8180	*Podolepis rugata (Pleated Podolepis)*			
1836.	8182	*Podotheca angustifolia (Sticky Longheads)*			
1837.	27162	*Pollexfenia pedicellata*			
1838.	2905	*Polycarpon tetraphyllum (Fourleaf Allseed)*	Y		
1839.	2419	*Polygonum aviculare (Wireweed)*	Y		
1840.	582	*Polypogon monspeliensis (Annual Beardgrass)*	Y		
1841.	583	*Polypogon tenellus*			
1842.	27173	*Polysiphonia decipiens*			
1843.	27177	*Polysiphonia mollis*			Y
1844.	14547	*Pomaderris brevifolia*			
1845.	4818	*Pomaderris myrtilloides*			
1846.	122	*Posidonia angustifolia*			
1847.	123	*Posidonia australis (Fibreball Weed)*			
1848.	106	*Posidonia denhartogii*			
1849.	107	*Posidonia kirkmanii*			
1850.	124	*Posidonia ostenfeldii*			
1851.	108	*Posidonia robertsoniae*			
1852.	125	*Posidonia sinuosa*			
1853.	110	*Potamogeton drummondii*			
1854.	15424	*Praecoxanthus aphyllus*			
1855.	15425	*Prasophyllum calcicola*			
1856.	1671	*Prasophyllum elatum (Tall Leek Orchid)*			

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1857.	1672	*Prasophyllum fimbria (Fringed Leek Orchid)*			
1858.	1674	*Prasophyllum giganteum (Bronze Leek Orchid)*			
1859.	1677	*Prasophyllum macrostachyum (Laughing Leek Orchid)*			
1860.	17650	*Prasophyllum odoratissimum*			
1861.	1680	*Prasophyllum parvifolium (Autumn Leek Orchid)*			
1862.	1682	*Prasophyllum sargentii*			
1863.	6911	*Prostanthera baxteri*			
1864.	27190	*Protokuetzingia australasica*			
1865.	8189	*Pseudognaphalium luteoalbum (Jersey Cudweed)*			
1866.	13255	*Pterochaeta paniculata*			
1867.	1687	*Pterostylis dilatata*			
1868.	1693	*Pterostylis recurva (Jug Orchid)*			
1869.	1694	*Pterostylis rogersii (Curled-tongue Shell Orchid)*			
1870.	18652	*Pterostylis sp. robust (W. Jackson BJ294)*			
1871.	10998	*Pterostylis turfosa (Bird Orchid)*			
1872.	1698	*Pterostylis vittata (Banded Greenhood)*			
1873.	27202	*Ptilocladia australis*			
1874.	27203	*Ptilocladia pulchra*			
1875.	27204	*Ptilocladia vestita*			
1876.	31672	*Puccinellia longior*			
1877.	592	*Puccinellia stricta (Marsh Grass)*			
1878.	4172	*Pultenaea ericifolia*			
1879.	28286	*Pultenaea heterochila*			
1880.	20785	*Pultenaea indira subsp. indira*			
1881.	20790	*Pultenaea purpurea*			
1882.	4184	*Pultenaea spinulosa*			
1883.	4186	*Pultenaea tenuifolia*			
1884.	4187	*Pultenaea verruculosa*			
1885.	16367	*Pyrorchis nigricans (Red beaks, Elephants ears)*			
1886.	8195	*Quinetia urvillei*			
1887.	2937	*Ranunculus sessiliflorus (Smallflower Buttercup)*			
1888.	3061	*Raphanus raphanistrum (Wild Radish)*	Y		
1889.	3063	*Rapistrum rugosum (Turnip Weed)*	Y		
1890.	6014	*Regelia inops*			
1891.	27211	*Rhabdonia coccinea*			
1892.	2578	*Rhagodia baccata (Berry Saltbush)*			
1893.	11341	*Rhagodia baccata subsp. baccata*			
1894.	2580	*Rhagodia crassifolia (Fleshy Saltbush)*			
1895.	2584	*Rhagodia preissii*			
1896.	27215	*Rhipiliopsis peltata*			
1897.	13300	*Rhodanthe citrina*			
1898.	27220	*Rhodopeltis australis*			
1899.	31911	*Ricinocarpos megalocarpus*			
1900.	11096	*Rinzia dimorphandra (Esperance Rinzia)*			
1901.	48269	*Rinzia icosandra (Recherche Mainland Rinzia)*			
1902.	48887	*Roepera billardierei*			
1903.	1556	*Romulea rosea (Guildford Grass)*	Y		
1904.	10970	*Rostraria cristata*	Y		
1905.	32426	*Rosulabryum campylothecium*			
1906.	32429	*Rosulabryum torquescens*			
1907.	20496	*Rubus laudatus*	Y		
1908.	2429	*Rumex acetosella (Sorrel)*	Y		
1909.	2430	*Rumex brownii (Swamp Dock)*	Y		
1910.	2433	*Rumex crispus (Curled Dock)*	Y		
1911.	46434	*Rumex hypogaeus*	Y		
1912.	115	*Ruppia megacarpa*			
1913.	116	*Ruppia polycarpa*			
1914.	117	*Ruppia tuberosa*			
1915.	40431	*Rytidosperma acerosum*			
1916.	2906	*Sagina apetala (Annual Pearlwort)*	Y		
1917.	48433	*Salicornia blackiana*			
1918.	48430	*Salicornia quinqueflora*			
1919.	48431	*Salicornia quinqueflora subsp. quinqueflora (Beaded Glasswort)*			
1920.	6928	*Salvia reflexa (Mintweed)*	Y		
1921.	6483	*Samolus junceus*			
1922.	6484	*Samolus repens (Creeping Brookweed)*			
1923.	27229	*Sarcomenia delesserioides*			
1924.	27232	*Sarcotrichia tenera*			
1925.	2817	*Sarcozona praecox (Sarcozona)*			
1926.	7606	*Scaevola crassifolia (Thick-leaved Fan-flower)*			

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1927.	7607	*Scaevola cuneiformis (Wedge-leaved Scaevola)*			
1928.	7614	*Scaevola globulifera*			
1929.	13151	*Scaevola thesioides subsp. filifolia*			
1930.	41660	*Schenkia australis*			
1931.	976	*Schoenus breviculmis*			
1932.	978	*Schoenus brevisetis*			
1933.	979	*Schoenus caespititius*			
1934.	984	*Schoenus curvifolius*			
1935.	992	*Schoenus grandiflorus (Large Flowered Bogrush)*			
1936.	994	*Schoenus humilis*			
1937.	996	*Schoenus laevigatus*			
1938.	1004	*Schoenus nitens (Shiny Bog-rush)*			
1939.	1005	*Schoenus obtusifolius*			
1940.	1006	*Schoenus odontocarpus*			
1941.	1009	*Schoenus pleiostemoneus*			
1942.	17614	*Schoenus plumosus*			
1943.	16273	*Schoenus sp. Grey Rhizome (K.L. Wilson 2922)*		P1	
1944.	1016	*Schoenus subbarbatus (Bearded Bog-rush)*			
1945.	1018	*Schoenus subfascicularis*			
1946.	1019	*Schoenus subflavus (Yellow Bog-rush)*			
1947.	16251	*Schoenus subflavus subsp. long leaves (K.L. Wilson 2865)*			
1948.	1022	*Schoenus submicrostachyus*			
1949.	6544	*Sebaea ovata (Yellow Sebaea)*			
1950.	32433	*Sematophyllum homomallum*			
1951.	8207	*Senecio glossanthus (Slender Groundsel)*			
1952.	8216	*Senecio picridioides*			
1953.	25882	*Senecio pinnatifolius var. maritimus (Coastal Groundsel)*			
1954.	25883	*Senecio pinnatifolius var. pinnatifolius*			
1955.	8217	*Senecio quadridentatus*			
1956.	7362	*Sherardia arvensis (Field Madder)*	Y		
1957.	4980	*Sida hookeriana*			
1958.	4823	*Siegfriedia darwinioides*			
1959.	2909	*Silene gallica (French Catchfly)*	Y		
1960.	15972	*Silene gallica var. gallica*	Y		
1961.	8224	*Siloxerus filifolius*			
1962.	8225	*Siloxerus humifusus (Procumbent Siloxerus)*			
1963.	14583	*Siloxerus multiflorus*			
1964.	3072	*Sisymbrium orientale (Indian Hedge Mustard)*	Y		
1965.	7017	*Solanum laciniatum (Kangaroo Apple)*	Y		
1966.	7022	*Solanum nigrum (Black Berry Nightshade)*	Y		
1967.	7033	*Solanum rostratum (Buffalo Burr)*	Y		
1968.	7037	*Solanum symonii*			
1969.	45036	*Solidago chilensis*	Y		
1970.	27281	*Solieria robusta*			
1971.	8230	*Sonchus asper (Rough Sowthistle)*	Y		
1972.	9367	*Sonchus hydrophilus (Native Sowthistle)*			
1973.	8231	*Sonchus oleraceus (Common Sowthistle)*	Y		
1974.	44731	*Sonderophycus capensis*			
1975.	614	*Sorghastrum nutans*	Y		Y
1976.	617	*Sorghum halepense (Johnson Grass)*	Y		
1977.	1560	*Sparaxis pillansii (Harlequin Flower)*	Y		
1978.	33636	*Spergularia brevifolia*			
1979.	8900	*Spergularia marina*			
1980.	2915	*Spergularia rubra (Sand Spurry)*	Y		
1981.	4201	*Sphaerolobium daviesioides (Prickly Globe-pea)*			
1982.	17551	*Sphaerolobium drummondii*			
1983.	4205	*Sphaerolobium linophyllum*			
1984.	4206	*Sphaerolobium macranthum*			
1985.	4211	*Sphaerolobium vimineum (Leafless Globe Pea)*			
1986.	624	*Spinifex hirsutus (Hairy Spinifex)*			
1987.	635	*Sporobolus virginicus (Marine Couch)*			
1988.	27309	*Spyridia dasyoides*			
1989.	27310	*Spyridia filamentosa*			
1990.	4828	*Spyridium globulosum (Basket Bush)*			
1991.	14355	*Spyridium majoranifolium*			
1992.	4830	*Spyridium microcephalum (Small-headed Spyridium)*			
1993.	14243	*Spyridium minutum*			
1994.	14795	*Spyridium mucronatum subsp. multiflorum*		P2	
1995.	31916	*Spyridium sp. Jerdacuttup (A. Williams 332)*			
1996.	4715	*Stachystemon polyandrus*			

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1997.	20537	*Stachystemon virgatus*			
1998.	4733	*Stackhousia monogyna*			
1999.	4734	*Stackhousia muricata*			
2000.	9070	*Stackhousia pubescens (Downy Stackhousia)*			
2001.	43541	*Stackhousia sp. Hairy fruited (E.N.S. Jackson 1387)*			
2002.	43662	*Stackhousia sp. Thick sepals (A.E. Orchard 1547)*			
2003.	1315	*Stawellia gymnocephala*			
2004.	2918	*Stellaria media (Chickweed)*	Y		
2005.	20397	*Stellaria pallida*	Y		
2006.	15065	*Stenanthemum notiale subsp. notiale*			
2007.	16375	*Stirlingia anethifolia*			
2008.	2317	*Stirlingia simplex*			
2009.	27318	*Struvea plumosa*			
2010.	8242	*Stuartina muelleri (Round-leaf Stuartina)*			Y
2011.	7678	*Stylidium adnatum (Common Beaked Triggerplant)*			
2012.	7682	*Stylidium albomontis*			
2013.	7687	*Stylidium assimile (Bronze-leaved Triggerplant)*			
2014.	7692	*Stylidium breviscapum (Boomerang Triggerplant)*			
2015.	7696	*Stylidium calcaratum (Book Triggerplant)*			
2016.	12057	*Stylidium corymbosum var. corymbosum*			
2017.	7741	*Stylidium insensitivum (Insensitive Trigger Plant)*			
2018.	7758	*Stylidium macranthum (Crab Claws)*			
2019.	7772	*Stylidium perpusillum (Tiny Triggerplant)*			
2020.	7774	*Stylidium piliferum (Common Butterfly Triggerplant)*			
2021.	7775	*Stylidium pilosum (Silky Triggerplant)*			
2022.	7777	*Stylidium preissii (Lizard Triggerplant)*			
2023.	7785	*Stylidium repens (Matted Triggerplant)*			
2024.	7794	*Stylidium rupestre (Rock Triggerplant)*			
2025.		*Stylidium sp.*			
2026.	20599	*Stylidium turleyae*			
2027.	1260	*Stypandra glauca (Blind Grass)*			
2028.	6473	*Styphelia intertexta*			
2029.	48618	*Styphelia sp. South Coast (J.M. Powell 3374)*			
2030.	2639	*Suaeda australis (Seablite)*			
2031.	2640	*Suaeda baccifera*	Y		
2032.	25902	*Symphyotrichum squamatum (Bushy Starwort)*	Y		
2033.	16860	*Synaphea media*			
2034.	12911	*Synaphea obtusata*			
2035.	16772	*Synaphea oligantha*			
2036.	2324	*Synaphea petiolaris (Synaphea)*			
2037.	16864	*Synaphea petiolaris subsp. petiolaris*			
2038.	15534	*Synaphea spinulosa subsp. major*			
2039.	32437	*Syntrichia antarctica*			
2040.	20102	*Taxandria callistachys*			
2041.	20134	*Taxandria marginata*			
2042.	20103	*Taxandria spathulata*			
2043.	31552	*Tecticornia arbuscula*			
2044.	33236	*Tecticornia halocnemoides (Shrubby Samphire)*			
2045.	31873	*Tecticornia indefessa*		P2	
2046.	33319	*Tecticornia indica subsp. bidens*			
2047.	31718	*Tecticornia lepidosperma*			
2048.	31675	*Tecticornia lylei*			
2049.	33297	*Tecticornia pergranulata subsp. pergranulata (Blackseed Samphire)*			
2050.	31716	*Tecticornia syncarpa*			
2051.	4256	*Templetonia retusa (Cockies Tongues)*			
2052.	35842	*Templetonia rossii*			
2053.	2823	*Tetragonia implexicoma (Bower Spinach)*			
2054.	1034	*Tetraria capillaris (Hair Sedge)*			
2055.	35582	*Tetraria sp. Mt Madden (C.D. Turley 40 BP/897)*			
2056.	27327	*Thamnoclonium dichotomum*			
2057.	1701	*Thelymitra antennifera (Vanilla Orchid)*			
2058.	10856	*Thelymitra benthamiana (Leopard Orchid)*			
2059.	1705	*Thelymitra crinita (Blue Lady Orchid)*			
2060.	11143	*Thelymitra graminea*			
2061.	18248	*Thelymitra granitora*			
2062.	20730	*Thelymitra paludosa*			
2063.	20732	*Thelymitra petrophila*			
2064.		*Thelymitra sp.*			
2065.	20735	*Thelymitra speciosa*			
2066.	1716	*Thelymitra tigrina (Tiger Orchid)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
2067.	1718	*Thelymitra villosa (Custard Orchid)*			
2068.	20731	*Thelymitra vulgaris*			
2069.	5075	*Thomasia angustifolia (Narrow Leaved Thomasia)*			
2070.	5077	*Thomasia cognata*			
2071.	5086	*Thomasia macrocalyx*			
2072.	5093	*Thomasia petalocalyx (Paper Flower)*			
2073.	5094	*Thomasia purpurea*			
2074.	5105	*Thomasia triphylla*			
2075.	2644	*Threlkeldia diffusa (Coast Bonefruit)*			
2076.	19698	*Thryptomene australis subsp. australis*			
2077.	6065	*Thryptomene saxicola (Rock Thryptomene)*			
2078.	27330	*Thuretia australasica*			Y
2079.	27331	*Thuretia quercifolia*			
2080.	1328	*Thysanotus dichotomus (Branching Fringe Lily)*			
2081.	1338	*Thysanotus manglesianus (Fringed Lily)*			
2082.	1341	*Thysanotus nudicaulis*			
2083.	1343	*Thysanotus patersonii*			
2084.	1351	*Thysanotus sparteus*			
2085.	1358	*Thysanotus triandrus*			
2086.	1368	*Trachyandra divaricata*	Y		
2087.	6280	*Trachymene pilosa (Native Parsnip)*			
2088.	11112	*Tribolium uniolae*	Y		
2089.	1485	*Tribonanthes violacea (Violet Tiurndin)*			
2090.	32449	*Trichostomum brachydontium*			
2091.	32450	*Trichostomum eckelianum*			
2092.	1361	*Tricoryne elatior (Yellow Autumn Lily)*			
2093.	41648	*Tricostularia aphylla*			
2094.	1037	*Tricostularia compressa*			
2095.	4289	*Trifolium angustifolium (Narrowleaf Clover)*	Y		
2096.	17542	*Trifolium arvense var. arvense*	Y		
2097.	4292	*Trifolium campestre (Hop Clover)*	Y		
2098.	4293	*Trifolium cernuum (Drooping Flower Clover)*	Y		
2099.	4296	*Trifolium fragiferum (Strawberry Clover)*	Y		
2100.	4297	*Trifolium glomeratum (Cluster Clover)*	Y		
2101.	4312	*Trifolium striatum (Knotted Clover)*	Y		
2102.	4315	*Trifolium tomentosum (Woolly Clover)*	Y		
2103.	33276	*Triglochin isingiana*			
2104.	146	*Triglochin minutissima*			
2105.	147	*Triglochin mucronata*			
2106.	151	*Triglochin striata*			
2107.	152	*Triglochin trichophora*			
2108.	4737	*Tripterococcus brunonis (Winged Stackhousia)*			
2109.	32451	*Triquetrella papillata*			
2110.	1139	*Trithuria bibracteata*			
2111.	13479	*Trymalium ledifolium var. rosmarinifolium*			
2112.	15757	*Trymalium spatulatum*			
2113.	27347	*Tylotus obtusatus*			
2114.	98	*Typha domingensis (Bulrush, Djandjid)*			
2115.	35260	*Ulva compressa*			
2116.	38388	*Ursinia anthemoides subsp. anthemoides*	Y		
2117.	1766	*Urtica incisa (Scrub Nettle)*			
2118.	1767	*Urtica urens (Small Nettle)*	Y		
2119.	7145	*Utricularia menziesii (Redcoats)*			
2120.	7148	*Utricularia multifida*			
2121.	7153	*Utricularia tenella*			
2122.	13160	*Velleia exigua*		P2	
2123.	7665	*Velleia trinervis*			
2124.	8257	*Vellereophyton dealbatum (White Cudweed)*	Y		
2125.	6072	*Verticordia brownii*			
2126.	6073	*Verticordia chrysantha*			
2127.	6076	*Verticordia densiflora (Compacted Featherflower)*			
2128.	15432	*Verticordia densiflora var. densiflora*			
2129.	6079	*Verticordia fastigiata (Mouse Featherflower)*			
2130.	6090	*Verticordia humilis*			
2131.	12432	*Verticordia inclusa*			
2132.	6096	*Verticordia minutiflora*			
2133.	12450	*Verticordia plumosa var. grandiflora*			
2134.	14718	*Verticordia sieberi var. sieberi*			
2135.	12470	*Verticordia vicinella*			
2136.	11474	*Vicia sativa subsp. nigra*	Y		

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
2137.	27360	*Vidalia spiralis*			
2138.	4325	*Viminaria juncea (Swishbush, Koweda)*			
2139.	8266	*Vittadinia gracilis*			
2140.	722	*Vulpia bromoides (Squirrel Tail Fescue)*	Y		
2141.	11137	*Vulpia fasciculata*	Y		
2142.	11018	*Vulpia muralis*	Y		
2143.	724	*Vulpia myuros (Rat's Tail Fescue)*	Y		
2144.	12052	*Vulpia myuros forma megalura*	Y		
2145.	33101	*Vulpia myuros forma myuros*	Y		
2146.		*Vulpia sp.*			
2147.	7384	*Wahlenbergia capensis (Cape Bluebell)*	Y		
2148.	7389	*Wahlenbergia preissii*			
2149.	18108	*Watsonia meriana var. bulbillifera*	Y		
2150.	27362	*Webervanbossea splachnoides*			
2151.	6939	*Westringia dampieri*			
2152.	6658	*Wilsonia backhousei (Narrow-leaf Wilsonia)*			
2153.	6659	*Wilsonia humilis (Silky Wilsonia)*			
2154.	6660	*Wilsonia rotundifolia (Round-leaf Wilsonia)*			
2155.	27364	*Wollastoniella myriophylloides*			
2156.	27369	*Wrangelia velutina*			
2157.	1389	*Wurmbea cernua*			
2158.	1394	*Wurmbea dioica (Early Nancy)*			
2159.	1255	*Xanthorrhoea platyphylla*			
2160.	6289	*Xanthosia huegelii*			
2161.	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 15:55:28

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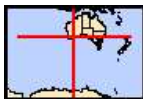
Coordinates
Buffer: 30.0Km



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:	47
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:	16
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
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 known 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
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Name	Status	Type of Presence
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 Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species

Name	Threatened	Type of Presence
		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		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
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 likely 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
Speddingup East	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

-33.76613 121.86293

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

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

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