RECONNAISSANCE FLORA, VEGETATION AND BASIC FAUNA SURVEY REPORT

Line 51 Esperance Branch Line, Esperance to Gibson

Section 1 Blumann Road Crossing (361 – 362KM, Site 11)

Gibson, WA 6448

Final v. 1

22/04/2022

BUSHFIRE | ENVIRONMENTAL | WATER | GIS

DOCUMENT CONTROL

Title: Reconnaissance flora, vegetation and basic fauna survey report – Line 51 Esperance Branch Line, Section 1 Blumann Road Crossing, 361 – 362KM, Site 11
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Job No.: AI005-001
Client: Arc Infrastructure

REVISION RECORD

Revision	Summary	Prepared By	Reviewed By	Date
Draft v.1	Internal QA review	B. Theyer & K. White	M. Holt	01/04/2022
Draft v.2	Technical Review – Fauna	B. Theyer & K. White	Dr K. Bain	11/04/2022
Final v.1	Technical Review	B. Theyer & K. White	C. Cramer	21/04/2022
Final v.1	Technical Review – Environmental Risk Assessment	B. Theyer & K. White	K. Kinnear	22/04/2022
Final v.1	Approval for submission to DWER	B. Theyer & K. White	C. Doulton (Arc Infrastructure)	28/04/2022

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Executive Summary

Arc Infrastructure ("the client") commissioned Bio Diverse Solutions as Environmental Consultants to undertake a spring reconnaissance flora and vegetation survey and a basic (previously reconnaissance) fauna assessment of a total of 1.28ha along Railway Line 51 adjacent to the line crossing of Blumann Road, in the Shire of Esperance. Specifically, this was present along Railway kilometre markings (KM), 359.79 to 362KM. This corresponded with Site 11 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.

One native vegetation unit was recorded during the survey, namely Mixed Sedgeland (MS). The vast majority of the survey area had been historically cleared, with areas that had regenerated with non-native flora species to form novel ecosystems. Four distinct novel ecosystem units were present within the cleared areas, consisting of Pine tree stands, dense African Lovegrass, Victorian Tea Tree stand and bare ground with herbs and grasses. The majority of the area as previously cleared. The condition of native vegetation present was considered 'Degraded' due to historical disturbance and impact. Floristic diversity was relatively low, with 61 species recorded, consisting of 40 native species and 21 introduced species. No Priority or Threatened flora were detected within the survey area, and vegetation present did not meet criteria for any Priority or Threatened ecological communities. Due to the degraded nature and high invasive species load of the survey area, it is strongly recommended that all machinery entering the survey area (if clearing is approved in the future) has rigorous and thorough biosecurity hygiene applied to limit the spread of invasive species to surrounding areas.

The only conservation significant faunal taxa identified during the survey was Carnaby's Cockatoo (*Calyptorhynchus latirostris*, En). The species was observed through feed evidence (chewed pine cones). The juvenile and mature Pine trees present within the survey area provide both foraging and potential roosting habitat for Carnaby's Cockatoo. The Pine trees present within or along the edge of the survey area form part of larger areas of vegetation, and thus the trimming or removal of these trees are unlikely to greatly impact the species. Approximately 0.22 ha of suitable foraging and roosting habitat is located within the survey area. It is unlikely this proposal would need to be referred for assessment under the *Environmental Protection and Biodiversity Conservation Act 1999.* The 'Mixed Sedgeland' vegetation unit provides marginal habitat for quenda (*Isoodon fusciventer,* P4), however no evidence of species presence was observed during the survey period.

1. Introduction, Scope and Background Information

Arc Infrastructure ("the client") commissioned Bio Diverse Solutions as Environmental Consultants to conduct a spring reconnaissance flora and vegetation survey and a basic (previously reconnaissance) fauna assessment of a total of 1.28ha along Line 51 (361 – 362KM), near Blumann Road Crossing in the Shire of Esperance. The total 1.28ha consists of three separate 'areas' or zones stretching over a total distance of 0.850km along an existing service road for the railway line. The scope of works included:

- Desktop assessment of the survey area, including all publicly available and Department of Biodiversity, Conservation and Attractions (DBCA) database searches for Threatened flora, vegetation communities and Threatened fauna data;
- A spring reconnaissance flora and vegetation survey across survey area to identify vegetation 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 three areas located along Line 51 (359.79-362km), near Blumann Road Crossing, in the Shire of Esperance. The areas surveyed were 0.26ha, 0.52ha and 0.49ha, in size and the total length of the survey area is approximately 0.850km (Figure 1). These areas have been earmarked by Arc Infrastructure as within the identified KM of railway requiring upgrades and ongoing maintenance. Specifically, the survey area correlates with Site 11 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 a large area of intact native vegetation reserve (managed by the Shire of Esperance) and private broad acre cropping agricultural land.

Following the commission of a biological survey, an environmental risk assessment was completed in tandem with Arc Infrastructure Project Team and Kathryn Kinnear of Bio Diverse Solutions. This identified within Arc Infrastructure's Site 11 (2022 Scope of Works) the operational footprint of construction works required a clearing permit or further environmental approvals. The risk assessment categorised operational space into a 'traffic light' system, as outlined below:

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

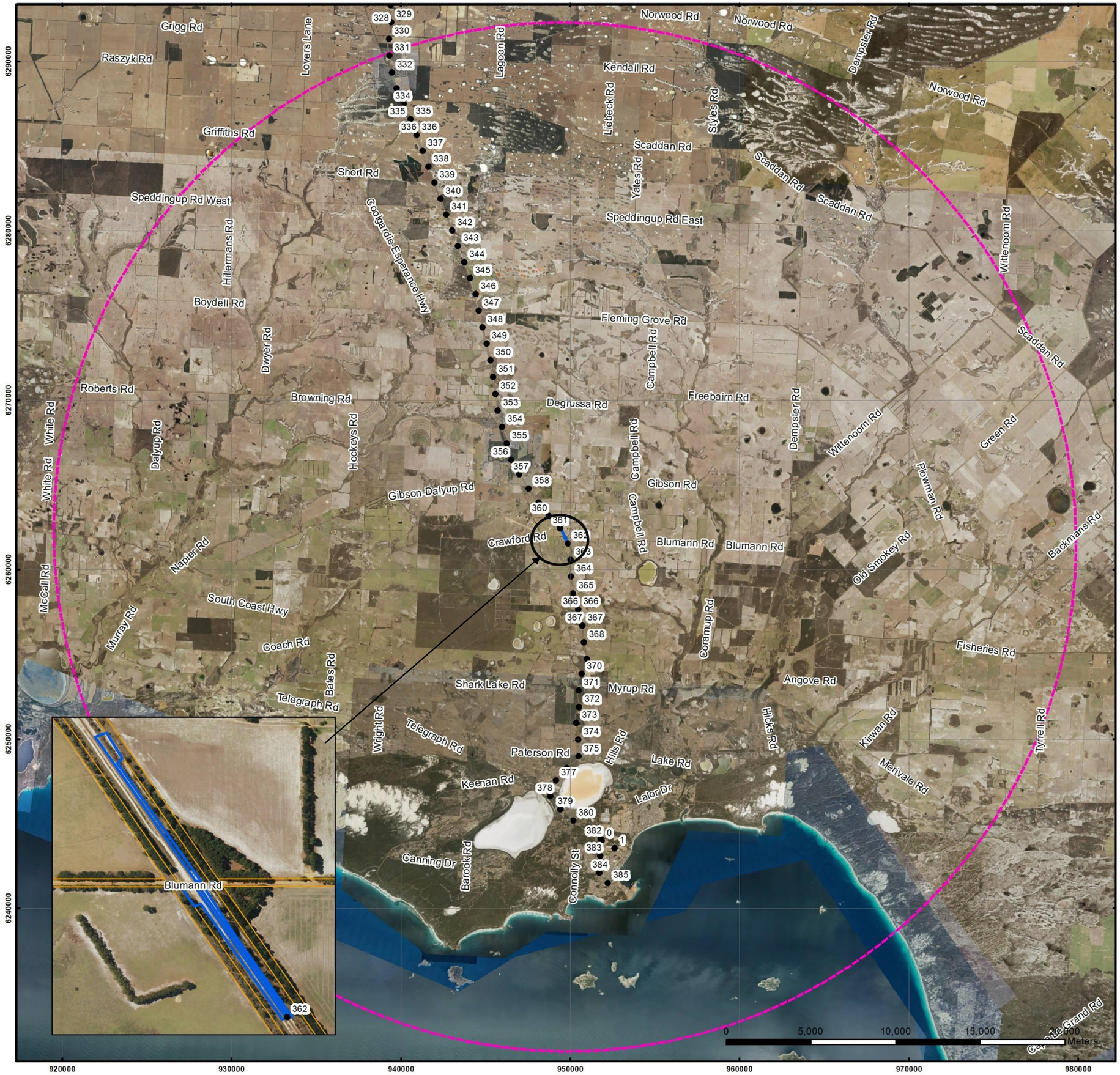
The environmental risk assessment that corresponds with the survey area is outlined in Figure 14 (Appendix A), illustrating how large areas within the survey area were considered previously cleared or exempt from a clearing permit. A linear corridor on the eastern side of the railway and one laydown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

The environmental risk assessment process will mitigate and reduce the environmental impact of the project, by determining the operational space by outlining areas with lower environmental risks, such as existing cleared or previously disturbed areas.

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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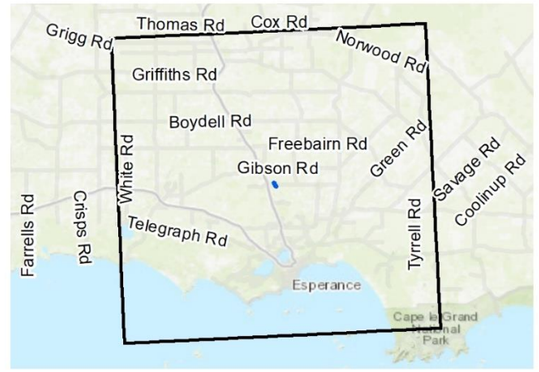

Overview Map Scale 1:1,500,000

Legend

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

Scale
1:220,000@ A3
GDA MGA 94 Zone 51

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

CLIENT
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Figure 1: Survey Area Locality

	QA Check	*Drawn by*
	KAW	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-001**	**15/03/2022**

1.3. Geology and soils

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

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 2 a Phase (245Es_1E2a). The Esperance 2 a Phase is described as "*Gravelly, yellow mottled duplex soil with < 30 cm of sand over gravel layer (Fleming (shallow)), Dy5.82, on level plain, <1% slope*" (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.

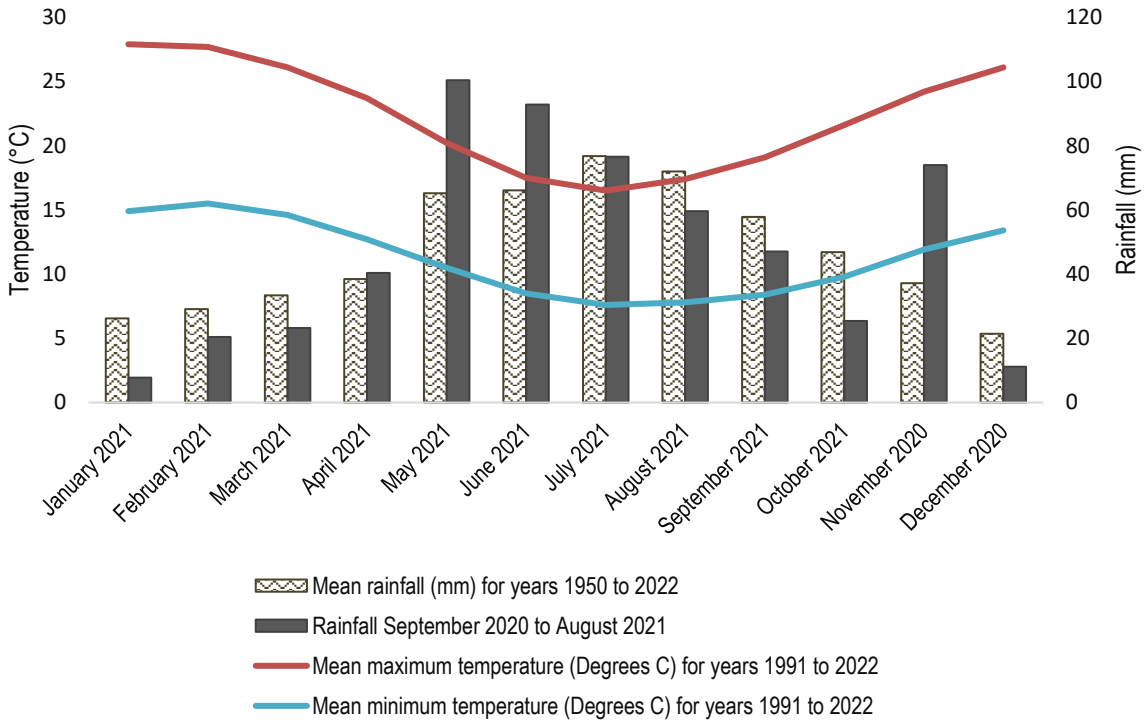

Figure 2: Temperature and Rainfall Data for Esperance Aero BoM Weather Station No. 009542 (BoM, 2022).

1.5. Habitat Connectivity

There are small areas of intact remnant vegetation located within private property and Shire of Esperance managed reserves immediately to the west, east and south of the survey area. There is remnant and non-native 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. These areas ultimately connect to the Speddingup East Nature Reserve approximately 20km to the north.

1.6. Water and Wetlands

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

No RAMSAR wetlands, or significant wetlands are located within or near the survey area. However, the desktop survey did identify that the Lake Gore RAMSAR wetland was ~30km upstream and the Lake Warden RAMSAR system was ~13km upstream (DAWE, 2021). The Conservation Class Suite Sixteen Wetland is located ~2.7km to the southwest of the survey area (DBCA, 2017). Given the distance and the extensive cleared pastoralist land and road networks between the RAMSAR and Conservation Category listed wetlands and the survey area, it is unlikely to be of direct impact.

1.7. Environmentally Sensitive Areas

The survey area does not contain any DWER listed Environmentally Sensitive Areas (DWER, 2020b).

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 15 in Appendix A:

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

2. Methodology – Desktop Assessment

2.1. Flora and Vegetation

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

- 30km Nature Map Database Search (combined data from DBCA, WA Museum and WA Herbarium; DBCA, 2007-, WAH 1998-);
- 30km 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

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

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

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

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

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

- Carnaby's Cockatoo Confirmed DBCA_050 (DBCA 2018a) and Unconfirmed Roost Sites DBCA_051 (DBCA, 2018b).
- Carnaby's Cockatoo Confirmed DBCA_52 (DBCA, 2018c) and Unconfirmed Roost Sites Buffered 6km DBCA-053 (DBCA, 2018d).
- Carnaby's Cockatoo Confirmed Breeding Areas within the Swan Coastal Plain and Jarrah Forest IBRA Regions DBCA_054 (DBCA, 2018e).
- Carnaby's Cockatoo Unconfirmed Breeding Areas within the Swan Coastal Plain and Jarrah Forest IBRA Regions DBCA_055 (DBCA, 2018f).
- Carnaby's Cockatoo Areas requiring investigation as feeding habitat in the Jarrah Forest IBRA Region (DBCA-056) dataset (DBCA, 2018g).
- Black Cockatoo Breeding Sites - Buffered DBCA_063 (DBCA, 2019a).
- Black Cockatoo Roosting Sites – Buffered DBCA_064 (DBCA, 2019b).

3. Methodology – Field Survey

3.1. Flora and Vegetation

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

A spring season reconnaissance level flora and vegetation survey was undertaken by Katie White (Botanist) of Bio Diverse Solutions on the 29th September 2021. 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. In addition, three relevés were systematically surveyed within representative vegetation units to enable thorough recording of species occurrence and representative vegetation descriptions. The vegetation units occurring within the survey area were mapped and described using opportunistic mapping and relevés. Vegetation units were formally described based on data collected within the relevé, using the basic survey general descriptions as a guide. Vegetation units were distinguished through changes in structure, dominant taxa and cover characteristics, which is described in both Muirs and NVIS Level 5 (sub-association) description methods.

Three relevés were systematically surveyed within representative vegetation units to enable analysis and categorisation across the ecological communities present (refer to Appendix D). The flora was systematically recorded within the relevés and collections of plant specimens were made where further identification was required, using Katie White's Regulation 60 Flora Taking Licence FTB62000237. For species that were not flowering and where foliage or nuts / fruit couldn't be used for identification, potential habitat was used as an indication of the likelihood of species occurrence.

Information collected within each relevé included:

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

3.2. Flora and Vegetation Survey Limitations and Constraints

An assessment of potential survey limitations was undertaken as per the EPA (2016) document *Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment,* refer to Table 1 below. Limitations were present, primarily relating to the impact of disturbance on the ecological signature of species present and an area not actively traversed during the survey.

Table 1: Assessment of potential flora survey limitations.

Limitation	Significance of limitation	Comment
Experience of personnel	Nil	Katie White has over 5 years' experience at conducting targeted, reconnaissance and detailed flora surveys within the Esperance sandplains bioregion and is competent in taxonomic identification and assessment of vegetation in the area. Additionally, she has conducted targeted flora surveys and worked alongside the DBCA Flora Conservation Officer for a large number of flora species listed on the 30 km desktop analysis. A single species of moss was identified in the desktop assessment, P2 *Fabronia hampeana*. Bryo-flora is outside the expertise of the surveyor. However, it was noted that suitable habitat for the moss was on Macrozamia species. No Macrozamia plants were identified within the survey area, and therefore is unlikely that the plant is present.

Table 1 continued.

Limitation	Significance of limitation	Comment
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 towards the end of the peak flowering period in this locale, and was undertaken on the 19th of September 2021. 14 species that were assessed as 'Likely' or 'Possible' to occur were not flowering during the time of the survey. This was considered a minor limitation for most species, being large shrubs that were easily identifiable without flowering or flowering occurred on the periphery of the survey period (August or October). A single species, P2 *Paraclaena parvula,* was identified as 'Likely' to occur and flowered from October to November. Being an annual species, this may represent a more significant limitation, as no evidence of leaves or presence of the plants may have been there. However, the condition and extensive disturbance of the site indicate that it is unlikely to be present despite suitable soil type.
Access restrictions	Nil	No access restrictions were encountered during the survey. All areas were easily accessible and traversed.
Availability of contextual information	Nil	Publicly available desktop and background information was readily available to give a broad contextual understanding of the site. However, it must be noted that the Esperance area is highly understudied. Database searches were conducted through DBCA (DBCA, 2021a; DBCA 2021b) providing more comprehensive context.
Survey effort and extent	Minor	61 species were identified during the survey, and three relevé data sets collected to gain as complete a picture as possible of flora species present at the site. A small area to the north of the survey area was not traversed, due to not being originally identified as part of the scope at the time of the survey. This area was broadly observed, but not directly traversed. Due to the degraded nature of the survey area, it is unlikely this poses a significant risk to the validity of results. Two orchid species were identified as 'Likely' to occur, namely P2 *Paraclaena parvula* and P3 *Pterostylis faceta.* The survey methodology was at a lower intensity level than outlined in the CoA (2013) *Draft Survey guidelines for Australia's Threatened Orchids.* However, both of these species were deemed as 'Unlikely' to occur post-survey due to the high level of degradation within the survey area.
Disturbances that may affect results	Major	Disturbance has the potential to affect the biological representation of species and therefore ecological communities present, for example through the presence of disturbance opportunists, loss of sensitive species from direct impact, increased nutrient loading from runoff or novel ecosystems created through microclimate creation. This was observed across the subject site extensively, as large amounts of disturbance and historical clearing had occurred. The vast majority of native species present were disturbance opportunists or hardy/non-sensitive relictual species. through disturbance from the railway track, areas with altered drainage and increased nutrient in ponding from the surrounding agricultural area.

Table 1 continued.

Limitation	Significance of limitation	Comment
Identification issues	Nil	The survey was undertaken on 29th September 2021 during the peak flowering period for many south coast flora species to maximise ease of identifying them, however given that not all flora species flower during this time some species will be more difficult to observe in the field than others. Of the 61 species, the vast majority contained sufficient taxonomic information for identification (such as nuts, fruit, leaf structure or flowers). It is estimated that 70% of species present were flowering. Two weed species and a single Dianella plant were identified down to genera level.

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) on the 29th September 2021 and was carried on foot using traverses and targeted survey techniques consistent with the following documents developed by the EPA and Department of Agriculture, Water and the Environment (DAWE) formerly the Department of Sustainability, Water, Population, and Communities (DSEWPaC) and Department of the Environment, Water, Heritage and the Arts (DEWHA):

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

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

The conclusions presented are based upon field data collected over a limited period of time and are indicative of the environmental condition of the site at the time. Some fauna species are reported as potentially occurring within the survey area based on the presence of suitable habitat (quality and extent) within the survey area or immediately adjacent. With respect to opportunistic observations, the possibility exists that certain species may not have been detected during field investigations due to seasonal inactivity during the field survey, species present within micro habitats not surveyed, cryptic species able to avoid detection and transient wide-ranging species not present during the survey period.

3.4. Targeted Black Cockatoo Habitat Assessment

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

Baudin's Cockatoo is most commonly found in forested areas, but is also found in the open agricultural areas within the southwest (DEC, 2008). The survey area falls outside the known distribution area for Baudin's Cockatoo, which extends from Mundaring south to Kojonup and Albany, and inland to the Stirling Ranges (DEC, 2008; DSEWPaC, 2012). Based on modelled predicted breeding areas contained within the guidelines (DSEWPaC, 2012), the survey area does not occur within the breeding distribution. The breeding ecology of this species is not well known outside of the southwest forests where it is known to breed within the Jarrah, Marri and Karri Forest (Table 2) of the far southwest of WA.

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).

Surveys for cockatoos subsequently targeted Carnaby's Cockatoo and were based on a systematic traverse-based assessment of hollow-bearing trees, foraging habitat, feeding activity and roosting sites.

3.4.1. Surveys for Breeding Hollows

Carnaby's Cockatoo breed within the inland parts of its distribution, in areas with 300-750mm 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, as such an assessment of all trees onsite was undertaken.

Potential breeding habitat is defined as areas containing trees with a diameter at breast height (DBH, measured at 1.5 metres from the base of the tree) of 500 millimetres or greater, and that contain one or more hollows of potential suitability for breeding by Carnaby's Cockatoo (Table 2). These trees are referred to hereafter as significant trees.

If present, significant trees were GPS located, their DBH measured using a diameter tape, photographed, and the presence or absence of potential breeding hollows determined. Where present, hollows were also 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 (Saunders *et al.* 2014a, 2014b) and a hollow with a depth more than 300 mm. Based on the above 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 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 2) 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 foraging preferences. Carnaby's Cockatoo is known to prefer 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 2). The presence of foraging habitat was mapped in the field, and individual locations where feeding activity was encountered were GPS'd.

3.4.3. Surveys for Roosting Habitat and Activity

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

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

Table 2: Habitats used by Carnaby's Cockatoos (DSEWPaC 2012).

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

3.5. Fauna Survey Limitations and Constraints

An assessment of potential survey limitations was undertaken as per the EPA (2020) document *Technical Guidance Fauna Surveys for Environmental Impact Assessment* refer to Table 3.

Table 3: Fauna survey limitations and constraints.

Limitation	Constraint	Comment
Scope	Nil	The scope was a basic fauna survey to generally assess the presence / evidence of fauna species within the survey area, map the fauna habitat, undertake opportunistic inventory of species including Threatened and Priority listed species. Additional targeted assessment of significant trees was undertaken to identify breeding, roosting or foraging habitat for Carnaby's Cockatoo.
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 basic fauna survey and targeted components of the survey were deemed appropriate given the scope was to identify the general presence of fauna species and fauna habitat in the survey area.
Sources of information (recent or historic) and availability of contextual information	Nil	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.

Table 3 continued.

Limitation	Constraint	Comment
Remoteness or access issues	Minor	No access restrictions were encountered. A small area to the north of the survey area was not originally identified as part of the scope at the time of the survey. This area was broadly observed, but not directly traversed. Due to the degraded nature of the survey area, it is unlikely this poses a significant risk to the validity of results.
Species detection probability (e.g. as a result of seasonal activity and fauna movement patterns)	Nil	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 in the environment negate this limitation and enable determination of the regularity with which an area is visited. While the detection probability for target species during the survey period was relatively high, the conclusions presented in this report are based upon field data collected over a limited period of time. The results are therefore indicative of the environmental condition of the site at the time and the survey timing. E.g. some species are more likely to use seasonally inundated areas when they are dry, transient wide-ranging species may not have been present during the survey period, some cryptic species are less detectable particularly when they are inactive. Species-level detection probabilities are dealt with in the Threatened fauna likelihood of occurrence (LOO) in Table 11, Appendix B.
Survey techniques	Minor	Identifying hollows from the ground has limitations, as the full characteristics of a hollow are not evident (e.g., internal dimensions such as depth). The entrance dimensions and size of the branch / trunk into which the hollow was forming were used as indicators of the potential internal dimensions. The relative visibility of the canopy can also be limiting in identifying potential hollows, particularly where hollows are upward facing or obscured by foliage.
Experience of personnel	Nil	Bianca Theyer has 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.

4. Results – Desktop Assessment

4.1. Threatened and Priority Flora

The full species list compiled from all available data (Table 9, 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. Conservation categories for Threatened and Priority flora are presented in Tables 12 and 13 in Appendix C. NatureMap and Protected matters search tool database searches are provided in Appendix E.

As a result of the above-mentioned database searches 7 Threatened and 63 Priority flora species were identified within the study area (30km radius). Of these, five were assessed as 'Likely' and 29 as 'Possible' to occur. Refer to Table 9 in Appendix B for likelihood of occurrence (LOO) analysis. No records of Priority or Threatened flora had historically been recorded directly within the survey area. Species that have previously been recorded within a 30 km 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 cleared to degraded condition across the survey area. 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.

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. Conservation categories for Threatened and Priority ecological communities are presented in Tables 14 and 15 in Appendix C. NatureMap and Protected matters search tool database searches are provided in Appendix E.

Subtropical and Temperate Coastal Saltmarsh (CSM)

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

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

Table 4: Minimum patch size analysis for CSM PEC/TEC diagnostic criteria.

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

The approved conservation advice, available spatial mapping for the ecological community, and description above indicates that this PEC is unlikely to occur within the survey area, being 15km 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 is listed as Priority 3 (P3) PEC within WA under the *BC Act 2016* and as an Endangered Threatened Ecological Community (TEC) under the *EPBC Act 1999.* The survey area lies within the southeast botanical province of Western Australia (Hopper and Gioia, 2004), which is the geographical location of Kwongkan. It is defined and assessed in the conservation advice as generally Kwongkan shrubland, ranging from sparse to dense, thicket-forming, where Proteaceous species form a significant component (DoE, 2015b). It is confined to the southeast botanical province of Western Australia (Hopper and Gioia, 2004) and primarily occurs on sandplains and marine plains, and lower to upper slopes and ridges, as well as uplands across this region. Multiple other ecological communities are listed under the *BC Act 2016* that also meet criteria of Kwongkan TEC and should be considered when assessing whether Kwongkan is present.

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

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

Condition thresholds for the ecological community are described in Table 5.

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

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

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

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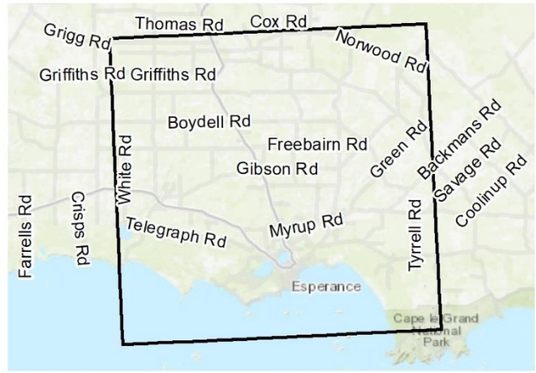

Overview Map Scale 1:1,500,000

Legend

- Survey Area
- 30km Desktop Study Area

59-0921FL_WAHerb

- T
- P1
- P2
- P3
- P4

59-0921FL_TPFL

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

Ecological Communities

State Category, Commonwealth Category

- Priority 3, Endangered
- Priority 3, Vulnerable

Scale
1:220,000@ A3
GDA MGA 94 Zone 51

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

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Figure 3: Desktop Flora and Ecological Community Data (DBCA, 2021 a & b)

	QA Check	*Drawn by*
	KAW	**BMT**
STATUS **FINAL**	*FILE* **AI005-001**	*DATE* **15/03/2022**

4.3. Fauna

The desktop assessment identified 75 species of conservation significance within 30km of the survey area. Of these, 36 were Threatened taxa under the *BC Act 2016* and/ or *EPBC Act 1999* (critically endangered, endangered or vulnerable), 14 were Priority listed or specially protected taxa and 25 were migratory species protected under international agreements. Of the 36 Threatened taxa and 14 Priority taxa, 22 and 1 taxa respectively are also migratory species protected under international agreements (Table 11 in Appendix B). Conservation Categories for Threatened and Priority fauna are presented in Tables 12 and 13 in Appendix C. NatureMap and Protected Matters Search Tool database searches are provided in Appendix E.

The full species list compiled from all available data (Table 18 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.

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

There are no known confirmed breeding sites within a 30km 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 located within 30km of the survey area, the closest being approximately 4.5km to the southwest (DBCA, 2021c; Figure 4). Publicly available DBCA black cockatoo databases also indicate there are confirmed roosting sites within the 30km of the survey area (DBCA, 2018a; 2018c; 2019b).

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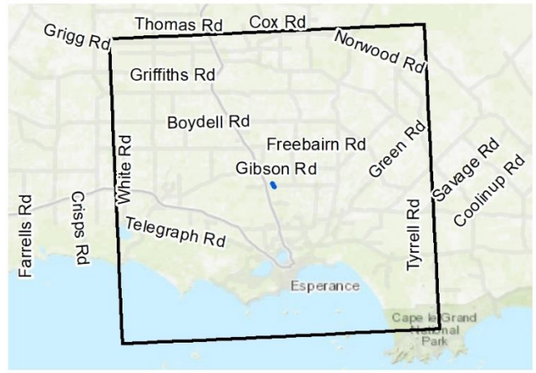

Overview Map Scale 1:1,500,000

Legend

- Survey Area
- 30km Desktop Study Area
- Carnabys Cockatoo Confirmed Roost Sites (DBCA_050)
- Carnabys Cockatoo Confirmed Roost Sites Buffered 6km (DBCA_052)
- Black Cockatoo Roosting Sites Buffered 1km (DBCA_064)

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

DBCA Black Cockatoo Roosting Data

- DBCA Black Cockatoo Roosting Data

Scale
1:220,000@ A3
GDA MGA 94 Zone 51

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

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

	QA Check	*Drawn by*
	KAW	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-001**	**15/03/2022**

5. Results – Field Diversity

5.1. Flora Diversity

During the survey 61 flora species, consisting of 24 families and 53 genera were found. The most commonly occurring families were Myrtaceae (8 species) and Poaceae (7 species). The list includes 40 native species (refer to Table 17 Appendix D), and 21 introduced / alien species. The vegetation units identified across the survey area are described in Section 5.2. Refer to Figure 7 for vegetation mapping, and Appendix D for full species list.

5.2. Vegetation Units

A single vegetation unit consisting of native vegetation was identified during the survey period, with supporting relevé data presented in Appendix D. Relevé were also collected in areas marked as 'Cleared' to demonstrate the lack of native vegetation and complete transition to novel ecosystem that had occurred, such as dominated by *Pinus radiata* (Pine Tree) or *Leptospermum laevigatum* (Victorian Tea Tree). For the purpose of management, the historically cleared areas are outlined as a separate Vegetation Unit. Further detail is provided below.

1. Vegetation Unit: Mixed Sedgeland (MS)

A single pocket of native vegetation was present within the survey area, specifically along a narrow linear corridor and as a laydown north of the survey area. It consisted of a low sedgeland dominated by *Hypolaena exsulca* and *Anarthria prolifera*, mostly of disturbance opportunist or clonal species indicating it has likely been historically cleared. Scattered low shrubs and emerging shrubs were also present, such as *Acacia cyclops, Lambertia inermis* var. *drummondii, Micromyrtus elobata* subsp. *elobata* and *Cyathostemon ambiguus.* A high number of invasive species persisted within this area, primarily of agricultural grasses. Beard Vegetation Association 47 (Shepherd *et al.* 2002), described as "mixed heath with scattered Mallee eg. Tallerack, *Eucalyptus tetragon"'* identified as present within the survey area is representative broadly of the vegetation present.

Vegetation Description (NVIS):	U +/- *Acacia cyclops, Lambertia inermis* var *drummondii*\shrub\4\r; M ^^*Micromyrtus elobata* subsp. *elobata, Cyathostemon ambiguus, Melaleuca scabra*\shrub\3\bc; G+ ^^*Hypolaena exsulca, Anarthria prolifera, +/-Eragrostis curvula*\^sedge, grass\1\d.
Vegetation Description (Muirs):	*Acacia cyclops* and *Lambertia inermis* var. *drummondii* Open Low Shrub A, over *Micromyrtus elobata* subsp. *elobata, Melaleuca scabra, Cyathostemon ambiguus* and *Adenanthos cuneatus* Open Dwarf Scrub C, over *Chamaescilla corymbosa, Lechenaultia formosa, Aotus* sp. Esperance (P.G. Wilson 7904) Open Dwarf Scrub D, over *Mesomelaena tetragona* Dense Tall Sedges, over *Hypolaena exsulca* and *Anarthria prolifera* Dense Low Sedges, over *Eragrostis curvula* and *Avena fatua* Very Open Tall Grass, over *Briza maxima* Very Open Low Grass.

Area: 0.11ha.

Site description: Sandplain, minor drainage depression formed by man-made activity. Light grey sand. Flat slope.

Condition: Degraded.

Represented in R3 (refer to Appendix D).

Figure 5: Mixed Sedgeland (MS) vegetation unit present within the survey area.

2. Vegetation Unit: Cleared

Cleared areas within the survey area were dominated by a variety of non-native novel ecosystems. These areas had evidently been historically cleared and re-grown with entirely non-natives, and occasionally a few scattered disturbance opportunist natives. Four distinct novel ecosystems were present which are outlined below:

1) Pine Tree Stand – Cleared areas had been planted with a Pine tree (*Pinus radiata)* plantation, which has now matured. No midstorey was present, and scattered understorey dominated by Rose Pelargonium *(Pelargonium capitatum)* was present.
2) Dense African Lovegrass – Cleared areas were entirely dominated by African Lovegrass (*Eragrostis curvula*), with scattered agricultural grasses present. This often occurred adject to the access track where evident clearing had occurred but was not being regularly impacted or maintained.
3) Victorian Tea Tree Stands – Historically cleared areas had regenerated to form vegetation entirely dominated to form a monoculture of Victorian Tea Tree (*Leptospermum laevigatum*). A process of out-competing could also have occurred, displacing the native vegetation to create the monoculture stand. Sparse colonial, disturbance opportunist native sedges were present in the understory and scattered agricultural grasses.

Area: 0.81 ha.

Site description: Sandplain, minor drainage depression formed by man-made activity. Light grey sand.

Condition: Completely Degraded

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

Figure 6: Vegetation present within the 'Cleared' vegetation unit , consisting of invasive species.
a) Stand of juvenile Pine Trees (*Pinus radiata)* against a mature line outside the survey area, and with dense grassland of African Lovegrass (*Eragrostis curvula*). b) Large Victorian Tea Tree (*Leptospermum laevigatum*) present, forming a novel ecosystem. c) Dense grassland of African Lovegrass. d) Mature Pine Tree stand.

5.3. Vegetation Condition

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

The vegetation ranged from 'Completely Degraded' to '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. Degradation had primarily occurred through historical clearing related to the directly adjacent railway track, such as access tracks. Cleared areas had often re-grown and formed a novel ecosystem, such as stands of *Pinus radiata* (Pine Trees) or *Leptospermum laevigatum* (Victorian Tea Tree) (Figure 6). It is recognised that whilst these areas are considered invasive and non-native, they do have a biological value in their presence. Vegetation Unit 1 (Mixed Sedgelands) was considered 'Degraded' due to consisting of disturbance opportunist and clonal species, indicating historical clearing and disturbance. A high number of weed species were also present.

Table 6: Vegetation condition rating.

Vegetation Unit	Condition rating	Area (ha)
Cleared	Completely Degraded	0.81
Mixed Sedgeland [MS]	Degraded	0.11
Total		**0.92**

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Overview Map Scale 1:100,000

Legend

- Survey Area
- Cadastre
- 2m Contours
- Railway KM
- Releve

Vegetation Units

- Vegetation Unit 1: Mixed Sedgeland
- Vegetation Unit 2: Cleared

Vegetation Condition

- Degraded
- Completely Degraded

Scale
1:3,000 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

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Figure 7: Vegetation Units & Condition.

	QA Check **BMT**	*Drawn by* **KAW**
STATUS **FINAL**	*FILE* **AI005-001**	*DATE* **12/04/2022**

5.4. Weeds and Disturbance

Of the 61 flora species recorded within the survey area, 21 species are introduced. The full suite of weed species recorded is listed below in Table 7, with their corresponding ratings under the WA Weed Strategy (CALM, 1999) and the *BAM Act 2007*. The ratings given under the WA Weed Strategy relate to determining the significance of a weed, based on the criteria of invasiveness, impacts, potential for spread and socioeconomic and environmental values, and can be either 'High', 'Moderate', 'Mild', or 'Low' (CALM, 1999).

All species except Bridal Creeper (*Asparagus asparagoides)* are classified as 'Permitted – s11'. Bridal creeper is rated as a higher risk classed as 'Declared Pest – s22(2)' under the *BAM Act 2007.* Under the Environmental Weeds Strategy for Western Australia (CALM, 1999) Bridal Creeper, Rose Pelargonium (*Pelargonium capitatum),* Victorian Tea Tree (*Leptospermum laevigatum*), Veldt Grass (*Ehrharta calycina*) and Pussy Tails (*Lagurus ovatus*) were listed as a 'High' risk.

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 spreading of the high number of invasive species to surrounding areas. The biosecurity principles applicable are for preventing the spread to other areas, opposed to introducing invasive species to the survey area.

Table 7: Weed species recorded from the survey area.

Family	Species	Vernacular	WA Weed Strategy rating (CALM 1999) / BAM Act (2007)
Asparagaceae	*Asparagus asparagoides*	Bridal Creeper	High / Declared Pest – s22(2)
Asteraceae	*Conyza* sp.	Fleabane	Low / Permitted – s11
Asteraceae	*Hypochaeris radiata*	Flat Weed	- / Permitted – s11
Asteraceae	*Pseudognaphalium luteoalbum*	Jersey Cudweed	Moderate / Permitted – s11
Asteraceae	*Taraxacum officinale*	Dandelion	Low / Permitted – s11
Asteraceae	*Ursinia anthemoides*	Ursinia	Moderate / Permitted – s11
Crassulaceae	*Crassula natans* var. *minus*	Rufous Stonecrop	- / Permitted – s11
Fabaceae	*Acacia pycnantha*	Golden Wattle	Low / Permitted – s11
Fabaceae	*Trifolium* sp.	Clover	- / Permitted – s11
Geraniaceae	*Pelargonium capitatum*	Rose Pelargonium	High / Permitted – s11
Juncaceae	*Juncus bufonius*	Toad Rush	Moderate / Permitted – s11
Myrtaceae	*Eucalyptus melleodora*	Yellow Ironbox	- / -
Myrtaceae	*Leptospermum laevigatum*	Victorian Tea Tree	High / Permitted – s11
Orchidaceae	*Disa bracteata*	South African Orchid	- / -
Pinaceae	*Pinus radiata*	Pine Tree	Moderate / Permitted – s11
Poaceae	*Briza maxima*	Blowfly Grass	Moderate / Permitted – s11
Poaceae	*Briza minor*	Shivery Grass	Moderate / Permitted – s11
Poaceae	*Ehrharta calycina*	Veldt Grass	High / Permitted – s11
Poaceae	*Eragrostis curvula*	African Lovegrass	High / Permitted – s11
Poaceae	*Lagurus ovatus*	Pussy Tail	High / Permitted – s11
Poaceae	*Lolium perenne*	Perennial Ryegrass	Low / Permitted – s11

5.5. Presence of Conservation Significant Flora

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

Plant identification was undertaken through the most relevant, current and available taxonomic literature, keys and herbarium reference specimens available (Barrett *et al.* 2021; Bennett, 1995; Brundrett, 2014; Hollister & Thiele, n.d.; JSTOR, 2000-; Ng, 2022; WAH 1998 -). All resources used were the most current to knowledge. Nomenclature used through this report follows the most recent scientific names through the Western Australian Herbarium (WAH, 1998-).

Additionally, numerous non-threatened species were identified with close similarities to conservation listed species that were identified in the 30km radius survey. Key rationale behind identification as non-threatened are listed below, and are further expanded in Table 9 of Appendix B:

- *Micromyrtus elobata* subsp. *elobata* – bears similarities to P2 *M. elobata* subsp. *scopula*. Was determined as being the non-threatened subspecies as the leaves were too thin and not circular enough to be considered the P2 subspecies.
- *Microtis media* subsp. *media* – bears similarities to the P4 *Microtis quadrata.* Was determine as being non-threatened species due to the shape of the flowers lip and frilled margins.

5.6. Presence of Threatened and Priority Ecological Communities

One Threatened (TEC) and Priority (PEC) Ecological Community was identified as 'Possible' to occur in the 30km desktop analysis, Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongkan) (Section 4.2; Table 10 Appendix B). Vegetation Unit 1 (Mixed Sedgeland) contained sporadic Proteaceae species. However, the cover of species was well below 30% and were present in a scattered and isolated nature. Therefore, Vegetation Unit 1 did not bear similarity to Kwongkan PEC/TEC.

6. Fauna Survey Results

6.1. Basic Fauna Survey

A description of the two vegetation units identified during the survey is given in Section 5.2, and these broadly correlate with fauna habitat types (refer to Figure 7). The 'Cleared' vegetation unit contains multiple novel ecotypes including areas of introduced species such as African Lovegrass and Victorian Tea Tree. This vegetation unit contains low quality foraging and refuge habitat, including small areas of pine, which provide a food source for Carnaby's Cockatoo. Refer to Figure 9 for images of the fauna habitat present within the survey area.

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, 11 taxa were recorded, of these nine were birds and two were mammals. Refer to full fauna species list in Table 18 in Appendix D.

Notable observations during the survey included feeding debris from Carnaby's Cockatoo (*Calyptorhynchus latirostris*, EN) as evidenced through the presence of chewed pine cones in vegetation containing both juvenile and mature Pine tree stands (Refer to Figure 8). Pine trees were present within the 'Cleared' vegetation unit, predominantly on the eastern side of the railway line, to the north and south of Blumann Road. The chewed pine cones ranged from very old to more recent, with the most significant feeding evidence observed in the eastern portion of the survey area to the south of Blumann Road (Refer to Figures 8 and 11). Scattered feeding signs to the north of Blumann Road were also observed. No other Threatened or Priority fauna species was observed during the survey period.

a) b) c)

Figure 8: Photographs of evidence of conservation significant fauna presence within the survey area.
a)-c) Chewed Pine cones indicating Carnaby's Cockatoo presence.

Overall, the survey area is highly degraded and includes large areas of non-native vegetation and bare ground. Where native vegetation is present it is in degraded condition, reducing its overall ability to provide quality habitat for native species. The 'mixed sedgeland' vegetation unit in the north provides marginal habitat for quenda (*Isoodon fusciventer,* P4) with an increase in native flora species composition (Figure 9). In addition, suitable habitat for quenda is present immediately outside of the survey area where native vegetation is more intact. No evidence of this species was observed during the survey period. An old rabbit warren was located within the 'Mixed Sedgeland' vegetation unit, and low levels of rabbit (*Oryctolagus cuniculus*) activity were detected in the southern parts of the survey area. The marginal habitat quality and presence of introduced species such as rabbit and fox (*Vulpes vulpes*) is likely to be a limiting factor for quenda. The 'Cleared' and 'Mixed sedgeland' vegetation units provide marginal habitat for the fork-tailed swift (*Apus pacificus*, MI) and letter-winged kite (*Elanus scriptus*, P4), however no indicators of species presence were observed.

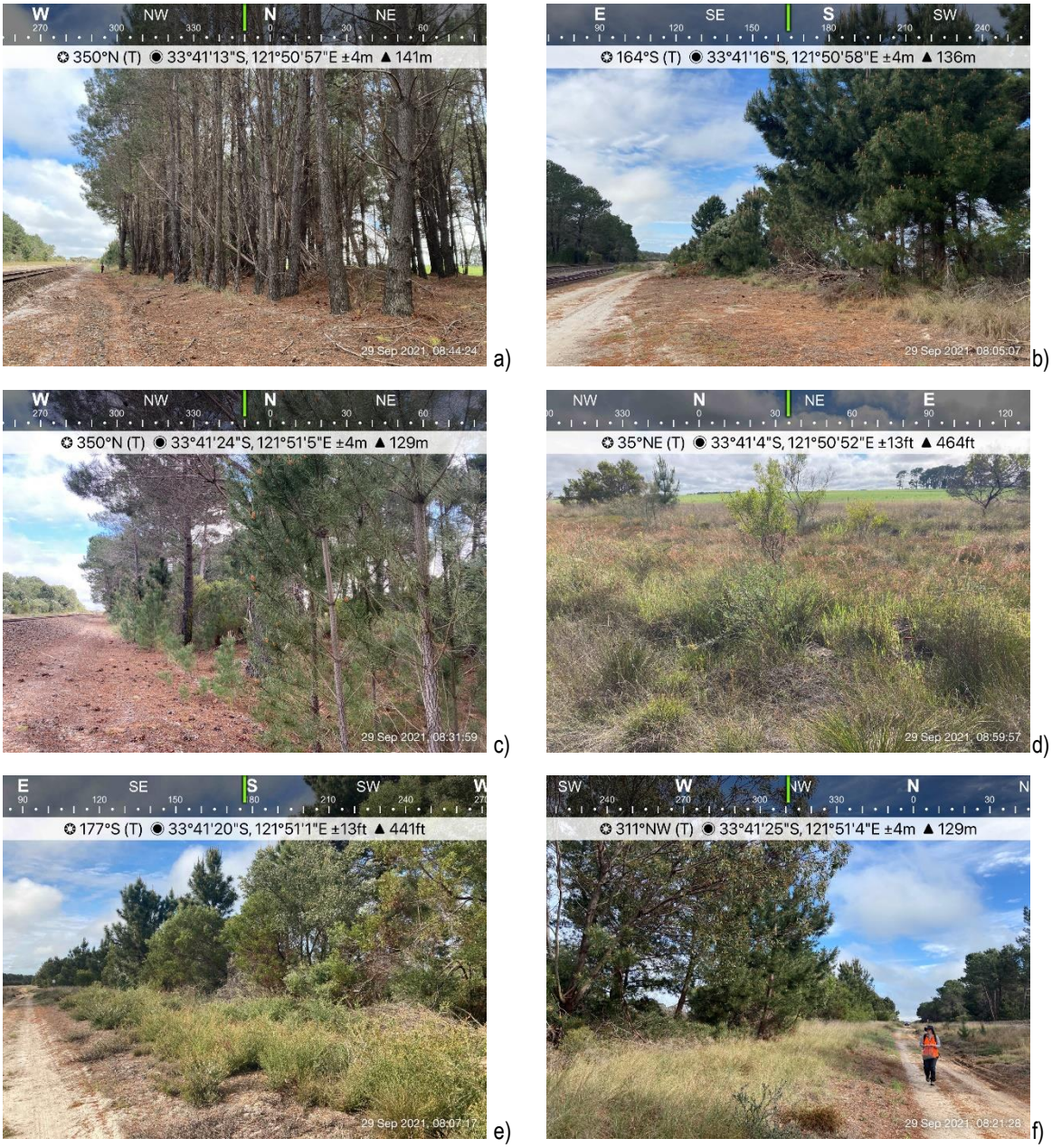

Figure 9: Photographs of suitable habitat for conservation significant fauna within the survey area.
a) – c) Mature and juvenile Pine trees providing roosting and foraging habitat for Carnaby's Cockatoos; d) marginal quenda habitat in the north of the survey area); e) example of marginal hunting habitat present for letter-winged kite within the survey area.

a) b) c) d)

Figure 10: Photographs of evidence of other fauna presence and habitat within the survey area.
a) rabbit scrape / digging; b) emu scat; c) fox scat; and d) old rabbit warren.

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BIO DIVERSE SOLUTIONS

Overview Map Scale 1:100,000

Legend

- Survey Area
- Cadastre
- 2m Contours
- Railway KM

Vegetation Units

- Vegetation Unit 1: Mixed Sedgeland
- Vegetation Unit 2: Cleared

Threatened or Priority Fauna Observed

- *Calyptorhynchus latirostris*, EN

Fauna Habitat

- Rabbit Warren
- Quenda - Marginal Habitat

Scale
1:3,000 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

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Figure 11: Fauna Findings

	QA Check	*Drawn by*
	KB	**BMT**
STATUS **FINAL**	*FILE* **AI005-001**	*DATE* **25/03/2022**

6.2. Targeted Black Cockatoo Assessment

6.2.1. Breeding Habitat

No suitable significant trees were observed within the survey area.

6.2.2. Foraging and Roosting Habitat

The mature and juvenile Pine trees within the 'Cleared' vegetation unit provide a food source for Carnaby's Cockatoo, but the foraging habitat is not considered to be of high quality. No other vegetation within the survey area contains suitable foraging habitat for Carnaby's Cockatoo. Within the southern parts of the survey area, the mapped foraging and roosting habitat (Figure 12) consists predominantly of overhanging Pine tree canopy/branches of trees on the edge of the survey area, with few mature individuals located within the survey area itself. In the northern parts of the survey area, north of Blumann Road, there are large mature Pine trees present within the survey area (Figure 12). There was no evidence of Carnaby's Cockatoo roosting within the survey area, as assessed through the presence of accumulated feathers and faecal material. However, there is potential roosting habitat present within the 'Cleared' vegetation unit. The potential foraging and roosting habitat available for Carnaby's Cockatoos equates to approximately 0.22 ha.

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BIO DIVERSE SOLUTIONS

Overview Map Scale 1:100,000

Legend

- Survey Area
- Cadastre
- 2m Contours
- Railway KM

Threatened or Priority Fauna Observed

- *Calyptorhynchus latirostris*, EN

Fauna Habitat

- Carnaby's Cockatoo Foraging & Roosting Habitat

Scale
1:3,000 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

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Figure 12: Carnaby's Cockatoo Habitat

	QA Check	*Drawn by*
	KB	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-001**	**25/03/2022**

7. Discussion

7.1. Flora and Ecological Communities

The aim for the reconnaissance flora and vegetation survey was to provide the client with information on any Threatened or Priority flora species that are potentially present within the subject site, as well as Threatened/Priority ecological communities, and to provide an assessment on vegetation types and their general condition. One native vegetation unit was were recorded during the survey, namely Mixed Sedgeland (MS). The vast majority of the survey area had been historically cleared, with areas that had regenerated with non-native flora species to form novel ecosystems. Four distinct novel ecosystem units were present within the cleared areas, consisting of Pine Tree stands, dense African Lovegrass, Victorian Tea Tree stand and Bare Ground with herbs and grasses. These vegetation units broadly align with different habitat types. The condition of vegetation unit was considered in a 'Degraded' condition due to historical disturbance and impact. The vast majority of the survey area did not contained native vegetation and was cleared.

A total of 61 flora species were recorded, comprising 40 native species and 21 introduced species. 7 Threatened and 63 Priority flora species were identified in the desktop assessment. None of these or any other Threatened or Priority flora species were detected within the survey area.

Two Threatened/Priority ecological communities identified in the desktop assessment, *'Subtropical Coastal Saltmarsh'* and '*Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia'.* Neither of these were detected within the survey area, with vegetation present not meeting abiotic requirements or below the condition criteria thresholds.

During the survey, a number of environmental weed species were also recorded. A single species were present that is classed as 'Declared Pest – s22(2)' under the *BAM Act 2007*, Bridal Creeper (*Asparagus asparagoides*). Under the Environmental Weeds Strategy for Western Australia (CALM, 1999) Bridal Creeper, Rose Pelargonium (*Pelargonium capitatum),* Victorian Tea Tree (*Leptospermum laevigatum*), Veldt Grass (*Ehrharta calycina*) and Pussy Tails (*Lagurus ovatus*) were listed as a 'High' risk. 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 spreading of the high number of invasive species to surrounding areas. The biosecurity principles applicable are for preventing the spread to other areas, opposed to introducing invasive species to the survey area.

7.2. Basic Fauna Survey and Significant Tree Survey

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

During the survey, a relatively low level of fauna diversity was detected with just 11 taxa identified during the survey period. This is reflective of the poor quality of the habitat available within the survey area. Carnaby's Cockatoo is the only conservation significant species identified during the survey period. Presence of this species was detected through the presence of feeding debris (chewed pine cones).

No suitable breeding trees were observed within the survey area, however there is suitable foraging and roosting habitat present within the 'Cleared' vegetation unit in the form of mature and juvenile Pine trees. There was evidence of localised significant feeding events on the edge of the survey area in the southern parts of the survey area, and scattered feeding events observed to the north of Blumann Road. Given the abundance of Pine trees available for foraging immediately adjacent of the survey area, it is expected Carnaby's are foraging within these larger areas and are not restricted to the small proportion of available feed within the survey area itself. The Pine trees present provide the only suitable foraging habitat for Carnaby's Cockatoo within the survey area. Given this lack of diversity, the foraging habitat is not considered 'high quality'. This however does not diminish the importance of the food resources provided, particularly in a fragmented agricultural landscape where Pine trees can be an important dietary supplement.

No faecal matter or feathers were observed within the survey area, indicating it does not contain any existing roost sites. There are water bodies present in close proximity to the survey area (~440 meters), which is an important attribute for a potential roost site. It is unknown how many of these are fresh water, and there is a high likelihood some are brackish / salt water. This

along with the fact the survey area does not contain high quality foraging habitat makes it less favourable as potential roosting habitat for the Carnaby's Cockatoo.

Overall, the area proposed to be cleared will result in a loss of 0.22 ha of low quality foraging and roosting habitat. The *EPBC Act 1999* referral guidelines for the three Threatened black cockatoo species stipulates that a proposal should be referred for assessment if more than 1 ha of high-quality habitat is to be removed. Given the habitat present is less than 1 ha and is not of high-quality it is unlikely this proposal will need to be referred under the *EPBC Act 1999*.

8. References

Barrett, R.L., Bruhl, J.J. and Wilson, K.L. (2021). *Revision of generic concepts in Schoeneaea subtribe Tricostulariinae (Cyperaceae) with a new Australian genus Ammothryon and new species of Tricostuliaria.* Telopea, Journal of Plant Systematics. 24: 61-169.

Beard, J. S., Beeston, G.R., Harvey, J.M., Hopkins, A. J. M. and Shepherd, D. P. (2013). The vegetation of Western Australia at the 1:3,000,000 scale. Explanatory memoir. Second edition. *Conservation Science Western Australia* 9: 1-152.

Bennett E.M. (1995). *Conospermum. In: Flora of Australia 16. ABRS, Canberra.* KeyBase, Teaching old keys new tricks. Accessible: https://keybase.rbg.vic.gov.au/keys/show/11344

BoM, Bureau of Meteorology Australia (2022) Climate Statistics for Australian Locations – Esperance Aero (Station #009542) Accessed: December 2021 www.bom.gov.au

Brundrett, M. (2014). *Identification and ecology of Southwest Australian Orchids.* Western Australian Naturaliste Club.

CALM, Department of Conservation and Land Management (1999). *Environmental Weed Strategy for Western Australia,* Department of Conservation and Land Management, Como.

CoA, Commonwealth of Australia (2013). *Draft Guidelines for Australia's Threatened Orchids',* Department of the Environment, Department of Agriculture, Water and the Environment. Accessible: https://www.awe.gov.au/resource/draft-survey-guidelines-australias-threatened-orchids

Comer, S., Gilfillan, S., Barrett, S., Grant, M., Tiedemann, K., and Lawrie,K. (2001). *Esperance 2 (ESP2 – Recherche subregion). A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002.* Department of Conservation and Land Management.

DAWE, Department of Agriculture, Water and Environment (2021). *EPBC Act Protected Matters Search Tool*. URL: http://www.environment.gov.au/webgis-framework/apps/pmst/pmst.jsf#

DBCA (2007 –) *NatureMap: Mapping Western Australia's Biodiversity*. Department of Parks and Wildlife. URL: https://naturemap.dbca.wa.gov.au/

DBCA, Department of Biodiversity, Conservation and Attractions (2017). South Coast Significant Wetlands (DBCA-018) dataset.

DBCA, Department of Biodiversity, Conservation and Attractions (2018a). Carnabys Cockatoo Confirmed Roost Sites (DBCA-050) dataset.

DBCA, Department of Biodiversity, Conservation and Attractions (2018b). Carnabys Cockatoo Unconfirmed Roost Sites (DBCA-051) dataset.

DBCA, Department of Biodiversity, Conservation and Attractions (2018c). Carnabys Cockatoo Confirmed Roost Sites Buffered 6km (DBCA-052) dataset.

DBCA, Department of Biodiversity, Conservation and Attractions (2018d). Carnabys Cockatoo Unconfirmed Roost Sites Buffered 6km (DBCA-053) dataset

DBCA, Department of Biodiversity, Conservation and Attractions (2018e). Carnabys Cockatoo Confirmed Breeding Areas within the Swan Coastal Plain and Jarrah Forest IBRA Regions (DBCA-054) dataset

DBCA, Department of Biodiversity, Conservation and Attractions (2018f). Carnabys Cockatoo Unconfirmed Breeding Areas within the Swan Coastal Plain and Jarrah Forest IBRA Regions (DBCA-055) dataset

DBCA, Department of Biodiversity, Conservation and Attractions (2018g). Carnabys Cockatoo Areas requiring investigation as feeding habitat in the Jarrah Forest IBRA Region (DBCA-056) dataset.

DBCA, Department of Biodiversity, Conservation and Attractions (2019a). Black Cockatoo Breeding Sites - Buffered (DBCA-063) dataset.

DBCA, Department of Biodiversity, Conservation and Attractions (2019b). Black Cockatoo Roosting Sites - Buffered (DBCA-064) dataset.

DBCA, Department of Biodiversity, Conservation and Attractions (2021a), *Threatened and Priority Flora Database Search for Line 51 (359.79 - 362) Blumann Road* accessed on the 22/09/2021. Prepared by the Species and Communities program for Katie White, Bio Diverse Solutions (59-0921FL) for reconnaissance flora and vegetation survey.

DBCA, Department of Biodiversity, Conservation and Attractions (2021b), *Threatened and Priority Ecological Community Database Search for Line 51 (359.79 - 362) Blumann Road* accessed on the 22/09/2021. Prepared by the Species and Communities program for Katie White, Bio Diverse Solutions for reconnaissance flora and vegetation survey.

DBCA, Department of Biodiversity, Conservation and Attractions (2021c) *Threatened and Priority Fauna Database Search for Line 51 (359.79-362) Blumann Road* accessed on the 22/09/2021. Prepared by the Species and Communities Program for Katie White, Bio Diverse Solutions (FAUNA#6844) for a basic fauna survey and targeted black cockatoo survey.

DBCA, Department of Biodiversity, Conservation and Attractions (2021d). *Priority Ecological Communities for Western Australia Version 32.* Species and Communities Program. Available from: https://www.dpaw.wa.gov.au/images/documents/plants-animals/threatened-species/Listings/Priority%20Ecological%20Communities%20list.pdf

DEC, Department of Environment and Conservation. (2008). *Forest Black Cockatoo (Baudin's cockatoo Calyptorhynchus baudinii and Forest Red-tailed Black Cockatoo Calyptorhynchus banksii naso) Recovery Plan*. Perth WA: DEC. Retrieved from: http://www.environment.gov.au/resource/forest-black-cockatoo-baudin%E2%80%99s-cockatoo-calyptorhynchus-baudinii-and-forest-red-tailed

DEWHA, Department of the Environment, Water Heritage and the Arts (2010). *Survey guidelines for Australia's threatened birds. Guidelines for detecting birds listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999.*

DoE, Department of the Environment (2015a). *Conservation Advice for Subtropical and Temperate Coastal Saltmarsh*. Canberra: Department of the Environment. Available from: http://www.environment.gov.au/biodiversity/threatened/communities/pubs/118-conservation-advice.pdf. In effect under the EPBC Act from 04-Dec-2015.

DoE, Department of the Environment (2015b). *Approved Conservation Advice for Proteaceae Dominated Kwongkan Shrublands of the southeast coastal floristic province of Western Australia*. Canberra: Department of the Environment. Available from: http://www.environment.gov.au/biodiversity/threatened/communities/pubs/126-conservation-advice.pdf. In effect under the EPBC Act from 04-Dec-2015.

DPaW, Department of Parks and Wildlife (2013). *Carnaby's cockatoo (Calyptorhynchus latirostris) Recovery Plan.* Department of Parks and Wildlife, Perth, Western Australia.

DPIRD, Department of Primary Industries and Regional Development (2018a). Soil landscape land quality - Zones (DPIRD-017) dataset.

DPIRD, Department of Primary Industries and Regional Development (2018b). Hydrological Zones of Western Australia (DPIRD-069) dataset.

DPIRD, Department of Primary Industries and Regional Development (2019a). Soil Landscape Mapping - Best Available (DPIRD-027) dataset.

DPIRD, Department of Primary Industries and Regional Development (2019b). Pre-European Vegetation (DPIRD-006) dataset.

DPIRD, Department of Primary Industries and Regional Development (2021). Soil Landscape Mapping - Systems (DPIRD-064) dataset.

DSEWPaC, Department of Sustainability, Environment, Water, Population and Communities (2011). *Survey guidelines for Australia's threatened mammals. Guidelines for detecting mammals listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999*. Government of Australia; and

DSEWPaC, Department of Sustainability, Environment, Water, Population and Communities (2012). *EPBC Act Referral Guidelines for Three Threatened Black Cockatoo Species: Carnaby's Cockatoo (Calyptorhynchus latirostris), Baudin's Cockatoo (Calyptorhynchus baudinii), Forest Red-tailed Black Cockatoo (Calyptorhynchus banksii naso).* Government of Australia.

DWER, Department of Water and Environmental Regulations (2013). Conservation Advice (including Listing Advice) for Subtropical and Temperate Coastal Saltmarsh. Available from: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjKnp-MxJ_tAhUzzjgGHfneBnQQFjABegQIAxAC&url=http%3A%2F%2Fsecure.environment.gov.au%2Fbiodiversity%2Fthreatened%2Fcommunities%2Fpubs%2Fdraft-subtropical-temperate-coastal-saltmarsh.pdf&usg=AOvVaw0ELE7VZ-He5uoXc2hPlRXb

DWER, Department of Water and Environmental Regulation (2020a) Public Drinking Water Source Areas (DWER033) dataset accessed January 2021 from https://maps.slip.wa.gov.au/landgate/locate/

DWER, Department of Water and Environmental Regulation (2020b). Clearing Regulations - Environmentally Sensitive Areas (DWER-046) dataset

EPA, Environmental Protection Authority (2016). *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*, EPA, Western Australia.

EPA, Environmental Protection Authority (2020). *Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment*, EPA, Western Australia.

Euclid (n.d.) *Eucalypts of Australia, Fourth Edition,* Commonwealth Science Industry Research Organisation, Australian Biological Resources Study, Centre of Australian National Biodiversity Research, Department of Agriculture, Water and the Environment. Accessible: https://apps.lucidcentral.org/euclid/text/intro/index.html

GoWA, Government of Western Australia (2019). 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth.

Hollister, C and Thiele, K. (n.d.). *Pea Flowers of Western Australia: A key to the Western Australian species of pea flowers.* Accessible: https://florabase.dpaw.wa.gov.au/science/key/fabaceae/

Hopper S and Gioia P (2004). The southwest Australian floristic region: Evolution and conservation of a global hot spot of biodiversity. Annual Review of Ecology, Evolution, and Systematics, 35, p 623-50.

Johnstone, R.E. and Storr, G.M. (1998). *Handbook of Western Australian Birds, Volume I, Non-passerines (Emu to Dollarbird)*. Western Australian Museum, Perth.

Johnstone, R.E., Johnstone, C. and Kirkby, T. (2011). *Black Cockatoos on the Swan Coastal Plain*. Report for the Department of Planning, Western Australia.

JSTOR (2000 -). *Global Plants, Herbarium Specimens.* Accessible: https://plants.jstor.org/collection/TYPSPE

Keighery, B. (1994) *Bushland Plant Survey, A Guide to Community Survey for the Community*, Wildflower Society of WA (Inc.) Nedlands, WA.

Maslin, B.R. (2018 -) *Wattles of Australia, Version 3.* Australian Biological Resources Study, Department of Biodiversity, Conservation and Attractions, Identic Pty Ltd. Accessible: https://apps.lucidcentral.org/wattle/identify/key.html

Ng, B. (2022). *Fierce Flora Index: Carnivorous Plants of Australia.* Accessible: https://www.fierceflora.com/

Sandiford, E.M. and Barrett, S. (2010) *Albany Regional Vegetation Survey, Extent Type and Status.* A project funded by the Western Australian Planning Commission (EnviroPlanning "Integrating NRM into Land Use Planning" and State NRM Program), South Coast Natural Resource Management Inc. and City of Albany for the Department of Environment and Conservation. Unpublished report. Department of Environment and Conservation, Western Australia.

Saunders, D.A., Mawson, P.R. and Dawson, R. (2014a) *Use of tree hollows by Carnaby's Cockatoo and the fate of large hollow-bearing trees at Coomallo Creek, Western Australia 1969–2013*. Biological Conservation 117: 185–193.

Saunders, D.A., Dawson, R., Doley, A., Lauir, J., Le Souëf, A., Mawson, P.R, Warren, K., and White, N. (2014b). *Nature conservation on agricultural land: a case study of the endangered Carnaby's Cockatoo Calyptorhynchus latirostris breeding at Koobabbie in the northern wheatbelt of Western Australia*. Nature Conservation 9: 19–43.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2002). *Native Vegetation in Western Australia, extent Type and Status*. Technical Report 249, Department of Agriculture WA.

Tanna, R (2021). *EBLTUP 2022 Scope of works spreadsheet – allocation of KM to Engineer Project Site numbers.* Arc Infrastructure.

WAH, Western Australian Herbarium (1998-). *FloraBase*: The Western Australian Flora. Available online at: https://florabase.dpaw.wa.gov.au/

9. Appendices

Appendix A – Maps

Appendix B - Conservation Significant Values Likelihood of Occurrence Analysis

Appendix C - Conservation Status Definitions and Condition Scale

Appendix D - Species Lists and Relevé Data

Appendix E - NatureMap and EPBC Act PMST reports

Appendix A

Maps

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BIO DIVERSE SOLUTIONS

Overview Map Scale 1:100,000

Legend

- Cadastre
- Survey Area
- Railway KM

Environmental Risk Assessment

- Green
- Red
- Yellow

Scale
1:3,000 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

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Figure 13: Environmental Risk Assessment

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BIO DIVERSE SOLUTIONS

Overview Map Scale 1:100,000

Legend

Survey Area

Cadastre

Pre European Vegetation (DPIRD_006)

ESPERANCE_47

Scale
1:3,000 @ A3
GDA MGA 94 Zone 51

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

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Figure 14: Desktop Vegetation Data

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BIO DIVERSE SOLUTIONS

Overview Map Scale 1:100,000

Legend

- Survey Area
- Cadastre

Survey Effort

- Terrestrial Flora & Vegetation
- Terrestrial Vertebrate Fauna

Scale
1:3,000 @ A3
GDA MGA 94 Zone 51

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

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Figure 15: Survey Effort

	QA Check	*Drawn by*
	KAW	**BMT**
STATUS	*FILE*	*DATE*
FINAL	**AI005-001**	**15/03/2022**

Appendix B

Conservation Significant Values Likelihood of Occurrence Analysis

Table 8: Criteria for assessing the likelihood of occurrence of Threatened or Priority flora and fauna within a 30km 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 9: Potential conservation significant flora located 30k**m 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 (Brundrett, 2014; Euclid, n.d.; JSTOR, 2000 - ; Maslin, 2018 - ; WAH, 1998 -).
NB – Acronyms used in the table include critically endangered (Cr), endangered (En), Vulnerable (Vu).

Family	Species	Vernacular	Status (WA)	NatureMap	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Likelihood Analysis	Flora Survey Outcome
Fabroniaceae	*Fabronia hampeana*		2	X		X	Moss species. Silver green species.	Often growing on Macrozamia species. Mixed woodlands.		Outside of expertise of surveyors - don't cover moss.	Unlikely - no Macrozamia plants present within survey area.
Orchidaceae	*Paracaleana parvula*	Esperance Duck Orchid	2	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 - recorded within direct area and suitable habitat present.	Not detected - no leaves or early flowers were observed. Likely too disturbed and poor condition to be present.
Dilleniaceae	*Hibbertia turleyana*		2	X		X	Procumbent shrub to 0.2 m high, to 0.35 m wide. Flowers yellow.	Dry white sand. Flats, seasonally wet areas.	August	Likely- recorded in nearby areas. Potential suitable habitat.	No detected - Hibbertia identified as present were significantly different in structure and form to *H. turleyana.*
Orchidaceae	*Pterostylis faceta*	Esperance Bird Orchid	3			X	Annual herb. Flowers green.	Mallee dominated shrubland, dense low heath. Mixed soil types	Aug to Sept	Likely - recorded within direct area and suitable habitat present.	Not detected - no leaves or early flowers were observed. Likely too disturbed and poor condition to be present.
Goodeniaceae	*Dampiera sericantha*		3	X		X	Erect, slender perennial, herb, 0.05-0.3(-0.6) m high, stems with blunt angles. Fl. Blue.	Sand, sometimes with gravel. Plains. Associated with disturbance.	May or Aug to Dec.	Likely - suitable habitat and often associated with disturbance.	Not detected.
Euphorbiaceae	*Stachystemon vinosus*		4	X		X	Compact shrub, to 0.1 m high. Flowers purple -red/white.	Fine loamy sand, stony soils. Sandplains, rock crevices on breakaways.	Sep to Nov	Likely - suitable habitat present of woodlands and sand.	Not detected.
Myrtaceae	*Cyathostemon* sp. Esperance (A. Fairall 2431)		1	X		X	Shrub, 2-4 m tall. Leaves pointed. Flowers white; free part of stamens longer than fused part.	Shrubland. Salt Lake Margin. Sandy gravel.	Sept - Oct	Possible - lack of suitable habitat of inland salt lakes. Within 600m of potential salt lake and some man-made depressions present.	Not detected - Cyathostemon present was determined as common, non-threatened Cyathostemon ambiguus
Myrtaceae	*Baeckea* sp. Gibson (K.R. Newbey 11084)		1	X		X	Spreading, erect, mid-dense shrub, to 2 m high. Fl. Pink.	Brown sandy loam over laterite & granite. Moderately exposed hills, cleared bushland.	Jun or Nov to Dec.	Possible - suitable habitat potentially present.	Not detected.
Ericaceae	*Leucopogon* sp. Lake Magenta (K.R. Newbey 3387)		1	X				Uplands; sand or sand over laterite.	Nov	Possible - wide and varied distribution, recorded in Esperance vicinity. Potential suitable soil type.	Not detected.
Ericaceae	*Styphelia coelophylla*		1	X			Erect shrub, 0.3-0.6 m high. Flowers pink/white.	Gravelly sandy soils.	Sep to Nov.	Possible - wide and varied distribution, recorded in Esperance vicinity. Potential suitable soil type.	Not detected.
Cyperaceae	*Schoenus* sp. Grey Rhizome (K.L. Wilson 2922)		1	X		X	Grass-like or herb (sedge), 0.06-0.08 m high.	Sandy clay, sand. Scattered subcoastal (<30 km of coastline) from Cape Arid to Albany.	Oct	Possible - widespread and variable suitable habitat.	Not detected.
Ericaceae	*Leucopogon corymbiformis*		2	X		X	Open or erect low shrub with white flowers. <0.5 m high.	Associated with *Banksia speciosa* woodland and deep white sands.	Aug to Sept	Possible - potential suitable habitat historically prior to disturbance.	Not detected.
Rhamnaceae	*Spyridium mucronatum* subsp. *multiflorum*		2	X		X	Erect or spreading shrub, 0.15-0.6 m high. Fl. white-cream-yellow.	Gravelly loam or clay.	Oct to Dec or Jan.	Possible - suitable habitat potentially present and recorded in general vicinity.	Not detected.
Iridaceae	*Patersonia inaequalis*	Unequal Bract Patersonia	2	X		X	Rhizomatous, tufted perennial, herb, 0.2-0.4 m high. Fl. White.	Sandy clay, lateritic or granitic sand.	Aug to Oct.	Possible - wide and varied distribution, recorded in Esperance vicinity. Potential suitable soil type.	Not detected - Patersonia species present did not bear physiological similarity.

Table 9 continued.

Family	Species	Vernacular	Status (WA)	NatureMap	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Likelihood Analysis	Flora Survey Outcome
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 - wide and varied habitat and suitable soil types. Record in general vicinity.	Not detected.
Ericaceae	*Brachyloma mogin*		P3	X		X	Compact shrub, 0.4 m high. Flowers red/pink/white.	Grey clayey sand. Swamp flat.	Jun	Possible - lack of suitable habitat of inland salt lakes. Within 600m of potential salt lake and some man-made depressions present.	Not detected.
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	Possible - lack of suitable habitat of inland salt lakes. Within 600m of potential salt lake and some man-made depressions present.	Not detected.
Fabaceae	*Acacia bartlei*		P3	X		X	Erect shrub or tree from 1.5-7 m tall. Narrow phyllodes, oblong to elliptic. Glabrous. Pods linear 20-65 mm long, 2.5-3.5 mm wide.	Uncommon, around Esperance. Flat or gently undulating landscape. Waterlogged depressions in brown or grey, sandy loam or clay-loam or in grey sand over clay adjacent to depressions. Tolerates level of salinity.	Late June ot Mid Oct	Possible - lack of suitable habitat of inland salt lakes. Within 600m of potential salt lake and some man-made depressions present.	Not detected.
Fabaceae	*Acacia euthyphylla*		P3	X		X	Shrub, 0.7-2 m high. Flowers yellow.	Grey/white sand, clay loam. Margins of salt lakes and marshes. Seasonal swamps.	Aug to Sept	Possible - lack of suitable habitat of inland salt lakes. Within 600m of potential salt lake and some man-made depressions present.	Not detected.
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	Possible - lack of suitable habitat of inland salt lakes. Within 600m of potential salt lake and some man-made depressions present.	Not detected.
Myrtaceae	*Melaleuca dempta*		P3	X		X	Shrub, 0.2-0.6 m high. White cream flowers. Rounder and more circular leaves to similar non-threatened *Melaleuca calycina*.	Shrubland and mallee. White clayey soils. Sometimes recorded on salt lakes.	Aug	Possible - lack of suitable habitat of inland salt lakes. Within 600m of potential salt lake and some man-made depressions present.	Not detected - Melaleuca species present had distinctively different shaped and size leaves.
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	Possible - lack of suitable habitat of inland salt lakes. Within 600m of potential salt lake and some man-made depressions present.	Not detected.
Goodeniaceae	*Goodenia laevis* subsp. *laevis*	Smooth Goodenia	P3	X		X	Erect, woody shrub or subshrub. 0.1-0.25 m high. Largest leaves 15-25 x 1-3 mm, entire. Flowers yellow.	Sandy loam or laterite.	Aug to Dec	Possible - mostly associated with north of subject site. Often associated with disturbance.	Not detected.
Ericaceae	*Leucopogon interruptus*		P3	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 - potential suitable habitat historically prior to disturbance.	Not detected.
Fabaceae	*Daviesia pauciflora*		P3	X		X	Diffuse, many stemmed, sprawling shrub. 0.3-0.8 m high. Lacking formal leaves. Flowers Yellow and red.	White or grey sand over laterite or limestone. Flats. Associated with deep sands, often with Banksia speciosa or Kwongkan shrublands.	Oct to Dec or Jan	Possible - potential suitable habitat historically prior to disturbance.	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 - suitable habitat potentially present.	Not detected.

Table 9 continued.

Family	Species	Vernacular	Status (WA)	NatureMap	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Likelihood Analysis	Flora Survey Outcome
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 - suitable habitat potentially present and recorded in general vicinity.	Not detected.
Ericaceae	*Styphelia rotundifolia*		P3	X		X	Erect, compact shrub to 1.5 m high x 1.5 m wide. Flowers cream and erect.	Mixed heath and shrublands. Mostly recorded in coastal areas.	April	Possible - wide and varied distribution, recorded in Esperance vicinity. Potential suitable soil type.	Not detected.
Loganiaceae	*Adelphacme minima*		P3	X		X	Annual.	Small post fire.	Sept -Oct; Nov-Jan	Possible - wide and varied distribution, recorded in Esperance vicinity. Potential suitable soil type.	Not detected.
Malvaceae	*Commersonia rotundifolia*	Round Leaved Rulingia	P3	X		X	Shrub to 1.5 m high. Semi-erect. Cream flowers, white calyx with green base. Petal's 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.	Aug to Feb	Possible - wide and varied distribution, recorded in Esperance vicinity. Potential suitable soil type.	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 - wide and varied distribution, recorded in Esperance vicinity. Potential suitable soil type. Most distribution further north in Scaddan region.	Not detected.
Proteaceae	*Persoonia cymbifolia*		P3	X		X	Erect, spreading shrub, 0.20.6 (1) m high. Flowers yellow.	Sandy soils. On flats or in rock crevices.	Dec or Jan	Possible - wide and varied distribution, recorded in Esperance vicinity. Potential suitable soil type. Most distribution further north in Scaddan region.	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.	May or Oct to Dec or Jan	Possible - wide and varied habitat.	Not detected - Eucalyptus species present planted and not endemic to the region.
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.	Sept to Nov	Possible - widespread and variable suitable habitat.	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 - suitable habitat potentially present.	Not detected.
Scrophulariaceae	*Eremophila glabra* subsp. Scaddan (C. Turley s.n. 10/11/2005)		T - Cr	X	X	X	Large shrub, flowers green.	Associated with habitat for salt lakes in the Scaddan/Esperance region.	August to November	Unlikely - lack of suitable habitat of inland salt lakes.	Lack of suitable habitat.
Proteaceae	*Lambertia echinata* subsp. *echinata*	Western Prickly Honeysuckle	T - En	X	X	X	Prickly, much branched, non-lignotuberous shrub. 1.5 m high. Flower orange, red to pink. Leaves with tridentate shape.	Gravely sandy loam, brown sandy loam, white grey sand, granite, laterite. Entirely restricted or known from Cape Le Grand National Park.	Sept to Oct	Unlikely - distribution restricted to Cape Le Grand, and lack of suitable habitat without granite or rise present.	Lack of suitable habitat.
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 - lack of suitable form of diverse Mallee Woodland. Distribution restricted to further west, Cascade region.	Lack of suitable habitat.

Table 9 continued.

Family	Species	Vernacular	Status (WA)	NatureMap	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Likelihood Analysis	Flora Survey Outcome
Haemodoraceae	*Anigozanthos bicolor* subsp. *minor*	Small Tow-coloured Kangaroo Paw	T - En	X	X	X	Rhizomatous, perennial, herb, 0.05-0.2 m high. Fl. Green & red.	Sand. Well-watered sites. Subcoastal freshwater sumps, off granite.	Aug to Oct	Unlikely - lack of suitable habitat with no granite or freshwater sumps present.	Lack of suitable habitat.
Euphorbiaceae	*Ricinocarpos trichophorus*	Barrens Wedding Bush	T - En		X		Erect, openly branching shrub, 0.3-1 m high. Fl. White.	Sandy clay, loam. Breakaways, among sandstone rocks.	May or Aug to Sep	Unlikely - lack of suitable soil type of breakaways.	Lack of suitable habitat.
Myrtaceae	*Eucalyptus merrickiae*	Goblet Mallee	T - Vu	X	X	X	Mallee, 2-4(6) m high. Bark rough and flaky. Distinguished by extremely red bud caps. Silver sheen to leaves.	Sandy clay, grey sand. Associated strongly with salt lakes in the Scaddan to Salmon Gums area, Esperance.	Aug to Nov	Unlikely - lack of suitable habitat of inland salt lakes and distribution significantly further north in Scaddan area.	Lack of suitable habitat.
Fabaceae	*Kennedia glabrata*	Northcliffe Kennedia	T - Vu		X		Prostrate shrub, 0.05-0.5 m high, to 5 m wide. Fl. Red.	Soil pockets, sandy soils. Granite outcrops.	Aug to Nov.	Highly unlikely - recorded west of Albany, over 500km. Lack of suitable habitat, no granite present.	Lack of suitable habitat.
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.	Lack of suitable habitat.
Thymelaeaceae	*Pimelea pelinos*		P1	X		X	Erect, scraggly shrub, 0.3-0.6 m high. Flowers Cream.	Sandy clay, salt lakes.	Jun to Jul	Unlikely - distribution significantly further north in Scaddan/Grass Patch area. Lack of suitable habitat of no salt lakes directly present within subject site.	Lack of suitable habitat.
Myrtaceae	*Darwinia* sp. Gibson (R.D. Royce 3569)		P1	X		X	Compact shrub to 0.4 m high. Flowers yellow/orange. Small succulent looking shrub.	Grey-brown sandy clay and white sand on margins of Salt Lake.	Jun to July	Unlikely - lack of suitable habitat of being directly recorded and present on the salt lake.	Lack of suitable habitat.
Goodeniaceae	*Goodenia turleyae*		P1	X		X	Annual herb, 0.03-0.04 m high. White or grey-brown sand over clay, yellow-brown gravelly clay and granite.	Moist sheltered areas near salt lakes.	Sept to Oct	Unlikely - lack of suitable habitat of inland salt lakes.	Lack of suitable habitat.
Euphorbiaceae	*Beyeria physaphylla*		P1	X		X	Shrub, to 0.5 m high. Scraggly. Flowers axial, separate male and female flowers.	Restricted to Scaddan. Grows in Mallee Eucalypt with Melaleuca, Hakea and Leptospermum sp. On grey sandy soil on edge of salt lakes.	Sept	Unlikely - lack of suitable habitat of inland salt lakes and distribution significantly further north in Scaddan area.	Lack of suitable habitat.
Haloragaceae	*Myriophyllum muelleri*	Hooded Water Milfoil	P1	X		X	Slender, aquatic annual, herb. Stems to 0.6 m long. Flowers red.	Lagoons. Two records - Nambung River near Gingin and pond off South Coast Hwy.		Unlikely - lack of suitable habitat of open water source.	Lack of suitable habitat.
Myrtaceae	*Eucalyptus sweedmaniana*		P2	X			Prostrate Mallee, smooth silver-grey bark, large winged and pink fruit. Flowers red to pink.	Restricted to east of Esperance in coastal habitat.	Sporadic	Unlikely - distribution restricted to Cape Arid area, significantly further east than subject site. Lack of suitable habitat of coastal.	Lack of suitable habitat.
Araliaceae	*Hydrocotyle asterocarpa*	Starry Pennywort	P2	X		X	Small annual herb, trilobed and toothed leaves. Bright green with purple stem.	Distribution restricted to Truslove Nature reserve. Sandy loam soils on margins of inland salt lakes in sheltered positions of Tecticornia and Frankenia sp.	Sept to Nov	Unlikely - lack of suitable habitat of inland salt lakes.	Lack of suitable habitat.
Araliaceae	*Hydrocotyle tuberculata*	Bumpy-fruited Pennywort	P2	X		X	Small herb, 1-3 cm high, 2-4 cm wide, reddish green colour. Simple umbel flowers.	Low shrubs and samphire with Disphyma and *Wilsonia humilis*. Full sun area.	Oct	Unlikely - lack of suitable habitat of inland salt lakes.	Lack of suitable habitat.

Table 9 continued.

Family	Species	Vernacular	Status (WA)	NatureMap	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Likelihood Analysis	Flora Survey Outcome
Chenopodiaceae	*Tecticornia indefessa*		P2	X		X	Prostrate, perennial shrub, 0.05-0.15 m high.	White to brown-grey sand. Near the edges of salt lakes.		Unlikely - lack of suitable habitat of inland salt lakes.	Lack of suitable habitat.
Ericaceae	*Astroloma* sp. Grass Patch (A.J.G. Wilson 110)		P2	X		X	Multi-stemmed, domed shrub. 0.2-0.4 m high. Red flowers. Flowers facing upwards, very skinny leaves.	White/grey sand, edge of Salt Lake in Melaleuca thickets.	June to August	Unlikely - lack of suitable habitat of inland salt lakes.	Lack of suitable habitat.
Goodeniaceae	*Goodenia exigua*		P2	X		X	Perennial, prostrate, compact and rhizomatous shrub. 3 cm high x 4 cm wide. Yellow flowers. Perennial herb, ground hugging, flowers white with purplish brown markings.	Edge of salt lakes or seasonally inundated plains. Grey clay. Occurs in the Stirling Ra. and at Moirs Inlet, W.A. Grows in saline clays.	Oct to Jan	Unlikely - lack of suitable habitat of inland salt lakes.	Lack of suitable habitat.
Scrophulariaceae	*Eremophila chamaephila*	Earth Loving Eremophila	P3	X		X	Low, dome shaped Shrub, 0.1-0.25 m high. 0.2-0.8 m wide. Flowers blue-purple.	White sand, clay. Sandplains and disturbed road verges.	Nov to Dec	Unlikely - distribution significantly further north in Scaddan/Grass Patch area.	Lack of suitable habitat.
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.		Unlikely - lack of suitable habitat of inland salt lakes.	Lack of suitable habitat.
Myrtaceae	*Kunzea salina*		P3	X		X	Low shrub <1 m. Very small leaves. Spreading shrub. Flowers white.	Adjacent to salt lake periphery in low shrub margin. Winter wet lowlands with grey sands. Saline water bodies.	Dec to Jan	Unlikely - lack of suitable habitat of inland salt lakes.	Lack of suitable habitat.
Myrtaceae	*Astartea reticulata*		P3	X		X	Single-stemmed or basally branched shrub 0.7–1.5 m tall. Fl. pale pink or white.	Occurs in winter-wet depressions or near watercourses along the coastal plain, commonly associated with the paperbark species *Melaleuca cuticularis*.	late November to January.	Unlikely - lack of suitable habitat of watercourses or depressions.	Lack of suitable habitat.
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 - lack of suitable habitat with granite or depression present.	Lack of suitable habitat.
Anarthriaceae	*Hopkinsia adscendens*		P3	X		X	Rhizomatous, perennial, herb to 0.4 m high.	Sand. Dry or seasonally damp habitats along streams.	Oct	Unlikely - lack of suitable habitat with streams present.	Lack of suitable habitat.
Restionaceae	*Desmocladus biformis*		P3	X		X	Rhizomatous, densely tufted perennial, herb (sedge-like), 0.1-0.2 m high.	Sand, sandy clay, lateritic soils. Dry sites.	Sep to Oct.	Unlikely - vast majority of records in Stirlings, Fitzgerald or Jurien Bay sand dunes.	Lack of suitable habitat.
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.	Sept to Nov	Unlikely - associated directly on the coast.	Lack of suitable habitat.
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 suitable soil type of limestone.	Lack of suitable habitat.
Myrtaceae	*Eucalyptus x missilis*		P4	X		X		Sand over limestone or granite. Coastal sites.	Jan-Apr	Unlikely - distribution restricted to coast.	Lack of suitable habitat.
Myrtaceae	*Darwinia polycephala*		P4	X		X	Diffuse shrub, 0.1-0.5 m high. Flowers red-purple.	Sand, clay. Flats near Salt Lakes.	Mar or May to Jul or Sept	Unlikely - lack of suitable habitat of being directly recorded and present on the salt lake.	Lack of suitable habitat.
Frankeniaceae	*Frankenia glomerata*	Cluster Head Frankenia	P4			X	Prostrate shrub. Fl. pink-white.	White sand.	Nov	Unlikely - lack of suitable habitat of inland salt lakes.	Lack of suitable habitat.

Table 9 continued.

Family	Species	Vernacular	Status (WA)	NatureMap	PMST	DBCA	Description- Species	Description - Habitat	Peak Flowering period	Likelihood Analysis	Flora Survey Outcome
Myrtaceae	*Melaleuca fissurata*		P4	X		X	Shrub, 0.5-2 (4) m. Flowers white/yellow.	White/grey sand. Sandy loam. Samphire flats and salt pans.	Jul to Aug	Unlikely - lack of suitable habitat of inland salt lakes.	Lack of suitable habitat.
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 - lack of suitable habitat, with subject site away from coastline and lack of limestone.	Lack of suitable habitat.
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.	Lack of suitable habitat.
Myrtaceae	*Eucalyptus dolichorhyncha*	Fuschia Gum	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 - outside of known distribution in Scaddan and Grass Patch area.	Lack of suitable habitat.

Table 10: Conservation Code definitions for Threatened and Priority Ecological Communities located within 30km of the survey area.

Nt. Acronyms used in table include Endangered (En), Vulnerable (Vu).

Community Name	Status		Description	Survey Outcome
	EPBC Act 1999	BC Act 2016		
Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia	En	P3	Consists of predominantly obligate seeding proteaceous shrubland and heath (Kwongkan) and mallee heath on sandplain, duplex sand/clay and gravels overlying Eocene sediments, quartzite, schist, Yilgarn and Albany Fraser granite and greenstone ranges. Its flora is characterised by high species diversity and a high degree of endemism, particularly in the Stirling Range, Fitzgerald River National Park, Ravensthorpe Range and Russell Ranges. Due to the high levels of endemism, there are few species that exist across the entire range of the dense, obligate seeding Proteaceae dominated shrublands and Kwongan of the Esperance Sandplains, however particular species have been identified as common dominant species in each of its ecodistricts (DBCA, 2017a).	Not Detected.
Subtropical and temperate coastal saltmarsh (synonymous with the Subtropical and Temperate Coastal Saltmarsh EPBC-listed TEC)	Vu	P3	Consists of the assemblage of plants, animals and micro-organisms associated with saltmarsh in coastal regions of sub-tropical and temperate Australia (south of 23oS latitude). It occurs on the coastal margin, along estuaries and coastal embayments and on low wave energy coast in places with at least some tidal connection, including rarely-inundated supratidal areas, intermittently opened or closed lagoons, and groundwater tidal influences. The community occurs on sandy or muddy substrate and may include coastal clay pans and similar habitats. It consists of dense to patchy areas of characteristic coastal saltmarsh plant species that include salt- tolerant herbs, succulent shrubs or grasses, and may also include bare sediment as part of the mosaic. It can occur where the proportional cover by tree canopy such as mangroves, Melaleucas or Casuarinas or seagrass is not greater than 50%. The description, area and condition thresholds that apply to the EPBC-listed TEC of the same name, also apply to this Priority ecological community.	Not Detected.

Table 11: Potential Threatened and Priority fauna located within 30km 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	Habitat Present (Y/N)	Likelihood of Occurrence (Post Survey)	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.	Y	Present	HIGH	N	Chewed pine cones observed within the survey 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.	Y	Possible	HIGH	N	Marginal habitat present in 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.	Y	Possible	HIGH	N	Marginal hunting habitat present in the form of grassland and low native shrubland present in 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.	Y	Possible	HIGH	N	Marginal habitat in the north of the survey area. No signs of species presence observed.
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.	N	Highly Unlikely	HIGH	N	
Procellariidae	*Ardenna tenuirostris*	Short-tailed Shearwater	MI / MI	Found in coastal waters.	N	Highly Unlikely	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.	N	Highly Unlikely	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.	N	Highly Unlikely	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.	N	Highly Unlikely	HIGH	N	
Scolopacidae	*Calidris canutus*	Red 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.	N	Highly Unlikely	HIGH	N	
Scolopacidae	*Calidris canutus subsp. rogersi*	Red Knot (north-eastern Siberia)	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.	N	Highly Unlikely	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	N	Highly Unlikely	HIGH	N	
Scolopacidae	*Calidris melanotos*	Pectoral Sandpiper	MI / MI	Shallow fresh to saline wetlands.	N	Highly Unlikely	HIGH	N	
Scolopacidae	*Calidris ruficollis*	Red-necked Stint	MI / MI	Coastal areas, including sheltered inlets, bays, lagoons and estuaries with intertidal mudflats; ephemeral or permanent shallow wetlands near the coast or inland, and sometimes flooded paddocks or damp grasslands (Higgins & Davies 1996).	N	Highly Unlikely	HIGH	N	
Scolopacidae	*Calidris tenuirostris*	Great Knot	CR / CR & MI	Intertidal mudflats and sandflats in sheltered coasts, including bays harbours and estuaries.	N	Highly Unlikely	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.	N	Highly Unlikely	HIGH	N	

Table 11 continued

Family	*Scientific Name*	Vernacular	Status (WA) / EPBC Act	Habitat Description	Habitat Present (Y/N)	Likelihood of Occurrence (Post Survey)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
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.	N	Highly Unlikely	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.	N	Highly Unlikely	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.	N	Highly Unlikely	HIGH	N	
Diomedeidae	*Diomedea dabbenena*	Tristan Albatross	CR/ EN & MI	Marine, pelagic seabird that sleeps and rests on ocean waters when not breeding.	N	Highly Unlikely	HIGH	N	
Diomedeidae	*Diomedea epomophora*	Southern Royal Albatross	VU / VU & MI	Marine, pelagic seabird that sleeps and rests on ocean waters when not breeding.	N	Highly Unlikely	HIGH	N	
Diomedeidae	*Diomedea exulans*	Wandering Albatross	VU / VU & MI	Marine, pelagic seabird that sleeps and rests on ocean waters when not breeding.	N	Highly Unlikely	HIGH	N	
Diomedeidae	*Diomedea sanfordi*	Northern Royal Albatross	EN / EN & MI	Marine, pelagic and aerial. Habitat includes subantarctic, subtropical, and occasionally Antarctic waters.	N	Highly Unlikely	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.	N	Highly Unlikely	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.	N	Highly Unlikely	HIGH	N	
Geotriidae	*Geotria australis*	Pouched Lamprey	P3 / -	Species is anadromous and requires estuaries and coastal waters connected to freshwater rivers and streams with slow flowing, fine sediment microhabitats where spawning and development of ammocoetes occurs.	N	Highly Unlikely	HIGH	N	
Procellariidae	*Halobaena caerulea*	Blue Petrel	- / VU	Pelagic, occasionally over shallow waters.	N	Highly Unlikely	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.	N	Highly Unlikely	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.	N	Highly Unlikely	HIGH	N	
Scolopacidae	*Limosa lapponica menzbieri*	Northern Siberian Bar-tailed Godwit	CR (& MI at sp. level) / CR (& MI at sp. level) /	Occurs mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. It has also been recorded in coastal sewage farms and saltworks, salt lakes and brackish wetlands near coasts, sandy ocean beaches, rock platforms, and coral reef-flats.	N	Highly Unlikely	HIGH	N	
Procellariidae	*Macronectes giganteus*	Southern Giant-Petrel	MI / VU & MI	Marine; Antarctic to subtropical waters.	N	Highly Unlikely	HIGH	N	
Procellariidae	*Macronectes halli*	Northern Giant Petrel	MI / EN & MI	Marine, oceanic; mainly in subantarctic waters.	N	Highly Unlikely	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.	N	Highly Unlikely	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).	N	Highly Unlikely	HIGH	N	
Anatidae	*Oxyura australis*	Blue-billed Duck	P4 / -	Prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation.	N	Highly Unlikely	HIGH	N	
Procellariidae	*Pachyptila turtur subantarctica*	Fairy Prion (southern)	- / VU	Sub-Antarctic seas and islands while breeding. Subtropical seas non breeding time; rarely inshore expect when sheltering from storms.	N	Highly Unlikely	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.	N	Highly Unlikely	HIGH	N	

Table 11 continued

Family	*Scientific Name*	Vernacular	Status (WA) / EPBC Act	Habitat Description	Habitat Present (Y/N)	Likelihood of Occurrence (Post Survey)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
Psittacidae	*Pezoporus flaviventris*	Western Ground Parrot	CR / CR	Preferred habitat includes low coastal and near coastal heathlands, unburnt for at least five years.	N	Highly Unlikely	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).	N	Highly Unlikely	HIGH	N	
Hydryphantidae	*Pseudohydryphantes doegi*	Doeg's Watermite	P2 / -	Pseudohydryphantes is a genus of water mites that are found in lentic (still fresh water) and lotic (moving fresh water).	N	Highly Unlikely	HIGH	N	
Procellariidae	*Pterodroma mollis*	Soft-plumaged Petrel	- / VU	Is a marine, oceanic species.	N	Highly Unlikely	HIGH	N	
Stercorariidae	*Stercorarius antarcticus*	Brown Skua	P4 / -	Marine, oceanic species.	N	Highly Unlikely	HIGH	N	
Stercorariidae	*Stercorarius antarcticus lonnbergi*	brown skua, Subantarctic skua	P4 / -	Marine, oceanic species.	N	Highly Unlikely	HIGH	N	
Laridae	*Sternula nereis nereis*	Australian Fairy Tern	VU / VU	Coastal areas and embayments of a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands and mainland coastline.	N	Highly Unlikely	HIGH	N	
Diomedeidae	*Thalassarche carteri*	Indian Yellow-nosed Albatross	EN / VU & MI	Marine bird, located in subtropical and warmer subantarctic waters (Marchant & Higgins 1990).	N	Highly Unlikely	HIGH	N	
Diomedeidae	*Thalassarche cauta cauta*	Shy Albatross	VU / VU & MI	Marine species. Breeds on rock islands.	N	Highly Unlikely	HIGH	N	
Diomedeidae	*Thalassarche cauta steadi*	White-capped Albatross	VU / VU & MI	Shelf-waters around breeding islands and over adjacent rises. During the non-breeding season, birds have been observed over continental shelves around continents. The species occurs both inshore and offshore and enters harbours and bays. The species is scarce in pelagic waters. Birds gather to scavenge at commercial fishing grounds.	N	Highly Unlikely	HIGH	N	
Diomedeidae	*Thalassarche chlororhynchos*	Atlantic Yellow-nosed Albatross	VU / MI	Marine species. Builds nests built on tussock grass, on rocks and under trees.	N	Highly Unlikely	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.	N	Highly Unlikely	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.	N	Highly Unlikely	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.	N	Highly Unlikely	HIGH	N	
Charadriidae	*Thinornis rubricollis*	Hooded Plover, Hooded Dotterel	P4 / -	Ocean sandy beaches and coastal lakes.	N	Highly Unlikely	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.	N	Highly Unlikely	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.	N	Highly Unlikely	HIGH	N	
Scolopacidae	*Tringa nebularia*	Common Greenshank, greenshank	MI / MI	Typical habitat is often found to be sheltered coasts with reefs and rock platforms or with intertidal mudflats.	N	Highly Unlikely	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.	N	Highly Unlikely	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.	N	Highly Unlikely	HIGH	N	
Elapidae	*Acanthophis antarcticus*	Southern Death Adder	P3 / -	Mallee and coastal vegetation.	N	Unlikely	MODERATE	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.	N	Unlikely	MODERATE	N	

Table 11 continued

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Habitat Present (Y/N)	Likelihood of Occurrence (Post Survey)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
Iulomorphidae	*Atelomastix brennani, sp. nov*	Brennan's atelomastix millipede	VU/-	Currently known from the soil or under granite rocks within Le Grand National Park.	N	Unlikely	MODERATE	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.	N	Unlikely	MODERATE	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.	N	Unlikely	MODERATE	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.	N	Unlikely	MODERATE	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.	N	Unlikely	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.	N	Unlikely	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.	N	Unlikely	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 salt lakes 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.	N	Unlikely	HIGH	N	
Falconidae	*Falco hypoleucos*	Grey Falcon	VU / -	Usually in lightly timbered country, especially stony plains and lightly timbered acacia shrublands.	N	Unlikely	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.	N	Unlikely	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	N	Unlikely	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.	N	Unlikely	HIGH	N	
Motacillidae	*Motacilla cinerea*	Grey Wagtail	MI / MI	Species has a strong association with water (wetlands, water courses banks of lakes and marshes, artificial wetlands).	N	Unlikely	HIGH	N	
Macropodidae	*Notamacropus eugenii subsp. derbianus*	Tammar Wallaby	P4 / -	Dense, low vegetation for daytime shelter and open grassy areas for feeding. This species inhabits coastal scrub, heath, dry sclerophyll forest and thickets in mallee and woodland.	N	Unlikely	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.	N	Unlikely	HIGH	N	

Table 11 continued

Family	*Scientific Name*	Vernacular	Status (WA) / EPBC Act	Habitat Description	Habitat Present (Y/N)	Likelihood of Occurrence (Post Survey)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
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 black soil 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.	N	Unlikely	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.	N	Unlikely	HIGH	N	
Elapidae	*Parasuta spectabilis subsp. bushi*	spectacled hooded snake (Esperance), Mallee Black-headed Snake (Esperance area	P1	Variety of temperate to semiarid vegetation associations growing on light to heavy, often stony soils, including coastal shell grit beaches, dry sclerophyll forest of mallee and/or other Eucalyptus woodlands, heathlands, shrublands including chenopod, often with Triodia- Brown dominated understorey, and rocky ranges, slopes and foothills.	N	Unlikely	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.	N	Unlikely	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.	N	Unlikely	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.	N	Unlikely	LOW	N	
Muridae	*Pseudomys shortridgei*	Heath mouse, Dayang	VU/EN	Historical distribution. Closest recent record Ravensthorpe. Floristically-rich, dry heathland in long unburnt vegetation.	N	Unlikely	LOW	N	
Archaeidae	Zephyrarchaea marki	Cape Le Grand Assassin Spider	VU/-	Elevated leaf litter in *Banksia speciosa* thickets. Currently known from Cape Le Grand	N	Unlikely	LOW	N	

Appendix C

Conservation Status Definitions and Condition Scale

Table 12: 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 13: 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 14: 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 15: 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 16: 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 17: Flora Species List recorded within survey area.

Family	Genus	Species	Vernacular	Invasive
Anarthriaceae	*Anarthria*	*prolifera*		
Anarthriaceae	*Anarthria*	*scabra*		
Asparagaceae	*Asparagus*	*asparagoides*	Bridal Creeper	X
Asteraceae	*Conyza*	sp.	Fleabane	X
Asteraceae	*Hypochaeris*	*radicata*	Flat Weed	X
Asteraceae	*Pseudognaphalium*	*luteoalbum*	Jersey Cudweed	X
Asteraceae	*Taraxacum*	*officinale*	Dandelion	X
Asteraceae	*Ursinia*	*anthemoides*	Ursinia	X
Casuarinaceae	*Allocasuarina*	*humilis*	Dwarf Sheoak	
Casuarinaceae	*Allocasuarina*	*thyoides*	Horned Sheoak	
Centrolepidaceae	*Centrolepis*	*polygyna*	Wiry Centrolepis	
Crassulaceae	*Crassula*	*natans* var *minus*	Rufous Stonecrop	X
Cyperaceae	*Chorizandra*	*enodis*	Black Bristlebrush	
Cyperaceae	*Isolepis*	*cyperoides*		
Cyperaceae	*Lepidosperma*	*squamatum*		
Cyperaceae	*Mesomelaena*	*tetragona*	Semaphore Sedge	
Cyperaceae	*Schoenus*	*sublaxus*		
Cyperaceae	*Tricostularia*	*newbeyi*	Newbey's Tricostularia	
Dilleniaceae	*Hibbertia*	*acerosa*	Needle Leaved Guinea Flower	
Dilleniaceae	*Hibbertia*	*racemosa*	Cut Leaf Hibbertia	
Droseraceae	*Drosera*	*drummondii*		
Ericaceae	*Leucopogon*	sp. Coujinup (M.A. Bugman 1085)		
Fabaceae	*Acacia*	*cyclops*	Coastal Wattle	
Fabaceae	*Acacia*	*pycnantha*	Golden Wattle	X
Fabaceae	*Aotus*	sp. Esperance (P.G. Wilson 7904)		
Fabaceae	*Chorizema*	*aciculare*		
Fabaceae	*Jacksonia*	*capitata*		
Fabaceae	*Trifolium*	sp.	Clover	X
Geraniaceae	*Pelargonium*	*capitatum*	Rose Pelargonium	X
Goodeniaceae	*Lechenaultia*	*formosa*	Red Lechenaultia	
Hemerocallidaceae	*Chamaescilla*	*corymbosa*	Blue Squill	
Hemerocallidaceae	*Dianella*	sp.	Flax Lilly	
Iridaceae	*Patersonia*	*juncea*	Rush Leaved Patersonia	
Juncaceae	*Juncus*	*bufonius*	Toad Rush	X
Loranthaceae	*Nuytsia*	*floribunda*	Munji, Christmas Tree	
Myrtaceae	*Cyathostemon*	*ambiguus*		
Myrtaceae	*Eucalyptus*	*melleodora*	Yellow Ironbox	X
Myrtaceae	*Leptospermum*	*laevigatum*	Victorian Tea Tree	X
Myrtaceae	*Melaleuca*	*scabra*	Rough Honeymyrtle	
Myrtaceae	*Melaleuca*	*striata*		

Table 17 continued.

Family	Genus	Species	Vernacular	Invasive
Myrtaceae	*Melaleuca*	*thymoides*		
Myrtaceae	*Micromyrtus*	*elobata* subsp. *elobata*		
Myrtaceae	*Verticordia*	*minutifolia*		
Orchidaceae	*Disa*	*bracteata*	South African Orchid	X
Orchidaceae	*Microtis*	*media* subsp. *media*	Migonette Orchid	
Pinaceae	*Pinus*	*radiata*	Pine Tree	X
Poaceae	*Briza*	*maxima*	Blowfly grass	X
Poaceae	*Briza*	*minor*	Shivery Grass	X
Poaceae	*Ehrharta*	*calycina*	Veldt Grass	X
Poaceae	*Eragrostis*	*curvula*	Lovegrass	X
Poaceae	*Lagurus*	*ovatus*	Pussy Tail	X
Poaceae	*Lolium*	*perenne*	Perennial Ryegrass	X
Poaceae	*Neurachne*	*alopecuroidea*	Foxtail Mulga	
Proteaceae	*Adenanthos*	*cuneatus*	Jug Flower	
Proteaceae	*Banksia*	*obovata*	Wedge Leaved Dryandra	
Proteaceae	*Conospermum*	*leianthum* subsp. *leianthum*		
Proteaceae	*Lambertia*	*inermis* var *drummondii*	Chiddick, Native Honeysuckle	
Proteaceae	*Lambertia*	*inermis* var *inermis*	Chiddick, Native Honeysuckle	
Restionaceae	*Hypolaena*	*exsulca*		
Restionaceae	*Lepyrodia*	*macra*	Large Scale Rush	
Xanthorrhoeaceae	*Xanthorrhoea*	*platyphylla*	Grass tree	

Relevé	R1	**Veg Code**	Cleared	**Date Surveyed**	29/09/2021
Location					
GPS (Lat, Long)	-33.69002833, 121.8511032				
Landform and Slope	Flat, Sandplain				
Soils	Sand, Light Grey				
Hydrology	Poor Drainage – artificial spoon drains and access tracks				
Vegetation description	Cleared				
Condition	Cleared				
Comments	-				

Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m	**Pinus radiata*		E <5%
Trees 10-30m			
Shrub >2m	*Acacia cyclops*		E <5%
Shrub 1-2m			
Shrub 0.5-1m	*Verticordia minutifolia, Adenanthos cuneatus, Hibbertia racemosa*		E <5%
Shrub <0.5m			
Sedge	*Hypolaena exsulca, Anarthria prolifera*		S 10-30%
Herb	**Hypochaeris radiata, *Pseudognaphalium luteoalbum*		V 2-10%
Grass	**Briza maxima, *Eragrostis curvula, *Avena fatua*		M 30-70%

Relevé	R2	**Veg Code**	Cleared	**Date Surveyed**	29/09/2021
Location					
GPS (Lat, Long)	-33.6869285, 121.8492413				
Landform and Slope	Flat, Sandplain				
Soils	Sand, Yellow Grey				
Hydrology	Good Drainage				
Vegetation description	Cleared				
Condition	Cleared				
Comments	-				

Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m	**Pinus radiata*		M 30-70%
Trees 10-30m			
Shrub >2m			
Shrub 1-2m			
Shrub 0.5-1m	**Pelargonium capitatum*		E <5%
Shrub <0.5m			
Sedge			
Herb			
Grass	**Eragrostis curvula*		V 2-10%

Relevé	R3	**Veg Code**	1: Mixed Sedgeland	**Date Surveyed**	29/09/2021
Location					
GPS (Lat, Long)	-33.68458038, 121.8477719				
Landform and Slope	Flat, Sandplain				
Soils	Sand, Light Grey				
Hydrology	Poor Drainage – Seasonally wet, artificial man-made depression				
Vegetation description	Vegetation Description (NVIS): U +/- *Acacia cyclops, Lambertia inermis* var *drummondii*\shrub\4\r; M ^^*Micromyrtus elobata* subsp. *elobata, Cyathostemon ambiguus, Melaleuca scabra*\shrub\3\bc; G+ ^^*Hypolaena exsulca, Anarthria prolifera, +/-Eragrostis curvula*\^sedge, grass\1\d Vegetation Description (Muirs): *Acacia cyclops* and *Lambertia inermis* var. *drummondii* Open Low Shrub A, over *Micromyrtus elobata* subsp. *elobata, Melaleuca scabra, Cyathostemon ambiguus* and *Adenanthos cuneatus* Open Dwarf Scrub C, over *Chamaescilla corymbosa, Lechenaultia formosa, Aotus* sp. Esperance (P.G. Wilson 7904) Open Dwarf Scrub D, over *Mesomelaena tetragona* Dense Tall Sedges, over *Hypolaena exsulca* and *Anarthria prolifera* Dense Low Sedges, over *Eragrostis curvula* and *Avena fatua* Very Open Tall Grass, over *Briza maxima* Very Open Low Grass				
Condition	Degraded				
Comments	-				

Life Form	**Dominant Species**	**Other Species**	**Cover (%)**
Trees >30m			
Trees 10-30m			
Shrub >2m	*Acacia cyclops, Lambertia inermis* var. *drummondii*		V 2-10%
Shrub 1-2m			
Shrub 0.5-1m	*Micromyrtus elobata* subsp. *elobata, Melaleuca scabra, Cyathostemon ambiguus*	*Adenanthos cuneatus*	E <5%
Shrub <0.5m	*Chamaescilla corymbosa, Lechenaultia formosa, Aotus* sp. Esperance (P.G. Wilson 7904)		V 2-10%
Sedge	*Hypolaena exsulca, Anarthria prolifera, Mesomelaena tetragona*		D >70%
Herb			
Grass	**Briza maxima, *Avena fatua, *Eragrostis curvula*		V 2-10%

Table 18: Fauna species recorded within survey area.
NB: * denotes invasive species

Species	Common Name	Conservation Code	Comments
Birds			
Anthochaera carunculata	Red wattlebird		
Anthochaera lunulata	Western wattlebird		
Calyptorhynchus latirostris	Carnaby's Cockatoo	EN	Chewed pine cones observed
Corvus coronoides	Australian raven		
Dromaius novaehollandiae	Emu		
Grallina cyanoleuca	Magpie-lark		
Gymnorhina tibicen	Australian magpie		
Manorina flavigula	Yellow-throated minor		
Rhipidura leucophrys	Willy wagtail		
Mammals			
Oryctolagus cuniculus	European Rabbit	*	
Vulpes vulpes	Red Fox	*	

Appendix F

NatureMap and EPBC Act PMST reports

NatureMap
Mapping Western Australia's biodiversity

AI005-001 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° 50' 59" E,33° 41' 16" S
Buffer	30km
Group By	Kingdom

Kingdom	Species	Records
Animalia	730	13021
Chromista	39	69
Fungi	56	144
Plantae	1371	4713
TOTAL	**2196**	**17947**

	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 parvipunctata*			
27.		*Agraptocorixa sp.*			
28.		*Alboa worooa*			
29.		*Aldrichetta forsteri*			
30.		*Allodessus bistrigatus*			
31.		*Allomycterus pilatus*			
32.		*Ammotretis elongatus*			
33.	24860	*Amphibolurus norrisi (Mallee Tree Dragon)*			
34.	25647	*Amytornis striatus (Striated Grasswren)*			
35.		*Aname mainae*			
36.		*Aname tepperi*			
37.	24310	*Anas castanea (Chestnut Teal)*			
38.	24312	*Anas gracilis (Grey Teal)*			
39.	24313	*Anas platyrhynchos (Mallard)*			
40.		*Anas platyrhynchos subsp. domesticus*			
41.	24315	*Anas rhynchotis (Australasian Shoveler)*			
42.	24316	*Anas superciliosa (Pacific Black Duck)*			
43.		*Anax papuensis*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
44.	47414	*Anhinga novaehollandiae (Australasian Darter)*			
45.		*Anisops baylii*			
46.		*Anisops hackeri*			
47.		*Anisops hyperion*			
48.		*Anisops sp.*			
49.		*Anisops thienemanni*			
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.	24610	*Ardeotis australis (Australian Bustard)*			
71.	25736	*Arenaria interpres (Ruddy Turnstone)*		IA	
72.		*Argiope trifasciata*			
73.		*Arrenurus (Truncaturus) sp. (SAP)*			
74.		*Arripis truttaceus*			Y
75.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
76.	24353	*Artamus cyanopterus (Dusky Woodswallow)*			
77.		*Artoria cingulipes*			
78.		*Artoria flavimana*			
79.		*Artoria taeniifera*			
80.		*Artoriopsis eccentrica*			
81.		*Artoriopsis expolita*			
82.		*Artoriopsis joergi*			
83.		*Ascorhis occidua*			
84.		*Aspasmogaster occidentalis*			
85.		*Asplanchna brightwelli*			
86.		*Asymbolus vincenti*			
87.		*Atherinosoma wallacei*			
88.		*Aulopus purpurissatus*			
89.		*Austracantha minax*			
90.		*Australocyclops similis*			
91.		*Australocypris insularis*			
92.		*Australocypris sp.*			
93.		*Australomedusa ?baylii (SAP)*			
94.		*Austroagrion cyane*			
95.		*Austrochiltonia sp.*			
96.		*Austrochiltonia subtenuis*			
97.		*Austrolestes analis*			
98.		*Austrolestes annulosus*			
99.		*Austrolestes aridus*			
100.		*Austrolestes io*			
101.		*Austrolestes sp.*			
102.	24318	*Aythya australis (Hardhead)*			
103.		*Barnardius zonarius*			
104.		*Bdelloidea med-large contracted of RJS (SAP)*			
105.		*Bdelloidea sp.*			
106.		*Bdelloidea sp. 2:2*			
107.		*Bennelongia barangaroo lineage*			
108.		*Bennelongia frumenta*			
109.		*Berosus discolor*			
110.		*Berosus munitipennis*			
111.		*Berosus sp.*			
112.		*Bezzia sp. (not 1 or 2)*			
113.		*Bivalvia sp.*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
114.	24319	*Biziura lobata (Musk Duck)*			
115.		*Boeckella triarticulata*			
116.		*Boolathana mainae*			
117.		*Brachaluteres jacksonianus*			
118.		*Brachionus angularis*			
119.		*Brachionus cf. nilsoni (SAP)*			
120.		*Brachionus cf. plicatilis (SAP)*			
121.		*Brachionus leydigii*			
122.		*Brachionus plicatilis complex ("towerinninensis" form)*			Y
123.		*Brachionus plicatilis s.l.*			
124.		*Brachionus quadridentatus cluniorbicularis*			
125.		*Brachionus rotundiformis*			
126.		*Brachionus sp.*			
127.		*Brachionus urceolaris s.l.*			
128.		*Bradyagaue exilis*			Y
129.		*Branchipodidae sp.*			
130.		*Brentidae sp.*			
131.	24359	*Burhinus grallarius (Bush Stone-curlew)*			
132.		*Caboncypris kondininensis*			
133.	25598	*Cacomantis flabelliformis (Fan-tailed Cuckoo)*			
134.	24427	*Cacomantis flabelliformis subsp. flabelliformis (Fan-tailed Cuckoo)*			
135.	42307	*Cacomantis pallidus (Pallid Cuckoo)*			
136.	24269	*Calamanthus campestris (Rufous Fieldwren)*			
137.		*Calamoecia clitellata*			
138.		*Calamoecia sp. 342 (ampulla variant) (CB)*			
139.		*Calanoida sp.*			
140.	24779	*Calidris acuminata (Sharp-tailed Sandpiper)*		IA	
141.	24780	*Calidris alba (Sanderling)*		IA	
142.	25738	*Calidris canutus (Red Knot, knot)*		IA	
143.	24783	*Calidris canutus subsp. rogersi (Red Knot (north-eastern Siberia))*		T	
144.	24784	*Calidris ferruginea (Curlew Sandpiper)*		T	
145.	24786	*Calidris melanotos (Pectoral Sandpiper)*		IA	
146.	24788	*Calidris ruficollis (Red-necked Stint)*		IA	
147.	24790	*Calidris tenuirostris (Great Knot)*		T	
148.		*Callogobius mucosus*			
149.	24734	*Calyptorhynchus latirostris (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)*		T	
150.	48400	*Calyptorhynchus sp. (white-tailed black cockatoo)*		T	
151.		*Candonocypris novaezelandiae*			
152.		*Capitella sp.*			
153.		*Capitellidae sp.*			
154.	24253	*Capra hircus (Goat)*	Y		
155.		*Capropygia unistriata*			
156.		*Carabidae sp.*			
157.		*Carcharhinus brachyurus*			
158.	25335	*Caretta caretta (Loggerhead Turtle)*		T	
159.		*Ceinidae sp.*			
160.		*Centropyxis aculeata*			
161.		*Centropyxis cassis*			Y
162.		*Centropyxis sp. b (SAP)*			
163.		*Ceratopogonidae sp.*			
164.		*Ceratopogonidae sp. A (SAP)*			
165.	24086	*Cercartetus concinnus (Western Pygmy-possum, Mundarda)*			
166.		*Cercophonius granulosus*			
167.	25551	*Cereopsis novaehollandiae (Cape Barren Goose)*		T	
168.	24320	*Cereopsis novaehollandiae subsp. grisea (Recherche Cape Barren Goose, Cape Barren Goose)*		T	
169.		*Ceriodaphnia n. sp. c (Berner sp.#1) (SAP)*			
170.	25573	*Charadrius bicinctus (Double-banded Plover)*		IA	
171.	25575	*Charadrius leschenaultii (Greater Sand Plover)*		T	
172.	25576	*Charadrius mongolus (Lesser Sand Plover)*		T	
173.	24377	*Charadrius ruficapillus (Red-capped Plover)*			
174.	24321	*Chenonetta jubata (Australian Wood Duck, Wood Duck)*			
175.	47909	*Cheramoeca leucosterna (White-backed Swallow)*			
176.		*Chironomidae sp.*			
177.		*Chironominae sp.*			
178.		*Chironomus aff. alternans (V24) (CB)*			
179.		*Chironomus occidentalis*			
180.		*Chironomus tepperi*			
181.	24980	*Christinus marmoratus (Marbled Gecko)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
182.		*Chroicocephalus novaehollandiae*			
183.	24288	*Circus approximans (Swamp Harrier)*			
184.	24289	*Circus assimilis (Spotted Harrier)*			
185.		*Cladopelma curtivalva*			
186.	24774	*Cladorhynchus leucocephalus (Banded Stilt)*			
187.		*Cladotanytarsus sp. A (SAP)*			
188.		*Cletocamptus aff deitersi*			
189.		*Clinohelea sp.*			
190.		*Clynotis albobarbatus*			
191.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
192.	24399	*Columba livia (Domestic Pigeon)*	Y		
193.		*Colurella colurus*			
194.		*Colurella uncinata*			
195.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
196.		*Cordylophora sp.*			Y
197.		*Corixidae sp.*			
198.		*Cormocephalus michaelseni*			
199.	24416	*Corvus bennetti (Little Crow)*			
200.	25592	*Corvus coronoides (Australian Raven)*			
201.	24417	*Corvus coronoides subsp. perplexus (Australian Raven)*			
202.		*Corynoneura sp. (V49) (SAP)*			
203.	24671	*Coturnix pectoralis (Stubble Quail)*			
204.	25701	*Coturnix ypsilophora (Brown Quail)*			
205.		*Coxiella glabra*			
206.		*Coxiella sp.*			
207.		*Coxiella sp. 3 (ABP)*			Y
208.		*Coxiella striatula*			
209.	24420	*Cracticus nigrogularis (Pied Butcherbird)*			
210.	25595	*Cracticus tibicen (Australian Magpie)*			
211.	24422	*Cracticus tibicen subsp. dorsalis (White-backed Magpie)*			
212.	25596	*Cracticus torquatus (Grey Butcherbird)*			
213.	25398	*Crinia georgiana (Quacking Frog)*			
214.	25399	*Crinia glauerti (Clicking Frog)*			
215.	25401	*Crinia pseudinsignifera (Bleating Froglet)*			
216.	30893	*Cryptoblepharus buchananii*			
217.	30888	*Cryptoblepharus pulcher subsp. clarus*			
218.		*Cryptochironomus griseidorsum*			
219.	42385	*Ctenophorus chapmani (Eastern Heath Dragon)*			
220.	25460	*Ctenophorus maculatus (Spotted Military Dragon)*			
221.	24879	*Ctenophorus maculatus subsp. griseus (Spotted Military Dragon)*			
222.	24883	*Ctenophorus ornatus (Ornate Crevice-Dragon)*			
223.	25040	*Ctenotus gemmula (Jewelled South-west Ctenotus (Swan Coastal Plain subpop P3), skink)*			
224.	25047	*Ctenotus impar*			
225.	25049	*Ctenotus labillardieri*			
226.		*Culicidae sp.*			
227.		*Culicoides sp.*			
228.		*Curculionidae sp.*			
229.		*Cyclosa trilobata*			
230.	24322	*Cygnus atratus (Black Swan)*			
231.		*Cyprideis australiensis*			
232.		*Cyprididae sp.*			
233.		*Cyprinotus cingalensis*			
234.		*Cyprinotus cingalensis (ex edwardi)*			
235.		*Cytherideidae sp.*			Y
236.		*Daphnia australis*			
237.		*Daphnia carinata*			
238.		*Daphnia queenslandensis*			
239.		*Daphnia sp.*			
240.		*Daphnia truncata*			
241.		*Daphnia wardi*			
242.	25673	*Daphoenositta chrysoptera (Varied Sittella)*			
243.		*Dasyhelea sp.*			
244.	24995	*Delma australis*			
245.	25766	*Delma fraseri (Fraser's Legless Lizard)*			
246.	24052	*Delphinus delphis (Common Dolphin)*			
247.		*Dermatopsis sp.*			
248.	25346	*Dermochelys coriacea (Leatherback Turtle)*		T	
249.		*Dero digitata*			
250.		*Diacypris 'gunyidi' (ms name) (SAP)*			

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251.		*Diacypris compacta*			
252.		*Diacypris sp.*			
253.		*Diacypris sp. 581 (n. sp.) (SAP)*			Y
254.		*Diacypris spinosa*			
255.		*Diaprepocoris barycephala*			
256.		*Diaprepocoris sp.*			
257.		*Dicrotendipes conjunctus*			
258.		*Dicrotendipes pseudoconjunctus*			
259.		*Dicrotendipes sp.*			
260.		*Dicrotendipes sp. A (V47) (SAP)*			
261.		*Difflugia sp.*			
262.		*Diodon sp.*			
263.	25618	*Diomedea exulans (Wandering Albatross)*		T	
264.	41403	*Diplodactylus calcicolus (South Coast Gecko)*			
265.		*Dolichopodidae sp.*			
266.		*Dolichopodidae sp. B (SAP)*			
267.	24470	*Dromaius novaehollandiae (Emu)*			
268.		*Dytiscidae sp.*			
269.	25251	*Echiopsis curta (Bardick)*			
270.		*Ecnomidae sp.*			
271.		*Ecnomus pansus/turgidus*			
272.	25096	*Egernia kingii (King's Skink)*			
273.		*Egretta garzetta*			
274.		*Egretta novaehollandiae*			
275.		*Elanus axillaris*			
276.	25250	*Elapognathus coronatus (Crowned Snake)*			
277.	47937	*Elseyornis melanops (Black-fronted Dotterel)*			
278.		*Empididae sp.*			
279.		*Enchytraeidae sp.*			
280.		*Enochrus eyrensis*			
281.		*Enochrus sp.*			
282.		*Eolophus roseicapillus*			
283.		*Ephydridae sp.*			
284.		*Ephydridae sp. 3 (SAP)*			
285.		*Ephydridae sp. 6 (SAP)*			
286.		*Ephydridae sp. 7(SAP)*			
287.	24567	*Epthianura albifrons (White-fronted Chat)*			
288.	24379	*Erythrogonys cinctus (Red-kneed Dotterel)*			
289.	47938	*Esacus magnirostris (Beach Stone-curlew, Beach Thick-knee)*			
290.	24043	*Eubalaena australis (Southern Right Whale)*		T	
291.		*Eubalichthys mosaicus*			
292.		*Euchlanis dilatata*			
293.		*Eucyclops australiensis*			
294.	25744	*Eudyptes chrysocome (Rockhopper Penguin)*			
295.	24816	*Eudyptes pachyrhynchus (Fiordland Penguin)*			
296.	24817	*Eudyptes sclateri (Erect-crested Penguin)*			Y
297.		*Euglypha sp.*			
298.		*Exosphaeroma sp.*			
299.		*Eylais sp.*			
300.	25621	*Falco berigora (Brown Falcon)*			
301.	25622	*Falco cenchroides (Australian Kestrel, Nankeen Kestrel)*			
302.	25623	*Falco longipennis (Australian Hobby)*			
303.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
304.		*Favonigobius lateralis*			
305.		*Ferrissia petterdi*			
306.		*Filinia longiseta*			
307.	25727	*Fulica atra (Eurasian Coot)*			
308.	24761	*Fulica atra subsp. australis (Eurasian Coot)*			
309.		*Galaxias maculatus*			
310.	39404	*Galaxias truttaceus (Trout Minnow)*			
311.	25730	*Gallirallus philippensis (Buff-banded Rail)*			
312.	42314	*Gavicalis virescens (Singing Honeyeater)*			
313.		*Gea theridioides*			
314.		*Geogarypus taylori*			
315.	34030	*Geotria australis (Pouched Lamprey)*		P3	
316.	25530	*Gerygone fusca (Western Gerygone)*			
317.		*Gianius sp. WA9 (SAP)*			Y
318.		*Gladioferens imparipes*			
319.	47962	*Glyciphila melanops (Tawny-crowned Honeyeater)*			
320.		*Glyptophysa cf. gibbosa (SAP)*			

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321.		*Gonorynchus greyi*			
322.	24443	*Grallina cyanoleuca (Magpie-lark)*			
323.	24056	*Grampus griseus (Risso's Dolphin)*			
324.		*Gymnocthebius sp. 1 (SAP)*			
325.		*Gymnometriocnemus sp. B (=V45=sp. A&2=ortho sp. O)*			
326.		*Gymnometriocnemus spp. (not V44 or V45)*			
327.		*Gyrinidae sp.*			
328.		*Habronestes grimwadei*			
329.	25627	*Haematopus fuliginosus (Sooty Oystercatcher)*			
330.	24485	*Haematopus fuliginosus subsp. fuliginosus (Sooty Oystercatcher)*			
331.	24487	*Haematopus longirostris (Pied Oystercatcher)*			
332.	24293	*Haliaeetus leucogaster (White-bellied Sea-Eagle)*			
333.	24295	*Haliastur sphenurus (Whistling Kite)*			
334.		*Halicyclops sp. 1 (nr ambiguus) (SAP)*			
335.		*Haliplus fuscatus*			
336.		*Haliplus sp.*			
337.		*Haloniscus searlei*			
338.		*Haloniscus sp.*			
339.		*Harpacticoida sp*			
340.		*Helcogramma decurrens*			
341.	25410	*Heleioporus eyrei (Moaning Frog)*			
342.	25412	*Heleioporus psammophilus (Sand Frog)*			
343.		*Hellyethira litua*			
344.		*Helochares tenuistriatus*			
345.		*Hemicordulia tau*			
346.	25115	*Hemiergis initialis subsp. initialis*			
347.	25475	*Hemiergis peronii*			
348.	25117	*Hemiergis peronii subsp. peronii*			
349.		*Heteroceridae sp.*			
350.		*Heteroclinus sp.*			
351.		*Hexarthra fennica*			
352.		*Hexarthra n. sp.a (cf. fennica with 7/7 unci teeth) (SAP)*			
353.	47965	*Hieraaetus morphnoides (Little Eagle)*			
354.	25734	*Himantopus himantopus (Black-winged Stilt)*			
355.		*Hirudinea sp.*			
356.	24491	*Hirundo neoxena (Welcome Swallow)*			
357.		*Histiophryne cryptacanthus*			
358.		*Hoggicosa storri*			
359.		*Hogna crispipes*			
360.		*Hogna kuyani*			
361.		*Holasteron esperance*			Y
362.		*Hyderodes crassus*			
363.		*Hydra sp.*			
364.		*Hydrachnidae sp.*			
365.		*Hydrobiidae sp.*			
366.		*Hydrophilidae sp.*			
367.	48587	*Hydroprogne caspia (Caspian Tern)*		IA	
368.		*Hydryphantes meridianus*			
369.		*Hyphydrus elegans*			
370.		*Hyphydrus sp.*			
371.		*Idiommata blackwalli*			
372.		*Ilyocryptus cf. timmsi (SAP)*			Y
373.		*Ilyocypris australiensis*			
374.		*Ilyodromus sp.*			
375.		*Ischnura heterosticta heterosticta*			
376.	48588	*Isoodon fusciventer (Quenda, southwestern brown bandicoot)*		P4	
377.		*Isopeda leishmanni*			
378.		*Kathetostoma laeve*			
379.		*Kennethia cristata*			
380.		*Keratella australis*			
381.		*Keratella cf. quadrata (SAP)*			
382.		*Keratella procurva*			
383.		*Keratella quadrata*			
384.		*Kiefferulus intertinctus*			
385.		*Kiefferulus martini*			
386.		*Koenikea nr australica (=verrucosa)*			
387.	24070	*Kogia breviceps (Pygmy Sperm Whale)*			
388.		*Lampona cylindrata*			
389.		*Lancetes lanceolatus*			
390.		*Lancetes sp.*			

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391.	24510	*Larus dominicanus (Kelp Gull)*			
392.	24511	*Larus novaehollandiae subsp. novaehollandiae (Silver Gull)*			
393.	25638	*Larus pacificus (Pacific Gull)*			
394.	24512	*Larus pacificus subsp. georgii (Pacific Gull)*			
395.		*Lecane (M) sp. A (ESP023)*			Y
396.		*Lecane [M] sp.*			
397.		*Lecane bulla*			
398.		*Lecane luna*			
399.		*Lecane sp. s.str.*			
400.	24557	*Leipoa ocellata (Malleefowl)*		T	
401.		*Lepadella discoidea*			
402.		*Lepadella patella*			
403.		*Lepidoblennius marmoratus*			
404.		*Lepidoptera (non-pyralid)*			
405.		*Lepidoptera (non-pyralid) sp. 3 (SAP)*			
406.		*Lepidoptera (non-pyralid) sp. 9 (SAP) (nr Pilbara sp. 3)*			
407.		*Leptatherina presbyteroides*			
408.		*Leptoceridae sp.*			
409.		*Leptocythere lacustris*			
410.		*Leptoichthys fistularius*			
411.	25131	*Lerista distinguenda*			
412.	25483	*Lerista microtis*			
413.	25153	*Lerista microtis subsp. intermedia*			
414.		*Lesquereusia sp.*			
415.		*Leydigia cf. leydigii (SAP)*			
416.	25659	*Lichenostomus leucotis (White-eared Honeyeater)*			
417.	25661	*Lichmera indistincta (Brown Honeyeater)*			
418.	25739	*Limicola falcinellus (Broad-billed Sandpiper)*		IA	
419.		*Limnesia dentifera*			
420.		*Limnichidae sp.*			
421.		*Limnochares australica*			
422.	25415	*Limnodynastes dorsalis (Western Banjo Frog)*			
423.		*Limnophyes vestitus (V41)*			
424.	30932	*Limosa lapponica (Bar-tailed Godwit)*		IA	
425.	25378	*Litoria adelaidensis (Slender Tree Frog)*			
426.	25383	*Litoria cyclorhyncha (Spotted-thighed Frog)*			
427.		*Lohmannella pinggi*			
428.		*Lophoictinia isura*			
429.		*Lotella rhacinus*			
430.		*Lycosa godeffroyi*			
431.	24132	*Macropus fuliginosus (Western Grey Kangaroo)*			
432.		*Macrothrix breviseta*			
433.		*Macrothrix cf. breviseta (SAP)*			
434.		*Macrothrix sp.*			
435.		*Macrotrachela sp. a (SAP)*			Y
436.		*Makaira sp.*			Y
437.	24326	*Malacorhynchus membranaceus (Pink-eared Duck)*			
438.		*Manayunkia n. sp.*			
439.	24583	*Manorina flavigula (Yellow-throated Miner)*			
440.		*Maratus chrysomelas*			
441.	25758	*Megalurus gramineus (Little Grassbird)*			
442.		*Megaporus howittii*			
443.		*Megaporus solidus*			
444.		*Megaporus sp.*			
445.		*Melita kauerti*			
446.	24736	*Melopsittacus undulatus (Budgerigar)*			
447.	25184	*Menetia greyii*			
448.		*Meridiecyclops baylyi*			
449.	24598	*Merops ornatus (Rainbow Bee-eater)*			
450.		*Mesochra baylyi*			
451.		*Mesochra nr flava*			
452.		*Mesocyclops brooksi*			
453.		*Mesostigmata sp.*			
454.		*Microcarbo melanoleucos*			
455.		*Micronecta robusta*			
456.		*Micronecta sp.*			
457.	24213	*Mirounga leonina (Southern Elephant Seal)*			
458.		*Missulena granulosa*			
459.		*Missulena hoggi*			
460.		*Molycria quadricauda*			

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461.		*Monohelea sp. 3 (SAP)*			
462.	25192	*Morethia obscura*			
463.	48008	*Morus serrator (Australasian Gannet)*			
464.		*Muraenichthys breviceps*			
465.	24223	*Mus musculus (House Mouse)*	Y		
466.		*Muscidae sp.*			
467.		*Muscidae sp. A (SAP)*			
468.		*Muscidae sp. D (SAP)*			
469.		*Myandra bicincta*			
470.	25610	*Myiagra inquieta (Restless Flycatcher)*			
471.		*Mytilocypris ambiguosa*			
472.		*Mytilocypris mytiloides*			
473.		*Mytilocypris sp.*			
474.		*Naididae (ex Tubificidae)*			
475.		*Necterosoma penicillatus*			
476.		*Necterosoma sp.*			
477.		*Nematoda sp.*			
478.	25421	*Neobatrachus albipes (White-footed Trilling Frog)*			
479.	25425	*Neobatrachus kunapalari (Kunapalari Frog)*			
480.	25426	*Neobatrachus pelobatoides (Humming Frog)*			
481.	24738	*Neophema elegans (Elegant Parrot)*			
482.	24739	*Neophema petrophila (Rock Parrot)*			
483.	24210	*Neophoca cinerea (Australian Sea-lion)*		T	
484.		*Nephila edulis*			
485.		*Newnhamia fenestrata*			
486.		*Nicodamus mainae*			
487.		*Nilobezzia sp.*			
488.		*Nitocra near sp. 4 (SAP)*			
489.		*Nitocra reducta*			
490.		*Nitocra sp. 4 (SAP)*			
491.		*Nitocra sp. 5 (nr reducta) (SAP)*			
492.		*No invertebrates*			
493.		*Norfolkia incisa*			Y
494.		*Notalina spira*			
495.	48022	*Notamacropus irma (Western Brush Wallaby)*		P4	
496.	25252	*Notechis scutatus (Tiger Snake)*			
497.		*Notholca salina*			
498.	24229	*Notomys mitchellii (Mitchell's Hopping-mouse)*			
499.		*Notonectidae sp.*			
500.		*Novakiella trituberculosa*			
501.	25564	*Nycticorax caledonicus (Rufous Night Heron)*			
502.	24194	*Nyctophilus geoffroyi (Lesser Long-eared Bat)*			
503.		*Ochthebius sp.*			
504.		*Ochthebius sp. 4*			Y
505.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
506.		*Oecetis sp.*			
507.		*Oecobius navus*			
508.		*Oligochaeta sp.*			
509.		*Oniscidae sp.*			
510.		*Onychocamptus bengalensis*			
511.		*Opisthopora sp.*			
512.		*Oribatida sp.*			
513.		*Oribatida sp. 1 (PLP)*			Y
514.		*Oribatida sp. 2(PLP)*			Y
515.		*Orthetrum caledonicum*			
516.		*Orthocladiinae sp.*			
517.		*Orthocladiinae sp. G (SAP)*			
518.		*Orthocladiinae sp. I (SAP)*			
519.		*Orthocladiinae sp. J (SAP)*			
520.		*Orthocladiinae sp. P (SAP)*			
521.	24085	*Oryctolagus cuniculus (Rabbit)*	Y		
522.	34016	*Ovis aries (Sheep)*			
523.	24328	*Oxyura australis (Blue-billed Duck)*		P4	
524.		*Ozestheria packardi*			
525.	24619	*Pachycephala inornata (Gilbert's Whistler)*			
526.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
527.		*Palaemonetes australis*			
528.		*Paracyclops ?chiltoni (SAP)*			
529.		*Paralimnophyes pullulus (V42)*			
530.		*Paramerina levidensis*			

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531.		*Paranais litoralis*			
532.		*Parapallene haddoni*			
533.		*Paraplesiops meleagris*			
534.		*Parartemia longicaudata*			
535.		*Parartemia sp.*			
536.		*Parastacidae sp.*			
537.	25255	*Parasuta nigriceps*			
538.	25256	*Parasuta spectabilis subsp. bushi (spectacled hooded snake (Esperance), Mallee Black-headed Snake (Esperance area))*		P1	Y
539.	25681	*Pardalotus punctatus (Spotted Pardalote)*			
540.	25682	*Pardalotus striatus (Striated Pardalote)*			
541.		*Paroster niger*			
542.	24642	*Passer montanus (Eurasian Tree Sparrow)*	Y		
543.	24648	*Pelecanus conspicillatus (Australian Pelican)*			
544.		*Pelsartia humeralis*			
545.		*Pempheris klunzingeri*			
546.		*Pempheris multiradiata*			
547.		*Pescecyclops sp. 434 (Stuart's original arnaudi sensu Sars)*			
548.		*Pescecyclops sp. 442=462=465=CB2 (salinarum in Morton)*			
549.	48060	*Petrochelidon ariel (Fairy Martin)*			
550.	48061	*Petrochelidon nigricans (Tree Martin)*			
551.	48066	*Petroica boodang (Scarlet Robin)*			
552.		*Pezidae sp.*			
553.	41348	*Pezoporus flaviventris (Western Ground Parrot)*		T	
554.	25697	*Phalacrocorax carbo (Great Cormorant)*			
555.	24665	*Phalacrocorax fuscescens (Black-faced Cormorant)*			
556.	25698	*Phalacrocorax melanoleucos (Little Pied Cormorant)*			
557.	24667	*Phalacrocorax sulcirostris (Little Black Cormorant)*			
558.	25699	*Phalacrocorax varius (Pied Cormorant)*			
559.	24409	*Phaps chalcoptera (Common Bronzewing)*			
560.	25587	*Phaps elegans (Brush Bronzewing)*			
561.		*Philodinidae sp.*			
562.		*Phycodurus eques subsp. glauerti*			Y
563.	48071	*Phylidonyris niger (White-cheeked Honeyeater)*			
564.	24596	*Phylidonyris novaehollandiae (New Holland Honeyeater)*			
565.		*Phyllophryne scortea*			
566.		*Phyllopteryx taeniolatus*			
567.		*Physa acuta*			
568.		*Pictilabrus sp.*			
569.		*Placobdelloides sp.*			
570.	24841	*Platalea flavipes (Yellow-billed Spoonbill)*			
571.	24842	*Platalea regia (Royal Spoonbill)*			
572.		*Platycephalus speculator*			
573.	25720	*Platycercus icterotis (Western Rosella)*			
574.	24747	*Platycercus spurius (Red-capped Parrot)*			
575.		*Platycypris baueri*			
576.	24843	*Plegadis falcinellus (Glossy Ibis)*		IA	
577.		*Pleuroxus inermis*			
578.		*Pleuroxus jugosus*			
579.		*Pleuroxus sp.*			
580.		*Plumatella sp.*			
581.		*Plurispina chauliodis*			
582.	24381	*Pluvialis dominica (American Golden Plover)*			
583.	24382	*Pluvialis fulva (Pacific Golden Plover)*		IA	
584.	24383	*Pluvialis squatarola (Grey Plover)*		IA	
585.	25703	*Podargus strigoides (Tawny Frogmouth)*			
586.	25704	*Podiceps cristatus (Great Crested Grebe)*			
587.	25510	*Pogona minor (Dwarf Bearded Dragon)*			
588.	24907	*Pogona minor subsp. minor (Dwarf Bearded Dragon)*			
589.	24681	*Poliocephalus poliocephalus (Hoary-headed Grebe)*			
590.		*Polypedilum nr vespertinus (M2) (SAP)*			
591.		*Polypedilum nr. convexum (SAP)*			
592.		*Polypedilum nubifer*			
593.		*Pomatiopsidae sp.*			
594.	24683	*Pomatostomus superciliosus (White-browed Babbler)*			
595.	25731	*Porphyrio porphyrio (Purple Swamphen)*			
596.	24767	*Porphyrio porphyrio subsp. bellus (Purple Swamphen)*			
597.	24769	*Porzana fluminea (Australian Spotted Crake)*			
598.	24771	*Porzana tabuensis (Spotless Crake)*			
599.		*Pristina jenkinae*			

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600.		*Pristina longiseta*			
601.		*Procladius paludicola*			
602.		*Procladius villosimanus*			
603.		*Protogarypinus giganteus*			
604.		*Protozoan sp*			
605.		*Pseudocaranx dentex*			
606.		*Pseudogobius olorum*			
607.	44625	*Pseudohydryphantes doegi (Doeg's Watermite)*		P2	
608.		*Pseudolabrus parilus*			
609.	25259	*Pseudonaja affinis subsp. affinis (Dugite)*			
610.	25263	*Pseudonaja modesta (Ringed Brown Snake)*			
611.	25433	*Pseudophryne guentheri (Crawling Toadlet)*			
612.		*Pseudophycis breviuscula*			
613.		*Pseudorhombus jenynsii*			
614.		*Psychodidae sp.*			
615.	42344	*Purnella albifrons (White-fronted Honeyeater)*			
616.		*Purpureicephalus spurius*			
617.	25008	*Pygopus lepidopodus (Common Scaly Foot)*			
618.		*Pyralidae sp.*			
619.	24243	*Rattus fuscipes (Western Bush Rat)*			
620.	24245	*Rattus rattus (Black Rat)*	Y		
621.		*Raveniella cirrata*			
622.	24776	*Recurvirostra novaehollandiae (Red-necked Avocet)*			
623.		*Reticypris ?pinguis (SAP)*			
624.		*Reticypris clava*			
625.		*Reticypris sp. 557 (n. sp.) (SAP)*			
626.		*Reticypris walbu*			
627.		*Rhantus suturalis*			
628.	30818	*Rhinoplocephalus bicolor (Square-nosed Snake)*			
629.	48096	*Rhipidura albiscapa (Grey Fantail)*			
630.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
631.		*Rhombognathus delicatulus*			
632.		*Rhombognathus tener*			Y
633.		*Rhombognathus vulgaris*			
634.		*Saldula brevicornis*			
635.		*Salmo trutta*			
636.		*Sarscypridopsis aculeata*			
637.		*Scatopsidae sp.*			
638.		*Schizopera clandestina*			
639.		*Sciomyzidae sp.*			
640.		*Scirtidae sp.*			
641.		*Scobinichthys granulatus*			
642.		*Scomber australasicus*			
643.		*Scomberomorus semifasciatus*			
644.	25534	*Sericornis frontalis (White-browed Scrubwren)*			
645.	24279	*Sericornis frontalis subsp. maculatus (White-browed Scrubwren)*			
646.		*Sigara sp.*			
647.		*Sillago bassensis*			
648.		*Simocephalus elizabethae*			
649.		*Simuliidae sp.*			
650.		*Siphonognathus argyrophanes*			
651.		*Siphonognathus radiatus*			
652.	30948	*Smicrornis brevirostris (Weebill)*			
653.	24108	*Sminthopsis crassicaudata (Fat-tailed Dunnart)*			
654.	24112	*Sminthopsis granulipes (White-tailed Dunnart)*			
655.		*Sphaeriidae sp.*			
656.		*Sphaeromatidae sp.*			
657.	24645	*Stagonopleura oculata (Red-eared Firetail)*			
658.		*Staphylinidae sp.*			
659.		*Steatoda grossa*			
660.	48116	*Stercorarius antarcticus (Brown Skua)*		P4	
661.	25643	*Sterna hybrida (Whiskered Tern)*			
662.		*Sternopriscus multimaculatus*			
663.		*Sternopriscus sp.*			
664.	48594	*Sternula nereis (Fairy Tern)*			
665.	24329	*Stictonetta naevosa (Freckled Duck)*			
666.	25655	*Stipiturus malachurus (Southern Emu-wren)*			
667.	24554	*Stipiturus malachurus subsp. westernensis (Southern Emu-wren)*			
668.		*Storena fungina*			
669.		*Stratiomyidae sp.*			

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670.	25597	*Strepera versicolor (Grey Currawong)*			
671.	25590	*Streptopelia senegalensis (Laughing Turtle-Dove)*	Y		
672.	25518	*Strophurus spinigerus*			
673.	24943	*Strophurus spinigerus subsp. inornatus*			
674.		*Symphitoneuria wheeleri*			
675.		*Synsphyronus callus*			
676.		*Synsphyronus leo*			Y
677.		*Synsphyronus mimulus*			
678.		*Tabanidae sp.*			
679.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
680.	24331	*Tadorna tadornoides (Australian Shelduck, Mountain Duck)*			
681.		*Talitridae sp.*			
682.		*Tanypodinae sp.*			
683.		*Tanytarsus barbitarsis*			
684.		*Tanytarsus fuscithorax/semibarbitarsus*			
685.		*Tanytarsus nr bispinosus (SAP)*			
686.		*Tardigrada sp.*			
687.	24167	*Tarsipes rostratus (Honey Possum, Noolbenger)*			
688.		*Tasmanocoenis tillyardi*			
689.		*Testudinella patina*			
690.		*Tetragnatha nitens*			
691.		*Tetragnatha valida*			
692.	34007	*Thalassarche chlororhynchos (Atlantic Yellow-nosed Albatross)*		T	
693.	48597	*Thalasseus bergii (Crested Tern)*		IA	
694.	48135	*Thinornis rubricollis (Hooded Plover, Hooded Dotterel)*		P4	
695.		*Threpterius maculosus*			
696.	24845	*Threskiornis spinicollis (Straw-necked Ibis)*			
697.	25203	*Tiliqua occipitalis (Western Bluetongue)*			
698.	25207	*Tiliqua rugosa subsp. rugosa*			
699.		*Tipulidae sp.*			
700.		*Tipulidae type F (SAP)*			
701.		*Tipulidae type J (SAP)*			Y
702.	25549	*Todiramphus sanctus (Sacred Kingfisher)*			
703.	24309	*Todiramphus sanctus subsp. sanctus (Sacred Kingfisher)*			
704.	48141	*Tribonyx ventralis (Black-tailed Native-hen)*			
705.		*Trichocerca sp.*			
706.	24803	*Tringa brevipes (Grey-tailed Tattler)*		P4	
707.	24806	*Tringa glareola (Wood Sandpiper)*		IA	
708.	24808	*Tringa nebularia (Common Greenshank, greenshank)*		IA	
709.	24809	*Tringa stagnatilis (Marsh Sandpiper, little greenshank)*		IA	
710.		*Triplectides australis*			
711.		*Turbellaria sp.*			
712.	48147	*Turnix varius (Painted Button-quail)*			
713.	24851	*Turnix velox (Little Button-quail)*			
714.	30954	*Tursiops aduncus (Indo-Pacific Bottlenose Dolphin)*			
715.	24069	*Tursiops truncatus (Bottlenose Dolphin)*			
716.	24983	*Underwoodisaurus milii (Barking Gecko)*			
717.		*Upeneichthys lineatus*			
718.		*Urodacus novaehollandiae*			
719.	25577	*Vanellus miles (Masked Lapwing)*			
720.	24385	*Vanellus miles subsp. novaehollandiae (Masked Lapwing)*			
721.	24386	*Vanellus tricolor (Banded Lapwing)*			
722.	25225	*Varanus rosenbergi (Heath Monitor)*			
723.		*Venatrix pullastra*			
724.	24206	*Vespadelus regulus (Southern Forest Bat)*			
725.		*Vincentia punctata*			
726.	34113	*Westralunio carteri (Carter's Freshwater Mussel)*		T	
727.		*Xanthagrion erythroneurum*			
728.		*Zeus faber*			
729.		*Zonocypris sp BOS082*			Y
730.	25765	*Zosterops lateralis (Grey-breasted White-eye, Silvereye)*			

Chromista

731.	26443	*Acrocarpia robusta*			
732.	26586	*Caulocystis uvifera*			
733.	26717	*Cystophora brownii*			
734.	26722	*Cystophora monilifera*			
735.	26724	*Cystophora pectinata*			
736.	26726	*Cystophora racemosa*			
737.	26727	*Cystophora retorta*			
738.	26729	*Cystophora subfarcinata*			

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739.	26765	*Dictyopteris gracilis*			
740.	26766	*Dictyopteris muelleri*			
741.	26776	*Dictyota dichotoma*			
742.	29537	*Dictyota fastigiata*			
743.	26778	*Dictyota furcellata*			
744.	35218	*Dictyota nigricans*			
745.	35216	*Dictyota paniculata*			
746.	35223	*Dictyota polyclada*			
747.	29536	*Dictyota robusta*			
748.		*Dilophus marginatus*			Y
749.	26791	*Distromium flabellatum*			
750.	26792	*Distromium multifidum*			
751.	26805	*Ecklonia radiata*			
752.	26947	*Hormosira banksii*			
753.	26949	*Hydroclathrus clathratus*			
754.	27043	*Lobophora variegata*			
755.	27044	*Lobospira bicuspidata*			
756.	27092	*Myriodesma tuberosum*			
757.	27105	*Notheia anomala*			
758.	27152	*Platythalia quercifolia*			
759.	27164	*Polycerea zostericola*			
760.	27239	*Sargassum fallax*			
761.	27246	*Sargassum lacerifolium*			
762.	27254	*Sargassum podacanthum*			
763.	27264	*Scaberia agardhii*			
764.	27273	*Scytothalia dorycarpa*			
765.	27305	*Sporochnus radiciformis*			
766.	36138	*Zonaria angustata*			
767.	27371	*Zonaria crenata*			
768.	27372	*Zonaria spiralis*			
769.	27373	*Zonaria turneriana*			
Fungi					
770.		*Agaricus sp.*			
771.	38754	*Amanita conicobulbosa*			
772.	38758	*Anthracophyllum archeri*			
773.		*Armillaria luteobubalina*			
774.	38762	*Auriscalpium barbatum*			
775.	42106	*Austroparmelina conlabrosa*			
776.	38848	*Bolbitius titubans*			
777.		*Boletus sp.*			
778.	27597	*Buellia disciformis*			
779.		*Caloplaca sp.*			
780.	27663	*Cladia aggregata*			
781.	48177	*Cladia muelleri*			
782.	28208	*Cladonia cervicornis subsp. verticillata*			
783.		*Claviceps purpurea*			
784.		*Coltricia cinnamomea*			
785.		*Coprinus comatus*			
786.	27726	*Diplotomma alboatrum*			
787.	27744	*Flavoparmelia ferax*			
788.	27748	*Flavoparmelia rutidota*			
789.	27750	*Flavoparmelia secalonica*			
790.	44983	*Fulgensia cranfieldii*			
791.		*Fusarium avenaceum*			
792.		*Geastrum sp.*			
793.	38789	*Gymnopilus junonius*			
794.	27777	*Heterodermia obscurata*			
795.	28219	*Hypogymnia subphysodes var. subphysodes*			
796.	45301	*Jackelixia ligulata*			
797.	38802	*Laccocephalum tumulosum*			
798.		*Lecidea sp.*			
799.	46454	*Leucoagaricus leucothites*			
800.	38808	*Limacella pitereka*			
801.	49003	*Macrolepiota turbinata*			
802.	38816	*Omphalotus nidiformis*			
803.	49073	*Peziza austrogeaster*			
804.		*Physcia sp.*			
805.		*Phytophthora cinnamomi*			
806.		*Pisolithus sp.*			
807.		*Placoasterella baileyi*			

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808.	38824	*Pleurotus australis*			
809.	48835	*Pycnoporus coccineus*			
810.	28027	*Ramalina celastri*			
811.	28224	*Ramalina inflata subsp. australis*			
812.	28034	*Ramboldia crassithallina*			
813.		*Rhizopogon luteolus*			
814.		*Schizophyllum commune*			
815.	28065	*Teloschistes chrysophthalmus*			
816.	28066	*Teloschistes sieberianus*			
817.	28069	*Thelotrema lepadinum*			
818.	45838	*Tilletia ehrhartae*			
819.		*Uromycladium tepperianum*			
820.	28086	*Usnea dasaea*			
821.	28087	*Usnea inermis*			
822.	45909	*Ustilago tritici*			
823.		*Verrucaria sp.*			
824.	29970	*Xanthoparmelia conranensis*			
825.	28327	*Xanthoparmelia semiviridis*			
Plantae					
826.	14608	*Acacia aemula subsp. aemula*			
827.	16108	*Acacia aemula subsp. muricata*			
828.	41461	*Acacia bartlei*		P3	
829.	3239	*Acacia biflora*			
830.	3244	*Acacia brachyclada*			
831.	16114	*Acacia bracteolata*			
832.	3256	*Acacia chrysella*			
833.	3262	*Acacia cochlearis (Rigid Wattle)*			
834.	3268	*Acacia conniana*			
835.	3276	*Acacia crassuloides*			
836.	3277	*Acacia crispula*			
837.	12672	*Acacia cupularis*			
838.	3278	*Acacia curvata*			
839.	3282	*Acacia cyclops (Coastal Wattle)*			
840.	3289	*Acacia delphina*			
841.	3296	*Acacia dermatophylla*			
842.	14075	*Acacia euthyphylla*		P3	
843.	16123	*Acacia evenulosa*			
844.	3342	*Acacia fragilis*			
845.	3349	*Acacia glaucoptera (Flat Wattle)*			
846.	3353	*Acacia gonophylla*			
847.	16128	*Acacia hadrophylla*			
848.	3408	*Acacia lasiocalyx (Silver Wattle, Wilyurwur)*			
849.	11519	*Acacia lasiocarpa var. bracteolata*			
850.	15476	*Acacia latipes subsp. latipes*			
851.	3436	*Acacia maxwellii*			
852.	14465	*Acacia mimica var. angusta*			
853.	16134	*Acacia mutabilis subsp. mutabilis*			
854.	3453	*Acacia myrtifolia*			
855.	3457	*Acacia nigricans*			
856.	16138	*Acacia pachyphylla*			
857.	12265	*Acacia patagiata*			
858.	16139	*Acacia pinguiculosa subsp. teretifolia*			
859.	16141	*Acacia pravifolia*			
860.	3496	*Acacia preissiana*			
861.	3498	*Acacia pritzeliana*			
862.	15482	*Acacia pulchella var. goadbyi*			
863.	3504	*Acacia pycnantha (Golden Wattle)*	Y		
864.	16147	*Acacia rostellata*			
865.	3525	*Acacia rostellifera (Summer-scented Wattle)*			
866.	3527	*Acacia saligna (Orange Wattle, Kudjong)*			
867.	30034	*Acacia saligna subsp. pruinescens*			
868.	30032	*Acacia saligna subsp. saligna*			
869.	3548	*Acacia sorophylla*			
870.	15485	*Acacia sphacelata subsp. recurva*			
871.	3564	*Acacia subcaerulea*			
872.	13505	*Acacia sulcata var. planoconvexa*			
873.	3582	*Acacia triptycha*			
874.	15715	*Acacia varia var. parviflora*			
875.	7812	*Achillea millefolium (Yarrow, Milfoil)*	Y		
876.	6295	*Acrotriche cordata (Coast Ground Berry)*			

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877.	20328	*Acrotriche sp. Israelite Bay (M. Hislop & F. Hort MH 2630)*			
878.	6203	*Actinotus glomeratus*			
879.	26449	*Adelophycus corneus*			
880.	43201	*Adelphacme minima*		P3	
881.	1773	*Adenanthos cuneatus (Coastal Jugflower)*			
882.	4582	*Adriana quadripartita (Bitter Bush)*			
883.	20331	*Aeonium arboreum*	Y		
884.	20330	*Agonis baxteri*			
885.	23501	*Agrostocrinum scabrum subsp. scabrum*			
886.	185	*Aira cupaniana (Silvery Hairgrass)*	Y		
887.	1719	*Allocasuarina acuaria*			
888.	1721	*Allocasuarina campestris*			
889.	1730	*Allocasuarina helmsii*			
890.	1732	*Allocasuarina humilis (Dwarf Sheoak)*			
891.	13907	*Allocasuarina lehmanniana subsp. ecarinata*			
892.	1739	*Allocasuarina thuyoides (Horned Sheoak)*			
893.	48624	*Althenia cylindrocarpa*			
894.	48620	*Althenia preissii*			
895.	4905	*Alyogyne hakeifolia*			
896.	43023	*Alyogyne sp. Hutt River (B.J. Lepschi & T.R. Lally 2310)*			
897.	35909	*Amansia pinnatifida*			
898.	2655	*Amaranthus albus (Tumbleweed)*	Y		
899.	37280	*Amaranthus muricatus*	Y		Y
900.	2669	*Amaranthus retroflexus (Redroot Amaranth)*	Y		
901.	126	*Amphibolis antarctica (Sea Nymph)*			
902.	127	*Amphibolis griffithii*			
903.	13380	*Amphibromus nervosus*			
904.	195	*Amphipogon avenaceus*			
905.	200	*Amphipogon turbinatus*			
906.	1058	*Anarthria gracilis*			
907.	1059	*Anarthria humilis*			
908.	1060	*Anarthria laevis*			
909.	1061	*Anarthria polyphylla*			
910.	1062	*Anarthria prolifera*			
911.	1063	*Anarthria scabra*			
912.	6316	*Andersonia macranthera*			
913.	6318	*Andersonia parvifolia*			
914.	29108	*Andersonia sp. Kulin (J.M. Powell 2588)*			
915.	6321	*Andersonia sprengelioides*			
916.	40903	*Androcalva aphrix*			
917.	7833	*Angianthus preissianus*			
918.	12102	*Anigozanthos bicolor subsp. minor*		T	
919.	1415	*Anigozanthos rufus (Red Kangaroo Paw)*			
920.	6949	*Anthocercis littorea (Yellow Tailflower)*			
921.	11555	*Anthocercis viscosa subsp. caudata*			
922.	7411	*Anthotium humile (Dwarf Anthotium)*			
923.	26475	*Antithamnion hanovioides*			
924.	19627	*Aotus sp. Esperance (P.G. Wilson 7904)*			
925.	43548	*Aphelia sp. Albany (B.G. Briggs 596)*			
926.	6210	*Apium annuum*			
927.	6211	*Apium prostratum (Sea Celery)*			
928.	12040	*Apium prostratum subsp. prostratum var. prostratum (Sea Celery)*			
929.	7838	*Arctotheca calendula (Cape Weed, African Marigold)*	Y		
930.	26484	*Areschougia ligulata*			
931.	13327	*Argentipallium niveum*			
932.	13329	*Argentipallium tephrodes*			
933.	26485	*Asparagopsis armata*			
934.	8779	*Asparagus asparagoides (Bridal Creeper)*	Y		
935.	1364	*Asphodelus fistulosus (Onion Weed)*	Y		
936.	20347	*Astartea astarteoides*			
937.	42787	*Astartea reticulata*		P3	
938.	7845	*Asteridea asteroides*			
939.	7850	*Asteridea nivea*			
940.	6326	*Astroloma epacridis*			
941.	6335	*Astroloma prostratum (Cranberry Heath)*			
942.	14503	*Astroloma sp. Grass Patch (A.J.G. Wilson 110)*		P2	
943.	6338	*Astroloma tectum*			
944.	2457	*Atriplex exilifolia*			
945.	2471	*Atriplex prostrata (Hastate Orache)*	Y		
946.	2475	*Atriplex semibaccata (Berry Saltbush)*			

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947.	2481	*Atriplex vesicaria (Bladder Saltbush)*			
948.	17231	*Austrostipa acrociliata*			
949.	17236	*Austrostipa drummondii*			
950.	17240	*Austrostipa flavescens*			
951.	17241	*Austrostipa hemipogon*			
952.	17242	*Austrostipa juncifolia*			
953.	17244	*Austrostipa macalpinei*			
954.	35317	*Austrostipa mundula*		P3	
955.	17250	*Austrostipa pycnostachya*			
956.	231	*Avellinia michelii*	Y		
957.	233	*Avena barbata (Bearded Oat)*	Y		
958.	5352	*Baeckea latens*			
959.	20674	*Baeckea sp. Esperance (A.G. Gunness AG 2435)*			
960.	20620	*Baeckea sp. Gibson (K.R. Newbey 11084)*		P1	
961.	5373	*Baeckea uncinella*			
962.	32681	*Banksia armata (Prickly Dryandra)*			
963.	32682	*Banksia armata var. armata*			
964.	32683	*Banksia armata var. ignicida*			
965.	1805	*Banksia blechnifolia*			
966.	1832	*Banksia media (Southern Plains Banksia)*			
967.	32203	*Banksia nivea subsp. nivea*			
968.	1836	*Banksia nutans (Nodding Banksia)*			
969.	11360	*Banksia nutans var. nutans (Nodding Banksia)*			
970.	32198	*Banksia obovata (Wedge-leaved Dryandra)*			
971.	32197	*Banksia obtusa (Shining Honeypot)*			
972.	1837	*Banksia occidentalis (Red Swamp Banksia)*			
973.	1839	*Banksia petiolaris*			
974.	1840	*Banksia pilostylis*			
975.	32143	*Banksia prolata*			
976.	32145	*Banksia prolata subsp. calcicola*		P4	
977.	1843	*Banksia pulchella (Teasel Banksia)*			
978.	1845	*Banksia repens (Creeping Banksia)*			
979.	1850	*Banksia speciosa (Showy Banksia)*			
980.	32035	*Banksia tenuis*			
981.	32036	*Banksia tenuis var. tenuis*			
982.	1856	*Banksia violacea (Violet Banksia)*			
983.	32315	*Barbula calycina*			
984.	32320	*Barbula subcalycina*			
985.	741	*Baumea articulata (Jointed Rush)*			
986.	743	*Baumea juncea (Bare Twigrush)*			
987.	745	*Baumea preissii*			
988.	5383	*Beaufortia empetrifolia (South Coast Beaufortia)*			
989.	5388	*Beaufortia micrantha (Little Bottlebrush, Small-leaved Beaufortia)*			
990.	5391	*Beaufortia schaueri (Pink Beaufortia, Pink Bottlebrush)*			
991.	34262	*Beyeria physaphylla*		P1	Y
992.	34297	*Beyeria sulcata var. gracilis*			
993.	3154	*Billardiera coriacea*			
994.	25798	*Billardiera fusiformis (Australian Bluebell)*			
995.	25796	*Billardiera heterophylla (Australian Bluebell)*			
996.	3160	*Billardiera lehmanniana (Kurup)*			
997.	7856	*Blennospora drummondii*			
998.	749	*Bolboschoenus caldwellii (Marsh Club-rush)*			
999.	4403	*Boronia alata (Winged Boronia)*			
1000.	4404	*Boronia albiflora*			
1001.	16627	*Boronia baeckeacea subsp. baeckeacea*			
1002.	4409	*Boronia coerulescens*			
1003.	4411	*Boronia crassifolia*			
1004.	4425	*Boronia inornata (Desert Boronia)*			
1005.	15965	*Boronia inornata subsp. inornata*			
1006.	15966	*Boronia inornata subsp. leptophylla*			
1007.	11381	*Boronia ramosa subsp. anethifolia*			
1008.	4441	*Boronia spathulata (Boronia)*			
1009.	4446	*Boronia tetrandra (Yellow Boronia)*			
1010.	1267	*Borya constricta*			
1011.	30234	*Bossiaea barbarae*			
1012.	3707	*Bossiaea dentata*			
1013.	3716	*Bossiaea preissii*			
1014.	3718	*Bossiaea rufa*			
1015.	26518	*Botryocladia sonderi*			
1016.	30138	*Brachyloma geissoloma*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1017.	17922	*Brachyloma mogin*		P3	
1018.	7871	*Brachyscome ciliaris*			
1019.	7874	*Brachyscome eyrensis*			
1020.	11187	*Brassica barrelieri subsp. oxyrrhina (Smooth-stem Turnip)*	Y		
1021.	2999	*Brassica rapa*	Y		
1022.	3000	*Brassica tournefortii (Mediterranean Turnip)*	Y		
1023.	2995	*Brassica x napus*	Y		
1024.	244	*Briza maxima (Blowfly Grass)*	Y		
1025.	245	*Briza minor (Shivery Grass)*	Y		
1026.	248	*Bromus catharticus (Prairie Grass)*	Y		
1027.	249	*Bromus diandrus (Great Brome)*	Y		
1028.	250	*Bromus hordeaceus (Soft Brome)*	Y		
1029.	26525	*Bryopsis plumosa*			
1030.	1366	*Bulbine semibarbata (Leek Lily)*			
1031.	1277	*Caesia occidentalis*			
1032.	3001	*Cakile edentula (American Sea Rocket)*	Y		
1033.	3002	*Cakile maritima (Sea Rocket)*	Y		
1034.	13853	*Caladenia arrecta*			
1035.	15333	*Caladenia attingens subsp. gracillima*			
1036.	15334	*Caladenia brevisura*			
1037.	1580	*Caladenia cairnsiana (Zebra Orchid)*			
1038.	15342	*Caladenia cruscula*			
1039.	15343	*Caladenia decora*			
1040.	15348	*Caladenia flava subsp. flava*			
1041.	1594	*Caladenia graminifolia*			
1042.	15353	*Caladenia heberleana*			
1043.	18023	*Caladenia horistes*			
1044.	1599	*Caladenia latifolia (Pink Fairy Orchid)*			
1045.	15362	*Caladenia longicauda subsp. crassa*			
1046.	13860	*Caladenia longicauda subsp. rigidula*			
1047.	1605	*Caladenia marginata (White Fairy Orchid)*			
1048.	15374	*Caladenia pachychila*			
1049.		*Caladenia sp.*			
1050.	1589	*Caladenia x ericksoniae*			
1051.	2845	*Calandrinia brevipedata (Short-stalked Purslane)*			
1052.	2846	*Calandrinia calyptrata (Pink Purslane)*			
1053.	2848	*Calandrinia corrigioloides (Strap Purslane)*			
1054.	2853	*Calandrinia eremaea (Twining Purslane)*			
1055.	48569	*Calandrinia sp. Gypsum (F. Obbens & L. Hancock FO 10/14)*			
1056.	40827	*Calandrinia tholiformis*			
1057.	19084	*Calectasia gracilis*			
1058.	10861	*Callistachys lanceolata (Wonnich)*			
1059.	5395	*Callistemon phoeniceus (Lesser Bottlebrush, Dubarda)*			
1060.	93	*Callitris drummondii (Drummond's Cypress Pine)*			
1061.	96	*Callitris preissii (Rottnest Island Pine, Maro)*			
1062.	97	*Callitris roei (Roe's Cypress Pine)*			
1063.		*Callophyllis lambertii*			
1064.	26538	*Callophyllis rangiferina*			
1065.	5407	*Calothamnus gibbosus*			
1066.	5408	*Calothamnus gilesii*			
1067.	5409	*Calothamnus gracilis*			
1068.	35816	*Calothamnus quadrifidus subsp. quadrifidus*			
1069.	5449	*Calytrix decandra (Pink Starflower)*			
1070.	5450	*Calytrix depressa*			
1071.	48451	*Calytrix hirta*			
1072.	5465	*Calytrix leschenaultii*			
1073.	5483	*Calytrix tetragona (Common Fringe-myrtle)*			
1074.	3003	*Camelina sativa (False Flax)*	Y		
1075.	32461	*Campylopus bicolor var. bicolor*			
1076.	32338	*Campylopus introflexus*	Y		
1077.	43241	*Carex thecata*			
1078.	2796	*Carpobrotus modestus (Inland Pigface)*			
1079.	2798	*Carpobrotus virescens (Coastal Pigface, Kolboko, Bain)*			
1080.	26546	*Carpopeltis elata*			
1081.	26547	*Carpopeltis phyllophora*			
1082.	3008	*Carrichtera annua (Ward's Weed)*	Y		
1083.	2952	*Cassytha glabella (Tangled Dodder Laurel)*			
1084.	11211	*Cassytha glabella forma dispar*			
1085.	2953	*Cassytha melantha (Large Dodder-laurel)*			
1086.	2957	*Cassytha racemosa (Dodder Laurel)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1087.	11242	*Cassytha racemosa forma pilosa*			
1088.	26555	*Caulerpa brownii*			
1089.	26563	*Caulerpa flexilis*			
1090.	48455	*Caulerpa geminata*			
1091.	26570	*Caulerpa obscura*			
1092.	26571	*Caulerpa papillosa*			
1093.	26573	*Caulerpa racemosa*			
1094.	26574	*Caulerpa scalpelliformis*			
1095.	26583	*Caulerpa vesiculifera*			
1096.	760	*Caustis dioica*			
1097.	7915	*Centaurea calcitrapa (Star Thistle)*	Y		
1098.	7916	*Centaurea melitensis (Maltese Cockspur, Malta Thistle)*	Y		
1099.	6539	*Centaurium erythraea (Common Centaury)*	Y		
1100.	6214	*Centella asiatica*			
1101.	19761	*Centipeda crateriformis subsp. compacta*			
1102.	35322	*Centranthus ruber subsp. ruber*	Y		
1103.	1121	*Centrolepis aristata (Pointed Centrolepis)*			
1104.	1124	*Centrolepis cephaloformis*			
1105.	13122	*Centrolepis cephaloformis subsp. cephaloformis*			
1106.	1130	*Centrolepis humillima (Dwarf Centrolepis)*			
1107.	1134	*Centrolepis polygyna (Wiry Centrolepis)*			
1108.	13125	*Centrolepis strigosa subsp. strigosa*			
1109.	26599	*Ceramium puberulum*			
1110.	2889	*Cerastium glomeratum (Mouse Ear Chickweed)*	Y		
1111.	26607	*Chaetomorpha aerea*			
1112.	1280	*Chamaescilla corymbosa (Blue Squill)*			
1113.	1281	*Chamaescilla spiralis*			
1114.	5489	*Chamelaucium axillare (Esperance Waxflower)*			
1115.	5491	*Chamelaucium ciliatum*			
1116.	5495	*Chamelaucium megalopetalum (Large Waxflower)*			
1117.	26620	*Champia viridis*			Y
1118.	1513	*Chasmanthe floribunda (African Cornflag)*	Y		
1119.	31	*Cheilanthes austrotenuifolia*			
1120.	3168	*Cheiranthera filifolia*			
1121.	2490	*Chenopodium glaucum (Glaucous Goosefoot)*	Y		
1122.	2494	*Chenopodium murale (Nettle-leaf Goosefoot)*	Y		
1123.	272	*Chloris virgata (Feathertop Rhodes Grass)*	Y		
1124.	7925	*Chondrilla juncea (Skeleton Weed)*	Y		
1125.	17689	*Chordifex laxus*			
1126.	17834	*Chordifex sphacelatus*			
1127.	13112	*Chorizema aciculare subsp. aciculare*			
1128.	3758	*Chorizema ilicifolium (Holly Flame Pea)*			
1129.	3759	*Chorizema nervosum*			
1130.	13108	*Chorizema obtusifolium*			
1131.	3763	*Chorizema uncinatum*			
1132.	6543	*Cicendia filiformis (Slender Cicendia)*	Y		
1133.	7937	*Cirsium vulgare (Spear Thistle, Scotch Thistle)*	Y		
1134.	26664	*Claudea elegans*			
1135.	10804	*Clematis linearifolia*			
1136.	2929	*Clematis pubescens (Common Clematis)*			
1137.	26666	*Cliftonaea pectinata*			
1138.	26672	*Codium galeatum*			
1139.	26678	*Codium muelleri*			
1140.	26683	*Codium spongiosum*			
1141.	26685	*Coelarthrum cliftonii*			
1142.	26686	*Coelarthrum opuntia*			
1143.	6342	*Coleanthera coelophylla*		P1	
1144.	14664	*Comesperma calcicola*		P3	
1145.	4550	*Comesperma calymega (Blue-spike Milkwort)*			
1146.	4552	*Comesperma confertum*			
1147.	4553	*Comesperma drummondii (Drummond's Milkwort)*			
1148.	4554	*Comesperma flavum*			
1149.	14663	*Comesperma griffinii*		P2	
1150.	4555	*Comesperma integerrimum*			
1151.	4563	*Comesperma spinosum (Spiny Milkwort)*			
1152.	4564	*Comesperma virgatum (Milkwort)*			
1153.	4566	*Comesperma volubile (Love Creeper)*			
1154.	48634	*Commersonia corniculata*			
1155.	40923	*Commersonia craurophylla (Brittle Leaved Rulingia)*			
1156.	40924	*Commersonia rotundifolia (Round-leaved Rulingia)*		P3	

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1157.	1868	*Conospermum distichum*			
1158.	15518	*Conospermum filifolium subsp. filifolium*			
1159.	16349	*Conospermum leianthum subsp. leianthum*			
1160.	16350	*Conospermum leianthum subsp. orientale*			
1161.	14003	*Conospermum quadripetalum*		P2	
1162.	15611	*Conospermum stoechadis subsp. stoechadis (Common Smokebush)*			
1163.	1883	*Conospermum teretifolium (Spider Smokebush)*			
1164.	6346	*Conostephium marchantiorum*		P3	
1165.	43107	*Conostephium papillosum*			
1166.	1424	*Conostylis bealiana*			
1167.	1426	*Conostylis breviscapa*			
1168.	1439	*Conostylis lepidospermoides (Sedge Conostylis)*		T	
1169.	1445	*Conostylis phathyrantha*			
1170.	11923	*Conostylis seorsiflora subsp. seorsiflora*			
1171.	1453	*Conostylis serrulata*			
1172.	5500	*Conothamnus aureus*			
1173.	7939	*Conyza bonariensis (Flaxleaf Fleabane)*	Y		
1174.		*Conyza sp.*			
1175.	20074	*Conyza sumatrensis*	Y		
1176.	7418	*Coopernookia polygalacea*			
1177.	7419	*Coopernookia strophiolata*			
1178.	2891	*Corrigiola litoralis (Strapwort)*	Y		
1179.	1624	*Corybas despectans*			
1180.	12012	*Corynotheca micrantha var. panda*			
1181.	7943	*Cotula australis (Common Cotula)*			
1182.	7944	*Cotula bipinnata (Ferny Cotula)*	Y		
1183.	7945	*Cotula coronopifolia (Waterbuttons)*	Y		
1184.	7946	*Cotula cotuloides (Smooth Cotula)*			
1185.	26701	*Craspedocarpus blepharicarpus*			
1186.	3136	*Crassula alata*	Y		
1187.	3137	*Crassula colorata (Dense Stonecrop)*			
1188.	3139	*Crassula exserta*			
1189.	3142	*Crassula natans*	Y		
1190.	15706	*Crassula natans var. minus*	Y		
1191.	16188	*Cryptandra minutifolia subsp. brevistyla*			
1192.	9076	*Cryptandra myriantha*			
1193.	4809	*Cryptandra pungens*			
1194.	48865	*Cucumis myriocarpus subsp. myriocarpus*	Y		
1195.	20717	*Cyanicula aperta*			
1196.	15114	*Cyanicula gemmata*			
1197.	769	*Cyathochaeta clandestina*			
1198.	17618	*Cyathochaeta equitans*			
1199.	42220	*Cyathostemon ambiguus*			
1200.	42080	*Cyathostemon blackettii*			
1201.	43962	*Cyathostemon sp. Esperance (A. Fairall 2431)*		P1	
1202.	20422	*Cyathostemon tenuifolius*			
1203.	40661	*Cycnogeton lineare*			
1204.	6680	*Cynoglossum australe (Australian Hound's-tongue)*			
1205.	783	*Cyperus congestus (Dense Flat-sedge)*	Y		
1206.	801	*Cyperus laevigatus*	Y		
1207.	815	*Cyperus tenellus (Tiny Flatsedge)*	Y		
1208.	2779	*Cypselocarpus haloragoides*			
1209.	10964	*Cyrtostylis robusta*			
1210.	10942	*Cyrtostylis tenuissima*			
1211.	287	*Dactylis glomerata (Cocksfoot)*	Y		
1212.	18632	*Dampiera angulata subsp. angulata*			
1213.	7439	*Dampiera fasciculata (Bundled-leaf Dampiera)*			
1214.	7461	*Dampiera parvifolia (Many-bracted Dampiera)*			
1215.	7471	*Dampiera sacculata (Pouched Dampiera)*			
1216.	7474	*Dampiera sericantha*		P3	
1217.	7485	*Dampiera triloba*		P3	
1218.	5510	*Darwinia diosmoides*			
1219.	5525	*Darwinia polycephala*		P4	
1220.	20451	*Darwinia sp. Gibson (R.D. Royce 3569)*		P1	
1221.	35618	*Darwinia sp. Karonie (K. Newbey 8503)*			
1222.	18574	*Darwinia sp. Ravensthorpe (G.J. Keighery 8030)*			
1223.	5533	*Darwinia vestita (Pom-pom Darwinia)*			
1224.	26734	*Dasya clavigera*			
1225.	26735	*Dasya cliftonii*			
1226.	26738	*Dasya elongata*			

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1227.	26739	*Dasya extensa*			
1228.	26749	*Dasya villosa*			
1229.	6218	*Daucus glochidiatus (Australian Carrot)*			
1230.	16736	*Daviesia apiculata*			
1231.	16577	*Daviesia articulata*			
1232.	15507	*Daviesia incrassata subsp. reversifolia*			
1233.	3818	*Daviesia lancifolia*			
1234.	14892	*Daviesia major*			
1235.	3823	*Daviesia nematophylla*			
1236.	12817	*Daviesia pauciflora*		P3	
1237.	3844	*Daviesia teretifolia*			
1238.	26756	*Delisea hypneoides*			
1239.	26757	*Delisea pulchra*			
1240.	16593	*Desmocladus biformis*		P3	
1241.	16595	*Desmocladus flexuosus*			
1242.	46362	*Desmocladus lateriflorus*			
1243.	16471	*Desmocladus myriocladus*			
1244.	299	*Deyeuxia quadriseta (Reed Bentgrass)*			
1245.	16326	*Dianella brevicaulis*			
1246.	1259	*Dianella revoluta (Blueberry Lily)*			
1247.	26761	*Dictyomenia harveyana*			
1248.	26762	*Dictyomenia sonderi*			
1249.	26770	*Dictyosphaeria sericea*			
1250.	32346	*Didymodon torquatus*			
1251.	38260	*Dielsiodoxa oligarrhenoides*			
1252.	3862	*Dillwynia acerosa*			
1253.	3864	*Dillwynia divaricata*			
1254.	3866	*Dillwynia uncinata (Silky Parrot Pea)*			
1255.	3012	*Diplotaxis tenuifolia (Sand Rocket)*	Y		
1256.	3867	*Dipogon lignosus (Dolichos Pea)*	Y		
1257.	19649	*Disa bracteata*	Y		
1258.	7054	*Dischisma arenarium*	Y		
1259.	2799	*Disphyma crassifolium (Round-leaved Pigface)*			
1260.	11681	*Disphyma crassifolium subsp. clavellatum*			
1261.	327	*Distichlis distichophylla*			
1262.	7961	*Dittrichia graveolens (Stinkwort)*	Y		
1263.	12942	*Diuris concinna*			
1264.	12941	*Diuris conspicillata*			Y
1265.	42231	*Diuris decrementa*			
1266.	33159	*Diuris immaculata*			Y
1267.	1634	*Diuris laxiflora (Bee Orchid)*			
1268.	46873	*Diuris littoralis*			
1269.	12937	*Diuris pulchella*			
1270.	4753	*Dodonaea amblyophylla*			
1271.	4756	*Dodonaea caespitosa*			
1272.	4757	*Dodonaea ceratocarpa*			
1273.	26795	*Doxodasya bolbochaete*			
1274.	26796	*Doxodasya lanuginosa*			
1275.	1640	*Drakaea glyptodon (King-in-his-carriage)*			
1276.	48726	*Drosera australis*			
1277.	48751	*Drosera drummondii*			
1278.	3098	*Drosera glanduligera (Pimpernel Sundew)*			
1279.	3102	*Drosera huegelii (Bold Sundew)*			
1280.	3105	*Drosera leucoblasta (Wheel Sundew)*			
1281.	3109	*Drosera menziesii (Pink Rainbow)*			
1282.	3113	*Drosera neesii (Jewel Rainbow)*			
1283.	3114	*Drosera nitidula (Shining Sundew)*			
1284.	3128	*Drosera ramellosa (Branched Sundew)*			
1285.	13227	*Drosera sargentii*			Y
1286.	3130	*Drosera scorpioides (Shaggy Sundew)*			
1287.	49090	*Drosera sp. Branched styles (S.C. Coffey 193)*			
1288.	48708	*Drosera trichocaulis*			
1289.	3135	*Drosera zonaria (Painted Sundew)*			
1290.	33501	*Dysphania cristata (Crested Goosefoot)*			
1291.	33480	*Dysphania pumilio (Clammy Goosefoot)*			
1292.	32351	*Eccremidium pulchellum*			
1293.	26803	*Echinothamnion hystrix*			
1294.	347	*Ehrharta calycina (Perennial Veldt Grass)*	Y		
1295.	349	*Ehrharta longiflora (Annual Veldt Grass)*	Y		
1296.		*Ehrharta sp.*			

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1297.	822	*Eleocharis acuta (Common Spikerush)*			
1298.	831	*Eleocharis sphacelata (Tall Spikerush, Djabren)*			
1299.	1643	*Elythranthera brunonis (Purple Enamel Orchid)*			
1300.	1644	*Elythranthera emarginata (Pink Enamel Orchid)*			
1301.	1645	*Epiblema grandiflorum (Babe-in-a-cradle)*			
1302.	11570	*Epilobium billardiereanum subsp. billardiereanum (Smooth Willow Herb)*			
1303.	374	*Eragrostis cilianensis (Stinkgrass)*	Y		
1304.	376	*Eragrostis curvula (African Lovegrass)*	Y		
1305.	7180	*Eremophila alternifolia (Poverty Bush)*			
1306.	7187	*Eremophila calorhabdos (Red Rod)*			
1307.	7188	*Eremophila chamaephila*		P3	
1308.	28351	*Eremophila glabra subsp. Scaddan (C. Turley s.n. 10/11/2005)*		T	
1309.	7226	*Eremophila ionantha (Violet-flowered Eremophila)*			
1310.	7264	*Eremophila saligna (Willowy Eremophila)*			
1311.	14633	*Eremophila subfloccosa subsp. glandulosa*			
1312.	20718	*Ericksonella saccharata*			
1313.	1646	*Eriochilus dilatatus (White Bunny Orchid)*			
1314.	15413	*Eriochilus dilatatus subsp. undulatus*			
1315.	13866	*Eriochilus pulchellus*			
1316.	4336	*Erodium moschatum (Musky Crowfoot)*	Y		
1317.	26823	*Erythroclonium sonderi*			
1318.	5550	*Eucalyptus angulosa (Ridge-fruited Mallee, Kwarar)*			
1319.	5551	*Eucalyptus angustissima (Narrow-leaved Mallee)*			
1320.	19508	*Eucalyptus calycogona subsp. calycogona*			
1321.	13518	*Eucalyptus captiosa*			
1322.	20292	*Eucalyptus conglobata subsp. conglobata*			
1323.	20293	*Eucalyptus conglobata subsp. perata*			
1324.	5604	*Eucalyptus cooperiana (Many-flowered Mallee, Merrit)*			
1325.	5605	*Eucalyptus cornuta (Yate, Yeid)*			
1326.	5611	*Eucalyptus cylindriflora (White Mallee)*			
1327.	5616	*Eucalyptus decurva (Slender Mallee)*			
1328.	12870	*Eucalyptus densa*			
1329.	12869	*Eucalyptus densa subsp. densa*			
1330.	5622	*Eucalyptus dielsii (Cap-fruited Mallee)*			
1331.	5624	*Eucalyptus discreta*			
1332.	13517	*Eucalyptus dolichorhyncha*		P4	
1333.	5627	*Eucalyptus doratoxylon (Spearwood Mallee, Keidjngund)*			
1334.	5637	*Eucalyptus eremophila (Tall Sand Mallee)*			
1335.	12377	*Eucalyptus extensa*			
1336.	16043	*Eucalyptus famelica*		P3	
1337.	5648	*Eucalyptus flocktoniae (Merrit, Merid)*			
1338.	13022	*Eucalyptus foliosa*		P3	Y
1339.	5652	*Eucalyptus forrestiana (Fuchsia Gum)*			
1340.	14277	*Eucalyptus fraseri subsp. fraseri*			
1341.	18216	*Eucalyptus globulus*	Y		
1342.	5659	*Eucalyptus gomphocephala (Tuart, Duart)*			
1343.	5669	*Eucalyptus halophila*			
1344.	5675	*Eucalyptus incrassata (Lerp Mallee)*			
1345.	14299	*Eucalyptus kessellii*			
1346.	13065	*Eucalyptus kessellii subsp. eugnosta*			
1347.	13066	*Eucalyptus kessellii subsp. kessellii*			
1348.	5695	*Eucalyptus leptocalyx (Hopetoun Mallee)*			
1349.	19811	*Eucalyptus leptocalyx subsp. leptocalyx*			
1350.	12696	*Eucalyptus litorea*		P2	
1351.	5704	*Eucalyptus macrandra (Long-flowered Marlock, Dwed)*			
1352.	5712	*Eucalyptus merrickiae (Goblet Mallee)*		T	
1353.	5713	*Eucalyptus micranthera (Alexander River Mallee)*			
1354.	13023	*Eucalyptus misella*		P1	
1355.	5723	*Eucalyptus occidentalis (Flat-topped Yate, Moidj)*			
1356.	5745	*Eucalyptus pileata (Capped Mallee)*			
1357.	15742	*Eucalyptus platypus subsp. congregata*			
1358.	18551	*Eucalyptus platypus subsp. platypus*			
1359.	16180	*Eucalyptus pleurocarpa*			
1360.	15068	*Eucalyptus preissiana subsp. lobata*		P4	
1361.	13525	*Eucalyptus quadrans*			
1362.	12694	*Eucalyptus rigens (Saltlake Mallee)*			
1363.	5767	*Eucalyptus salubris (Gimlet)*			
1364.	10834	*Eucalyptus scyphocalyx (Goblet Mallee)*			
1365.	13014	*Eucalyptus semiglobosa*		P3	
1366.		*Eucalyptus sp.*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1367.	41523	*Eucalyptus sp. Southern Wheatbelt (D. Nicolle & M. French DN 5507)*			
1368.	29700	*Eucalyptus sp. Truslove (M.I.H. Brooker 7499)*			
1369.	14189	*Eucalyptus sporadica*			
1370.	13030	*Eucalyptus suggrandis subsp. suggrandis*			
1371.	34778	*Eucalyptus sweedmaniana*		P2	
1372.	13027	*Eucalyptus tenera*			
1373.	5788	*Eucalyptus tetraptera (Four-winged Mallee)*			
1374.	12889	*Eucalyptus tumida*			
1375.	5796	*Eucalyptus uncinata (Hook-leaved Mallee)*			
1376.	18085	*Eucalyptus utilis*			
1377.	15808	*Eucalyptus valens*			
1378.	12864	*Eucalyptus varia*			
1379.	12862	*Eucalyptus varia subsp. salsuginosa*			
1380.	12863	*Eucalyptus varia subsp. varia*			
1381.	8587	*Eucalyptus x erythrandra*			
1382.	19661	*Eucalyptus x missilis*		P4	
1383.	5802	*Eucalyptus yilgarnensis (Yorrell)*			
1384.	4636	*Euphorbia paralias (Sea Spurge)*	Y		
1385.	4643	*Euphorbia segetalis (Shortstemmed Carnation Weed)*	Y		Y
1386.	4648	*Euphorbia terracina (Geraldton Carnation Weed)*	Y		
1387.	11271	*Euphrasia collina subsp. tetragona*			
1388.	26830	*Euptilota articulata*			
1389.	37740	*Eutaxia inuncta*			
1390.	19614	*Eutaxia lutea*			
1391.	20214	*Eutaxia myrtifolia*			
1392.	3879	*Eutaxia parvifolia*			
1393.	10977	*Exocarpos aphyllus (Leafless Ballart)*			
1394.	10765	*Exocarpos sparteus (Broom Ballart, Djuk)*			
1395.	20162	*Fabronia hampeana*		P2	
1396.	8850	*Fallopia convolvulus*	Y		
1397.	20216	*Ficinia nodosa (Knotted Club Rush)*			
1398.	5191	*Frankenia cinerea*			
1399.	5209	*Frankenia pauciflora (Seaheath)*			
1400.	5213	*Frankenia tetrapetala (Four Petaled Frankenia)*			
1401.	1944	*Franklandia fucifolia (Lanoline Bush)*			
1402.	899	*Gahnia ancistrophylla (Hooked-leaf Saw Sedge)*			
1403.	16249	*Gahnia sp. Headland (G.J. Keighery 8501)*			
1404.	16283	*Gahnia sp. L (K.R. Newbey 7888)*			
1405.	43205	*Gahnia sp. South West (K.L. Wilson & K. Frank KLW 9266)*			
1406.	907	*Gahnia trifida (Coast Saw-sedge)*			
1407.	7323	*Galium murale (Small Goosegrass)*	Y		
1408.	19702	*Gastrolobium discolor*			
1409.	11044	*Gastrolobium heterophyllum*			
1410.	20453	*Gastrolobium latifolium*			
1411.	19725	*Gastrolobium musaceum*			
1412.	10981	*Gastrolobium parviflorum*			
1413.	3913	*Gastrolobium parvifolium (Berry Poison)*			
1414.	20487	*Gastrolobium punctatum*			
1415.	3921	*Gastrolobium reticulatum*			
1416.	3924	*Gastrolobium spinosum (Prickly Poison)*			
1417.	16311	*Gazania linearis*	Y		
1418.	26850	*Gelinaria ulvoidea*			
1419.	4341	*Geranium solanderi (Native Geranium)*			
1420.	1518	*Gladiolus angustus (Long Tubed Painted Lady)*	Y		
1421.	33620	*Glischrocaryon angustifolium*			
1422.	6143	*Glischrocaryon aureum (Common Popflower)*			
1423.	6145	*Glischrocaryon roei*			
1424.	26859	*Gloiocladia australe*			
1425.	26860	*Gloiocladia halymenioides*			
1426.	7983	*Gnaphalium indutum (Tiny Cudweed)*			
1427.	7991	*Gnephosis drummondii*			
1428.	8003	*Gnephosis tridens*			
1429.	6587	*Gomphocarpus fruticosus (Narrowleaf Cottonbush)*	Y		
1430.	3946	*Gompholobium baxteri*			
1431.	10909	*Gompholobium confertum*			
1432.	3950	*Gompholobium knightianum*			
1433.	3951	*Gompholobium marginatum*			
1434.	3954	*Gompholobium polymorphum*			
1435.	11083	*Gompholobium scabrum*			
1436.	3957	*Gompholobium tomentosum (Hairy Yellow Pea)*			

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1437.	3959	*Gompholobium viscidulum*			
1438.	6163	*Gonocarpus pycnostachyus*		P3	
1439.	6165	*Gonocarpus scordioides*			
1440.	7488	*Goodenia affinis (Silver Goodenia)*			
1441.	7499	*Goodenia concinna (Elegant Goodenia)*			
1442.	7503	*Goodenia decursiva*			
1443.	7517	*Goodenia incana (Hoary Goodenia)*			
1444.	17655	*Goodenia laevis subsp. laevis*		P3	
1445.	12551	*Goodenia micrantha*			
1446.	7537	*Goodenia pterigosperma*			
1447.	19051	*Goodenia scapigera subsp. scapigera*			
1448.	23461	*Goodenia turleyae*		P1	
1449.	7562	*Goodenia viscida (Viscid Goodenia)*			
1450.	1961	*Grevillea baxteri (Cape Arid Grevillea)*		P4	
1451.	1991	*Grevillea disjuncta*			
1452.	2018	*Grevillea huegelii*			
1453.	2050	*Grevillea nudiflora*			
1454.	2053	*Grevillea oligantha*			
1455.	2061	*Grevillea pectinata (Comb-leaved Grevillea)*			
1456.	19491	*Grevillea plurijuga subsp. superba*			
1457.	26883	*Griffithsia monilis*			
1458.	26886	*Griffithsia teges*			
1459.	32386	*Grimmia laevigata*			
1460.	5011	*Guichenotia ledifolia*			
1461.	5013	*Guichenotia micrantha (Small Flowered Guichenotia)*			
1462.	2804	*Gunniopsis glabra*			
1463.	2787	*Gyrostemon sheathii*			
1464.	1464	*Haemodorum brevisepalum*			
1465.	1475	*Haemodorum spicatum (Mardja)*			
1466.	2126	*Hakea adnata*			
1467.	12224	*Hakea bicornata*			
1468.	2139	*Hakea cinerea (Ashy Hakea)*			
1469.	2141	*Hakea clavata (Coastal Hakea)*			
1470.	2145	*Hakea corymbosa (Cauliflower Hakea)*			
1471.	12226	*Hakea denticulata*			
1472.	12227	*Hakea drupacea*			
1473.	2160	*Hakea ferruginea*			
1474.	2171	*Hakea laurina (Pincushion Hakea, Kodjet)*			
1475.	2175	*Hakea lissocarpha (Honey Bush)*			
1476.	2187	*Hakea nitida (Frog Hakea)*			
1477.	2188	*Hakea obliqua (Needles and Corks)*			
1478.	13335	*Hakea obliqua subsp. obliqua*			
1479.	2193	*Hakea pandanicarpa*			
1480.	16910	*Hakea pandanicarpa subsp. pandanicarpa*			
1481.	2197	*Hakea prostrata (Harsh Hakea)*			
1482.	2203	*Hakea ruscifolia (Candle Hakea)*			
1483.	2208	*Hakea strumosa*			
1484.	2212	*Hakea sulcata (Furrowed Hakea)*			
1485.	2214	*Hakea trifurcata (Two-leaf Hakea)*			
1486.	2216	*Hakea varia (Variable-leaved Hakea)*			
1487.	2218	*Hakea victoria (Royal Hakea, Dalyongurd)*			
1488.	6684	*Halgania andromedifolia*			
1489.	6691	*Halgania integerrima*			
1490.	161	*Halophila australis*			
1491.	26900	*Haloplegma preissii*			
1492.	6171	*Haloragis digyna*			
1493.	48666	*Halymenia harveyana*			
1494.	8008	*Helianthus annuus (Sunflower, Common Sunflower)*	Y		
1495.	3016	*Heliophila pusilla*	Y		
1496.	6707	*Heliotropium curassavicum (Smooth Heliotrope)*			
1497.	6710	*Heliotropium europaeum (Common Heliotrope)*	Y		
1498.	26913	*Helminthora australis*			
1499.	439	*Hemarthria uncinata (Matgrass)*			
1500.	11451	*Hemarthria uncinata var. uncinata*			
1501.	2689	*Hemichroa pentandra (Trailing Jointweed)*			
1502.	26915	*Hennedya crispa*			
1503.	26936	*Heterosiphonia muelleri*			
1504.	26938	*Heterosiphonia wrangelioides*			
1505.	5108	*Hibbertia acerosa (Needle Leaved Guinea Flower)*			
1506.	5110	*Hibbertia andrewsiana*			

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1507.	5117	*Hibbertia cuneiformis (Cutleaf Hibbertia)*			
1508.	5122	*Hibbertia eatoniae*			
1509.	5131	*Hibbertia gracilipes*			
1510.	20059	*Hibbertia hemignosta*			
1511.	20049	*Hibbertia hibbertioides var. meridionalis*			
1512.	5143	*Hibbertia lineata*			
1513.	20417	*Hibbertia oligantha*			
1514.	20349	*Hibbertia psilocarpa*			
1515.	5162	*Hibbertia racemosa (Stalked Guinea Flower)*			
1516.	5165	*Hibbertia rostellata*			
1517.		*Hibbertia sp.*			
1518.	5173	*Hibbertia subvaginata*			
1519.	20036	*Hibbertia turleyana*		P2	Y
1520.	19433	*Hibbertia ulicifolia*			
1521.	13773	*Hopkinsia adscendens*		P3	
1522.	3966	*Hovea pungens (Devil's Pins, Puyenak)*			
1523.	3968	*Hovea trisperma (Common Hovea)*			
1524.	12742	*Hyalosperma demissum*			
1525.	5220	*Hybanthus epacroides (Spiny Hybanthus)*			
1526.	6223	*Hydrocotyle alata*			
1527.	48770	*Hydrocotyle asterocarpa (Starry Pennywort)*		P2	
1528.	6234	*Hydrocotyle medicaginoides (Trefoil Pennywort)*			
1529.	49013	*Hydrocotyle tuberculata (Bumpy-fruited Pennywort)*		P2	
1530.	26959	*Hymenena multipartita*			
1531.	26962	*Hymenocladia dactyloides*			
1532.	26965	*Hymenocladia usnea*			
1533.	452	*Hyparrhenia hirta (Tambookie Grass)*	Y		
1534.	26971	*Hypnea ramentacea*			
1535.	26973	*Hypnea valentiae*			
1536.	5827	*Hypocalymma strictum*			
1537.	8086	*Hypochaeris glabra (Smooth Catsear)*	Y		
1538.	9352	*Hypochaeris radicata (Flat Weed, Cats-ear)*	Y		
1539.	1070	*Hypolaena exsulca*			
1540.	1071	*Hypolaena fastigiata*			
1541.	17844	*Hypolaena humilis*			
1542.	910	*Isolepis cernua (Nodding Club-rush)*			
1543.	912	*Isolepis cyperoides*			
1544.	917	*Isolepis marginata (Coarse Club-rush)*			
1545.	2220	*Isopogon alcicornis (Elkhorn Coneflower)*		P3	
1546.	2225	*Isopogon buxifolius*			
1547.	16880	*Isopogon formosus subsp. formosus*			
1548.	2234	*Isopogon polycephalus (Clustered Coneflower)*			
1549.	19998	*Isopogon sp. Fitzgerald River (D.B. Foreman 813)*			
1550.	2240	*Isopogon trilobus (Barrel Coneflower)*			
1551.	7399	*Isotoma scapigera (Long-scaped Isotome)*			
1552.	3992	*Isotropis cuneifolia (Granny Bonnets)*			
1553.	3993	*Isotropis drummondii (Lamb Poison)*			
1554.	3997	*Jacksonia alata*			
1555.	4002	*Jacksonia capitata*			
1556.	4005	*Jacksonia condensata*			
1557.	4028	*Jacksonia spinosa*			
1558.	14741	*Jacksonia venosa*			
1559.	14777	*Jacksonia viscosa*			
1560.	36141	*Jania pulchella*			
1561.	1295	*Johnsonia acaulis*			
1562.	1175	*Juncus acutus (Spiny Rush)*	Y		
1563.	20454	*Juncus acutus subsp. acutus*	Y		
1564.	1178	*Juncus bufonius (Toad Rush)*	Y		
1565.	1179	*Juncus caespiticius (Grassy Rush)*			
1566.	1180	*Juncus capitatus (Capitate Rush)*	Y		
1567.	11922	*Juncus kraussii subsp. australiensis*			
1568.	1188	*Juncus pallidus (Pale Rush)*			
1569.	1194	*Juncus radula*			
1570.	4035	*Kennedia beckxiana (Cape Arid Kennedia)*		P4	
1571.	4037	*Kennedia coccinea (Coral Vine)*			
1572.	37961	*Kennedia coccinea subsp. esotera*			
1573.	4042	*Kennedia nigricans (Black Kennedia)*			
1574.	4044	*Kennedia prostrata (Scarlet Runner)*			
1575.	42680	*Kennedia sp. South coast (T.R. Lally 1576 & I.P. Lally)*			
1576.	26995	*Kuetzingia canaliculata*			

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1577.	5830	*Kunzea affinis*			
1578.	5831	*Kunzea baxteri (Baxter's Kunzea)*			
1579.	5839	*Kunzea preissiana*			
1580.	38222	*Kunzea salina*		P3	
1581.	11528	*Labichea lanceolata subsp. brevifolia*			
1582.	467	*Lagurus ovatus (Hare's Tail Grass)*	Y		
1583.	13647	*Lambertia echinata subsp. echinata*		T	
1584.	2248	*Lambertia inermis (Chittick, Djidiok)*			
1585.	16870	*Lambertia inermis var. drummondii*			
1586.	16871	*Lambertia inermis var. inermis*			
1587.	5030	*Lasiopetalum discolor*			
1588.	5035	*Lasiopetalum indutum*			
1589.	5047	*Lasiopetalum rosmarinifolium*			
1590.	35642	*Lasiopetalum sp. Mt Ragged (T.E.H. Aplin 4349)*			
1591.	26997	*Laurencia arbuscula*			
1592.	26998	*Laurencia brongniartii*			
1593.	48408	*Laurencia dendroidea*			
1594.	27000	*Laurencia elata*			
1595.	27001	*Laurencia filiformis*			
1596.	27002	*Laurencia forsteri*			
1597.	4954	*Lawrencia diffusa*			
1598.	4955	*Lawrencia glomerata*			
1599.	4958	*Lawrencia spicata*			
1600.	4959	*Lawrencia squamata*			
1601.	1301	*Laxmannia brachyphylla (Stilted Paper-lily)*			
1602.	1304	*Laxmannia minor*			
1603.	1305	*Laxmannia omnifertilis*			
1604.	1306	*Laxmannia paleacea*			
1605.	1307	*Laxmannia ramosa (Branching Lily)*			
1606.	12029	*Laxmannia ramosa subsp. deflexa*			
1607.	7569	*Lechenaultia brevifolia*			
1608.	7575	*Lechenaultia formosa (Red Leschenaultia)*			
1609.	7590	*Lechenaultia tubiflora (Heath Leschenaultia)*			
1610.	1051	*Lemna disperma (Duckweed)*			
1611.	35864	*Lenormandia muelleri*			
1612.	27013	*Lenormandia spectabilis*			
1613.	8099	*Leontodon saxatilis (Hairy Hawkbit)*	Y		
1614.	3018	*Lepidium africanum (Rubble Peppercress)*	Y		
1615.	3021	*Lepidium bonariense (Peppercress)*	Y		
1616.	3026	*Lepidium fasciculatum (Bundled Peppercress)*		P3	
1617.	3044	*Lepidium rotundum (Veined Peppercress)*			
1618.	1073	*Lepidobolus chaetocephalus (Bristle-headed Chaff Rush)*			
1619.	1075	*Lepidobolus preissianus*			
1620.	929	*Lepidosperma carphoides (Black Rapier Sedge)*			
1621.	45756	*Lepidosperma fairallianum (Fairalls' Sword Sedge)*			
1622.	933	*Lepidosperma gladiatum (Coast Sword-sedge, Kerbin)*			
1623.	936	*Lepidosperma leptostachyum*			
1624.	939	*Lepidosperma pruinosum*			
1625.		*Lepidosperma sp.*			
1626.	945	*Lepidosperma squamatum*			
1627.	947	*Lepidosperma tenue*			
1628.	949	*Lepidosperma tuberculatum*			
1629.	1653	*Leporella fimbriata (Hare Orchid)*			
1630.	1078	*Leptocarpus coangustatus*			
1631.	46381	*Leptocarpus crebriculmis*			
1632.	2347	*Leptomeria lehmannii*			
1633.	2349	*Leptomeria pachyclada*			
1634.	2350	*Leptomeria pauciflora (Sparse-flowered Currant Bush)*			
1635.	5849	*Leptospermum incanum*			
1636.	5850	*Leptospermum laevigatum (Coast Teatree)*	Y		
1637.	5851	*Leptospermum maxwellii*			
1638.	5853	*Leptospermum oligandrum*			
1639.	5855	*Leptospermum roei*			
1640.	5856	*Leptospermum sericeum (Silver Teatree)*			
1641.	5857	*Leptospermum spinescens*			
1642.	1088	*Lepyrodia macra (Large Scale Rush)*			
1643.	16449	*Leucophyta brownii*			
1644.	6358	*Leucopogon assimilis*			
1645.	34768	*Leucopogon canaliculatus*			
1646.	6368	*Leucopogon carinatus*			

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1647.	6373	*Leucopogon concinnus*			
1648.	6374	*Leucopogon conostephioides*			
1649.	44222	*Leucopogon corymbiformis*		P2	
1650.	6383	*Leucopogon cuneifolius*			
1651.	6386	*Leucopogon dielsianus*			
1652.	6391	*Leucopogon fimbriatus*			
1653.	6406	*Leucopogon interruptus*		P3	
1654.	40940	*Leucopogon obovatus subsp. obovatus*			
1655.	6419	*Leucopogon obtusatus*			
1656.	6427	*Leucopogon parviflorus (Coast Beard-heath)*			
1657.	6442	*Leucopogon rotundifolius*		P3	
1658.	14637	*Leucopogon sp. Coujinup (M.A. Burgman 1085)*			
1659.	16051	*Leucopogon sp. Kau Rock (M.A. Burgman 1126)*			
1660.	41769	*Leucopogon sp. Lake Magenta (K.R. Newbey 3387)*		P1	
1661.	14205	*Leucopogon sp. Mount Heywood (M.A. Burgman 1211)*			
1662.	34163	*Leucopogon sp. Newdegate (M. Hislop 3585)*			
1663.	6455	*Leucopogon woodsii (Nodding Beard-heath)*			
1664.	7673	*Levenhookia pauciflora (Deceptive Stylewort)*			
1665.	27023	*Liagora harveyana*			
1666.	4362	*Linum marginale (Wild Flax)*			
1667.	20647	*Lissanthe rubicunda*			
1668.	9289	*Lobelia anceps (Angled Lobelia)*			
1669.	36862	*Lobelia archeri*		P1	Y
1670.	7402	*Lobelia gibbosa (Tall Lobelia)*			
1671.	7403	*Lobelia heterophylla (Wing-seeded Lobelia)*			
1672.	7405	*Lobelia rarifolia*			
1673.	3048	*Lobularia maritima (Sweet Alyssum)*	Y		
1674.	6504	*Logania buxifolia*			
1675.	6507	*Logania fasciculata*			
1676.	6509	*Logania micrantha*			
1677.	13129	*Logania perryana*			
1678.	6513	*Logania stenophylla*			
1679.	6515	*Logania vaginalis (White Spray)*			
1680.	478	*Lolium rigidum (Wimmera Ryegrass)*	Y		
1681.		*Lolium sp.*			
1682.	11384	*Lolium temulentum forma temulentum*	Y		
1683.	1224	*Lomandra collina (Pale Mat Rush)*			
1684.	1227	*Lomandra hastilis*			
1685.	14542	*Lomandra micrantha subsp. micrantha*			
1686.	14543	*Lomandra micrantha subsp. teretifolia*			
1687.	1233	*Lomandra mucronata*			
1688.	1234	*Lomandra nigricans*			
1689.	1241	*Lomandra rigida (Stiff Mat Rush)*			
1690.	6968	*Lycium ferocissimum (African Boxthorn)*	Y		
1691.	1097	*Lyginia barbata*			
1692.	18049	*Lyginia imberbis*			
1693.	6456	*Lysinema ciliatum (Curry Flower)*			
1694.	34736	*Lysinema pentapetalum*			
1695.	5281	*Lythrum hyssopifolia (Lesser Loosestrife)*	Y		
1696.	2838	*Macarthuria apetala*			
1697.	27053	*Macrothamnion pellucidum*			
1698.	14366	*Macrozamia dyeri*			
1699.	2542	*Maireana erioclada*			
1700.	2553	*Maireana oppositifolia*			
1701.	36480	*Malva arborea (Tree Mallow)*	Y		
1702.	19421	*Marianthus bicolor (Painted Marianthus)*			
1703.		*Marsilea sp.*			
1704.	4076	*Medicago lupulina (Black Medic)*	Y		
1705.	4079	*Medicago polymorpha (Burr Medic)*	Y		
1706.	4080	*Medicago sativa (Alfalfa)*	Y		
1707.	4083	*Medicago truncatula (Barrel Medic)*	Y		
1708.	5881	*Melaleuca brevifolia*			
1709.	5882	*Melaleuca bromelioides*			
1710.	37600	*Melaleuca calcicola*			
1711.	5885	*Melaleuca calycina*			
1712.	17982	*Melaleuca carrii*			
1713.	5896	*Melaleuca cordata*			
1714.	5900	*Melaleuca cuticularis (Saltwater Paperbark)*			
1715.	15693	*Melaleuca dempta*		P3	
1716.	5909	*Melaleuca elliptica (Granite Bottlebrush, Ngow)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1717.	13269	*Melaleuca fissurata*		P4	
1718.	15603	*Melaleuca fulgens subsp. fulgens*			
1719.	5913	*Melaleuca glaberrima*			
1720.	18277	*Melaleuca glena*			
1721.	5918	*Melaleuca haplantha*			
1722.	18274	*Melaleuca hnatiukii*			
1723.	13272	*Melaleuca incana subsp. tenella*			
1724.	5922	*Melaleuca lanceolata (Rottnest Teatree, Moonah)*			
1725.	19080	*Melaleuca linguiformis*			
1726.	5948	*Melaleuca pentagona*			
1727.	11686	*Melaleuca pentagona var. latifolia*			
1728.	15993	*Melaleuca pentagona var. pentagona*			
1729.	19609	*Melaleuca plumea*			
1730.	5955	*Melaleuca pulchella (Claw Flower)*			
1731.	5960	*Melaleuca rigidifolia*			
1732.	18276	*Melaleuca sapientes*			
1733.	5961	*Melaleuca scabra (Rough Honeymyrtle, Wurru Bush)*			
1734.	18165	*Melaleuca societatis*			
1735.	5971	*Melaleuca striata*			
1736.	5973	*Melaleuca suberosa (Corky Honeymyrtle)*			
1737.	5974	*Melaleuca subfalcata*			
1738.	19399	*Melaleuca thapsina*			
1739.	5980	*Melaleuca thymoides*			
1740.	5981	*Melaleuca thyoides*			
1741.	5982	*Melaleuca torquata*			
1742.	18126	*Melaleuca tuberculata var. macrophylla*			
1743.	5985	*Melaleuca undulata (Hidden Honey-myrtle)*			
1744.	4084	*Melilotus albus*	Y		
1745.	4085	*Melilotus indicus*	Y		
1746.	6883	*Mentha pulegium (Pennyroyal)*	Y		
1747.	2813	*Mesembryanthemum crystallinum (Iceplant)*	Y		
1748.	956	*Mesomelaena stygia*			
1749.	11473	*Mesomelaena stygia subsp. stygia*			
1750.	957	*Mesomelaena tetragona (Semaphore Sedge)*			
1751.	27069	*Metagoniolithon stelliferum*			
1752.	27070	*Metamastophora flabellata*			
1753.	6887	*Microcorys barbata*			
1754.	6893	*Microcorys glabra*			
1755.	6902	*Microcorys subcanescens*			
1756.	18046	*Microcybe multiflora subsp. multiflora*			
1757.	4488	*Microcybe pauciflora (Yellow Microcybe)*			
1758.	13785	*Microcybe pauciflora subsp. pauciflora*			
1759.	5993	*Micromyrtus elobata*			
1760.	20543	*Micromyrtus elobata subsp. elobata*			
1761.	5998	*Micromyrtus imbricata*			
1762.	34158	*Microtis alboviridis*			
1763.	1658	*Microtis atrata (Swamp Mignonette Orchid)*			
1764.	8814	*Microtis brownii*			
1765.	12199	*Microtis familiaris*			
1766.	10954	*Microtis media (Tall Mignonette Orchid)*			
1767.	15419	*Microtis media subsp. media*			
1768.	1660	*Microtis orbicularis (Dark Mignonette Orchid)*			
1769.	8106	*Millotia tenuifolia (Soft Millotia)*			
1770.	14344	*Millotia tenuifolia var. tenuifolia (Soft Millotia)*			
1771.	4090	*Mirbelia dilatata (Holly-leaved Mirbelia)*			
1772.	4096	*Mirbelia ovata*			
1773.	29418	*Monoculus monstrosus*	Y		
1774.	4667	*Monotaxis paxii*			
1775.	19179	*Moraea flaccida (One-leaf Cape Tulip)*	Y		
1776.	2412	*Muehlenbeckia adpressa (Climbing Lignum)*			
1777.	27077	*Mychodea aciculare*			
1778.	27079	*Mychodea carnosa*			
1779.	27080	*Mychodea disticha*			
1780.	7291	*Myoporum insulare (Blueberry Tree, boobialla)*			
1781.	7295	*Myoporum tetrandrum (Boobialla)*			
1782.	27095	*Myriogramme gunniana*			
1783.	6196	*Myriophyllum muelleri (Hooded Water Milfoil)*		P1	
1784.	6464	*Needhamiella pumilio*			
1785.	4492	*Nematolepis phebalioides*			
1786.	492	*Neurachne alopecuroidea (Foxtail Mulga Grass)*			

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1787.	4366	*Nitraria billardierei (Nitre Bush)*			
1788.	2401	*Nuytsia floribunda (Christmas Tree, Mudja)*			
1789.	6138	*Oenothera drummondii (Beach Evening Primrose)*	Y		
1790.	14292	*Oenothera stricta subsp. stricta*	Y		
1791.	2365	*Olax benthamiana*			
1792.	2366	*Olax phyllanthi*			
1793.	8127	*Olearia axillaris (Coastal Daisybush)*			
1794.	8131	*Olearia ciliata (Fringed Daisy Bush)*			
1795.	8134	*Olearia exiguifolia (Small-leaved Daisy Bush)*			
1796.	8137	*Olearia imbricata (Imbricate Daisy Bush)*			
1797.	11397	*Olearia passerinoides subsp. passerinoides*			
1798.	44401	*Olearia sp. Eremicola (Diels & Pritzel s.n. PERTH 00449628)*			
1799.	6465	*Oligarrhena micrantha*			
1800.	20661	*Oncosiphon suffruticosum (Calomba Daisy)*	Y		
1801.	7348	*Opercularia hispidula (Hispid Stinkweed)*			
1802.	18256	*Opercularia spermacocea*			
1803.	18255	*Opercularia vaginata (Dog Weed)*			
1804.	46217	*Orianthera callosa*			
1805.	46255	*Orianthera campanulata*			
1806.	46316	*Orianthera serpyllifolia subsp. angustifolia*			
1807.	36181	*Ornduffia parnassifolia*			
1808.	4113	*Ornithopus compressus (Yellow Serradella)*	Y		
1809.	4115	*Ornithopus sativus (French Serradella)*	Y		
1810.	7122	*Orobanche minor (Lesser Broomrape)*	Y		
1811.	1539	*Orthrosanthus multiflorus (Morning Iris)*			
1812.	27107	*Osmundaria prolifera*			
1813.	30375	*Oxalis exilis*			
1814.	4355	*Oxalis perennans*			
1815.	34841	*Oxymyrrhine gracilis*			
1816.	12645	*Ozothamnus lepidophyllus*			
1817.	502	*Panicum capillare (Witchgrass)*	Y		
1818.	2964	*Papaver hybridum (Rough Poppy)*	Y		
1819.	1667	*Paracaleana nigrita (Flying Duck Orchid)*			
1820.	23499	*Paracaleana parvula*		P2	
1821.	516	*Parapholis incurva (Coast Barbgrass)*	Y		
1822.	1762	*Parietaria debilis (Pellitory)*			
1823.	527	*Paspalum dilatatum*	Y		
1824.	1545	*Patersonia inaequalis (Unequal Bract Patersonia)*		P2	
1825.	1546	*Patersonia juncea (Rush Leaved Patersonia)*			
1826.	19670	*Patersonia lanata forma calvata*			
1827.	19669	*Patersonia lanata forma lanata*			
1828.	1549	*Patersonia maxwellii*			
1829.	1550	*Patersonia occidentalis (Purple Flag, Koma)*			
1830.	30472	*Patersonia occidentalis var. occidentalis*			
1831.	1552	*Patersonia rudis (Hairy Flag)*			
1832.	4343	*Pelargonium capitatum (Rose Pelargonium)*	Y		
1833.	4344	*Pelargonium drummondii*			
1834.	4346	*Pelargonium littorale*			
1835.	40423	*Pentameris airoides (False Hairgrass)*	Y		
1836.	11052	*Persicaria prostrata*			
1837.	15136	*Persoonia cymbifolia*		P3	
1838.	2275	*Persoonia scabra*		P3	
1839.	2279	*Persoonia teretifolia*			
1840.	2296	*Petrophile fastigiata*			
1841.	2311	*Petrophile squamata*			
1842.	20053	*Petrophile squamata subsp. northern (J. Monks 40)*			
1843.	2313	*Petrophile teretifolia*			
1844.	551	*Phalaris minor (Lesser Canary Grass)*	Y		
1845.	4501	*Phebalium lepidotum*			
1846.	18536	*Philotheca fitzgeraldii*			
1847.	18515	*Philotheca gardneri subsp. gardneri*			
1848.	18532	*Philotheca nodiflora subsp. lasiocalyx*			
1849.	1173	*Philydrella pygmaea (Butterfly Flowers)*			
1850.	555	*Phragmites australis (Common Reed)*	Y		
1851.	16825	*Phyllangium divergens*			
1852.	4675	*Phyllanthus calycinus (False Boronia)*			
1853.	4685	*Phyllanthus scaber*			
1854.	4	*Phylloglossum drummondii (Pigmy Clubmoss)*			
1855.	6007	*Phymatocarpus maxwellii*			
1856.	5231	*Pimelea angustifolia (Narrow-leaved Pimelea)*			

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1857.	5232	*Pimelea argentea (Silvery Leaved Pimelea)*			
1858.	5234	*Pimelea brachyphylla*			
1859.	11282	*Pimelea brevifolia subsp. brevifolia*			
1860.	5239	*Pimelea clavata*			
1861.	5240	*Pimelea cracens*			
1862.	5241	*Pimelea drummondii*			
1863.	5242	*Pimelea erecta*			
1864.	5243	*Pimelea ferruginea*			
1865.	11402	*Pimelea imbricata var. piligera*			
1866.	12701	*Pimelea pelinos*		P1	
1867.	5267	*Pimelea subvillifera*			
1868.	6804	*Pityrodia chrysocalyx*		P3	
1869.	7299	*Plantago debilis*			
1870.	7301	*Plantago exilis*			
1871.	6249	*Platysace compressa (Tapeworm Plant)*			
1872.	6252	*Platysace effusa*			
1873.	27150	*Platysiphonia victoriae*			
1874.	27154	*Plocamium angustum*			
1875.	27156	*Plocamium mertensii*			
1876.	27157	*Plocamium preissianum*			
1877.	577	*Poa poiformis (Coastal Poa)*			
1878.	8173	*Podolepis capillaris (Wiry Podolepis)*			
1879.	8180	*Podolepis rugata (Pleated Podolepis)*			
1880.	8182	*Podotheca angustifolia (Sticky Longheads)*			
1881.	27162	*Pollexfenia pedicellata*			
1882.	2419	*Polygonum aviculare (Wireweed)*	Y		
1883.	582	*Polypogon monspeliensis (Annual Beardgrass)*	Y		
1884.	27173	*Polysiphonia decipiens*			
1885.	27177	*Polysiphonia mollis*			Y
1886.	14547	*Pomaderris brevifolia*			
1887.	4818	*Pomaderris myrtilloides*			
1888.	16191	*Pomaderris rotundifolia*			
1889.	122	*Posidonia angustifolia*			
1890.	123	*Posidonia australis (Fibreball Weed)*			
1891.	106	*Posidonia denhartogii*			
1892.	107	*Posidonia kirkmanii*			
1893.	124	*Posidonia ostenfeldii*			
1894.	108	*Posidonia robertsoniae*			
1895.	125	*Posidonia sinuosa*			
1896.	110	*Potamogeton drummondii*			
1897.	15424	*Praecoxanthus aphyllus*			
1898.	15425	*Prasophyllum calcicola*			
1899.	1671	*Prasophyllum elatum (Tall Leek Orchid)*			
1900.	1672	*Prasophyllum fimbria (Fringed Leek Orchid)*			
1901.	1674	*Prasophyllum giganteum (Bronze Leek Orchid)*			
1902.	1677	*Prasophyllum macrostachyum (Laughing Leek Orchid)*			
1903.	17650	*Prasophyllum odoratissimum*			
1904.	1680	*Prasophyllum parvifolium (Autumn Leek Orchid)*			
1905.	1682	*Prasophyllum sargentii*			
1906.	6911	*Prostanthera baxteri*			
1907.	11304	*Prostanthera serpyllifolia subsp. microphylla*			
1908.	8189	*Pseudognaphalium luteoalbum (Jersey Cudweed)*			
1909.	13255	*Pterochaeta paniculata*			
1910.		*Pterostylis aff. nana*			
1911.	48670	*Pterostylis arbuscula*			
1912.	1687	*Pterostylis dilatata*			
1913.	1693	*Pterostylis recurva (Jug Orchid)*			
1914.	1694	*Pterostylis rogersii (Curled-tongue Shell Orchid)*			
1915.	1696	*Pterostylis sargentii (Frog Greenhood)*			
1916.	18652	*Pterostylis sp. robust (W. Jackson BJ294)*			
1917.	10998	*Pterostylis turfosa (Bird Orchid)*			
1918.	1698	*Pterostylis vittata (Banded Greenhood)*			
1919.	27203	*Ptilocladia pulchra*			
1920.	27204	*Ptilocladia vestita*			
1921.	32417	*Ptychostomum angustifolium*			
1922.	31672	*Puccinellia longior*			
1923.	592	*Puccinellia stricta (Marsh Grass)*			
1924.	4170	*Pultenaea elachista*			
1925.	4172	*Pultenaea ericifolia*			
1926.	28286	*Pultenaea heterochila*			

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1927.	20785	*Pultenaea indira subsp. indira*			
1928.	20790	*Pultenaea purpurea*			
1929.	4184	*Pultenaea spinulosa*			
1930.	4186	*Pultenaea tenuifolia*			
1931.	4187	*Pultenaea verruculosa*			
1932.	16367	*Pyrorchis nigricans (Red beaks, Elephants ears)*			
1933.	8195	*Quinetia urvillei*			
1934.	3061	*Raphanus raphanistrum (Wild Radish)*	Y		
1935.	3063	*Rapistrum rugosum (Turnip Weed)*	Y		
1936.	6014	*Regelia inops*			
1937.	27211	*Rhabdonia coccinea*			
1938.	2578	*Rhagodia baccata (Berry Saltbush)*			
1939.	11341	*Rhagodia baccata subsp. baccata*			
1940.	2580	*Rhagodia crassifolia (Fleshy Saltbush)*			
1941.	2584	*Rhagodia preissii*			
1942.	13300	*Rhodanthe citrina*			
1943.	27220	*Rhodopeltis australis*			
1944.	31911	*Ricinocarpos megalocarpus*			
1945.	11096	*Rinzia dimorphandra (Esperance Rinzia)*			
1946.	48269	*Rinzia icosandra (Recherche Mainland Rinzia)*			
1947.	48887	*Roepera billardierei*			
1948.	1556	*Romulea rosea (Guildford Grass)*	Y		
1949.	10970	*Rostraria cristata*	Y		
1950.	32426	*Rosulabryum campylothecium*			
1951.	32429	*Rosulabryum torquescens*			
1952.	20496	*Rubus laudatus*	Y		
1953.	2429	*Rumex acetosella (Sorrel)*	Y		
1954.	2430	*Rumex brownii (Swamp Dock)*	Y		
1955.	46434	*Rumex hypogaeus*	Y		
1956.	115	*Ruppia megacarpa*			
1957.	116	*Ruppia polycarpa*			
1958.	117	*Ruppia tuberosa*			
1959.	40431	*Rytidosperma acerosum*			
1960.	40427	*Rytidosperma setaceum*			
1961.	48433	*Salicornia blackiana*			
1962.	48430	*Salicornia quinqueflora*			
1963.	48431	*Salicornia quinqueflora subsp. quinqueflora (Beaded Glasswort)*			
1964.	6928	*Salvia reflexa (Mintweed)*	Y		
1965.	6483	*Samolus junceus*			
1966.	6484	*Samolus repens (Creeping Brookweed)*			
1967.	27229	*Sarcomenia delesserioides*			
1968.	2817	*Sarcozona praecox (Sarcozona)*			
1969.	7606	*Scaevola crassifolia (Thick-leaved Fan-flower)*			
1970.	7607	*Scaevola cuneiformis (Wedge-leaved Scaevola)*			
1971.	7614	*Scaevola globulifera*			
1972.	7639	*Scaevola restiacea*			
1973.	13151	*Scaevola thesioides subsp. filifolia*			
1974.	41660	*Schenkia australis*			
1975.	976	*Schoenus breviculmis*			
1976.	978	*Schoenus brevisetis*			
1977.	979	*Schoenus caespititius*			
1978.	984	*Schoenus curvifolius*			
1979.	992	*Schoenus grandiflorus (Large Flowered Bogrush)*			
1980.	994	*Schoenus humilis*			
1981.	996	*Schoenus laevigatus*			
1982.	1004	*Schoenus nitens (Shiny Bog-rush)*			
1983.	1005	*Schoenus obtusifolius*			
1984.	1006	*Schoenus odontocarpus*			
1985.	1009	*Schoenus pleiostemoneus*			
1986.	17614	*Schoenus plumosus*			
1987.	16089	*Schoenus racemosus*			
1988.	1013	*Schoenus sculptus (Gimlet Bog-rush)*			
1989.	14626	*Schoenus sp. A1 Boorabbin (K.L. Wilson 2581)*			
1990.	16273	*Schoenus sp. Grey Rhizome (K.L. Wilson 2922)*		P1	
1991.	1016	*Schoenus subbarbatus (Bearded Bog-rush)*			
1992.	1018	*Schoenus subfascicularis*			
1993.	1019	*Schoenus subflavus (Yellow Bog-rush)*			
1994.	16251	*Schoenus subflavus subsp. long leaves (K.L. Wilson 2865)*			
1995.	1022	*Schoenus submicrostachyus*			
1996.	6544	*Sebaea ovata (Yellow Sebaea)*			

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1997.	32433	*Sematophyllum homomallum*			
1998.	8207	*Senecio glossanthus (Slender Groundsel)*			
1999.	8216	*Senecio picridioides*			
2000.	25882	*Senecio pinnatifolius var. maritimus (Coastal Groundsel)*			
2001.	25883	*Senecio pinnatifolius var. pinnatifolius*			
2002.	7362	*Sherardia arvensis (Field Madder)*	Y		
2003.	4823	*Siegfriedia darwinioides*			
2004.	8224	*Siloxerus filifolius*			
2005.	8225	*Siloxerus humifusus (Procumbent Siloxerus)*			
2006.	14583	*Siloxerus multiflorus*			
2007.	3071	*Sisymbrium officinale (Hedge Mustard)*	Y		
2008.	3072	*Sisymbrium orientale (Indian Hedge Mustard)*	Y		
2009.	7017	*Solanum laciniatum (Kangaroo Apple)*	Y		
2010.	7022	*Solanum nigrum (Black Berry Nightshade)*	Y		
2011.	7033	*Solanum rostratum (Buffalo Burr)*	Y		
2012.	7037	*Solanum symonii*			
2013.	45036	*Solidago chilensis*	Y		
2014.	8230	*Sonchus asper (Rough Sowthistle)*	Y		
2015.	9367	*Sonchus hydrophilus (Native Sowthistle)*			
2016.	8231	*Sonchus oleraceus (Common Sowthistle)*	Y		
2017.	44731	*Sonderophycus capensis*			
2018.	614	*Sorghastrum nutans*	Y		Y
2019.	617	*Sorghum halepense (Johnson Grass)*	Y		
2020.	1560	*Sparaxis pillansii (Harlequin Flower)*	Y		
2021.	2914	*Spergularia diandra (Lesser Sand Spurry)*	Y		
2022.	8900	*Spergularia marina*			
2023.	4201	*Sphaerolobium daviesioides (Prickly Globe-pea)*			
2024.	17551	*Sphaerolobium drummondii*			
2025.	4205	*Sphaerolobium linophyllum*			
2026.	4206	*Sphaerolobium macranthum*			
2027.	4211	*Sphaerolobium vimineum (Leafless Globe Pea)*			
2028.	624	*Spinifex hirsutus (Hairy Spinifex)*			
2029.	635	*Sporobolus virginicus (Marine Couch)*			
2030.	27309	*Spyridia dasyoides*			
2031.	27310	*Spyridia filamentosa*			
2032.	4828	*Spyridium globulosum (Basket Bush)*			
2033.	4830	*Spyridium microcephalum (Small-headed Spyridium)*			
2034.	14243	*Spyridium minutum*			
2035.	14795	*Spyridium mucronatum subsp. multiflorum*		P2	
2036.	15140	*Spyridium polycephalum*			
2037.	31916	*Spyridium sp. Jerdacuttup (A. Williams 332)*			
2038.	4715	*Stachystemon polyandrus*			
2039.	20540	*Stachystemon vinosus*		P4	
2040.	20537	*Stachystemon virgatus*			
2041.	4733	*Stackhousia monogyna*			
2042.	4734	*Stackhousia muricata*			
2043.	9070	*Stackhousia pubescens (Downy Stackhousia)*			
2044.	43662	*Stackhousia sp. Thick sepals (A.E. Orchard 1547)*			
2045.	1315	*Stawellia gymnocephala*			
2046.	2918	*Stellaria media (Chickweed)*	Y		
2047.	15065	*Stenanthemum notiale subsp. notiale*			
2048.	16375	*Stirlingia anethifolia*			
2049.	2317	*Stirlingia simplex*			
2050.	27318	*Struvea plumosa*			
2051.	7678	*Stylidium adnatum (Common Beaked Triggerplant)*			
2052.	7682	*Stylidium albomontis*			
2053.	7687	*Stylidium assimile (Bronze-leaved Triggerplant)*			
2054.	7692	*Stylidium breviscapum (Boomerang Triggerplant)*			
2055.	12057	*Stylidium corymbosum var. corymbosum*			
2056.	7741	*Stylidium insensitivum (Insensitive Trigger Plant)*			
2057.	7758	*Stylidium macranthum (Crab Claws)*			
2058.	7772	*Stylidium perpusillum (Tiny Triggerplant)*			
2059.	7774	*Stylidium piliferum (Common Butterfly Triggerplant)*			
2060.	7775	*Stylidium pilosum (Silky Triggerplant)*			
2061.	7777	*Stylidium preissii (Lizard Triggerplant)*			
2062.	7785	*Stylidium repens (Matted Triggerplant)*			
2063.	7794	*Stylidium rupestre (Rock Triggerplant)*			
2064.		*Stylidium sp.*			
2065.	20599	*Stylidium turleyae*			
2066.	1260	*Stypandra glauca (Blind Grass)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
2067.	6473	*Styphelia intertexta*			
2068.	48618	*Styphelia sp. South Coast (J.M. Powell 3374)*			
2069.	2639	*Suaeda australis (Seablite)*			
2070.	2640	*Suaeda baccifera*	Y		
2071.	43203	*Surreya diandra*			
2072.	25902	*Symphyotrichum squamatum (Bushy Starwort)*	Y		
2073.	16860	*Synaphea media*			
2074.	12911	*Synaphea obtusata*			
2075.	16772	*Synaphea oligantha*			
2076.	2324	*Synaphea petiolaris (Synaphea)*			
2077.	16864	*Synaphea petiolaris subsp. petiolaris*			
2078.	2329	*Synaphea spinulosa*			
2079.	15534	*Synaphea spinulosa subsp. major*			
2080.	32437	*Syntrichia antarctica*			
2081.	20102	*Taxandria callistachys*			
2082.	20134	*Taxandria marginata*			
2083.	20103	*Taxandria spathulata*			
2084.	31552	*Tecticornia arbuscula*			
2085.	33236	*Tecticornia halocnemoides (Shrubby Samphire)*			
2086.	31873	*Tecticornia indefessa*		P2	
2087.	33319	*Tecticornia indica subsp. bidens*			
2088.	31718	*Tecticornia lepidosperma*			
2089.	31675	*Tecticornia lylei*			
2090.	33297	*Tecticornia pergranulata subsp. pergranulata (Blackseed Samphire)*			
2091.	34845	*Tecticornia sparagosa*			
2092.	31716	*Tecticornia syncarpa*			
2093.	4256	*Templetonia retusa (Cockies Tongues)*			
2094.	35842	*Templetonia rossii*			
2095.	2823	*Tetragonia implexicoma (Bower Spinach)*			
2096.	46437	*Tetrapora preissiana*			
2097.	1034	*Tetraria capillaris (Hair Sedge)*			
2098.	35582	*Tetraria sp. Mt Madden (C.D. Turley 40 BP/897)*			
2099.	1701	*Thelymitra antennifera (Vanilla Orchid)*			
2100.	10856	*Thelymitra benthamiana (Leopard Orchid)*			
2101.	1705	*Thelymitra crinita (Blue Lady Orchid)*			
2102.	11143	*Thelymitra graminea*			
2103.	18248	*Thelymitra granitora*			
2104.	20730	*Thelymitra paludosa*			
2105.	20732	*Thelymitra petrophila*			
2106.		*Thelymitra sp.*			
2107.	20735	*Thelymitra speciosa*			
2108.	1716	*Thelymitra tigrina (Tiger Orchid)*			
2109.	1718	*Thelymitra villosa (Custard Orchid)*			
2110.	20731	*Thelymitra vulgaris*			
2111.	5075	*Thomasia angustifolia (Narrow Leaved Thomasia)*			
2112.	5077	*Thomasia cognata*			
2113.	5086	*Thomasia macrocalyx*			
2114.	5093	*Thomasia petalocalyx (Paper Flower)*			
2115.	5094	*Thomasia purpurea*			
2116.	5105	*Thomasia triphylla*			
2117.	2644	*Threlkeldia diffusa (Coast Bonefruit)*			
2118.	19698	*Thryptomene australis subsp. australis*			
2119.	6065	*Thryptomene saxicola (Rock Thryptomene)*			
2120.	27330	*Thuretia australasica*			Y
2121.	27331	*Thuretia quercifolia*			
2122.	1328	*Thysanotus dichotomus (Branching Fringe Lily)*			
2123.	1338	*Thysanotus manglesianus (Fringed Lily)*			
2124.	1341	*Thysanotus nudicaulis*			
2125.	1343	*Thysanotus patersonii*			
2126.	1351	*Thysanotus sparteus*			
2127.	1358	*Thysanotus triandrus*			
2128.	32444	*Tortula atrovirens*			
2129.	1368	*Trachyandra divaricata*	Y		
2130.	6268	*Trachymene cyanopetala*			
2131.	6280	*Trachymene pilosa (Native Parsnip)*			
2132.	11112	*Tribolium uniolae*	Y		
2133.	1485	*Tribonanthes violacea (Violet Tiurndin)*			
2134.	32449	*Trichostomum brachydontium*			
2135.	32450	*Trichostomum eckelianum*			
2136.	1361	*Tricoryne elatior (Yellow Autumn Lily)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
2137.	41648	*Tricostularia aphylla*			
2138.	1037	*Tricostularia compressa*			
2139.	4289	*Trifolium angustifolium (Narrowleaf Clover)*	Y		
2140.	17542	*Trifolium arvense var. arvense*	Y		
2141.	4292	*Trifolium campestre (Hop Clover)*	Y		
2142.	4296	*Trifolium fragiferum (Strawberry Clover)*	Y		
2143.	4312	*Trifolium striatum (Knotted Clover)*	Y		
2144.	33276	*Triglochin isingiana*			
2145.	146	*Triglochin minutissima*			
2146.	147	*Triglochin mucronata*			
2147.	151	*Triglochin striata*			
2148.	152	*Triglochin trichophora*			
2149.	4737	*Tripterococcus brunonis (Winged Stackhousia)*			
2150.	32451	*Triquetrella papillata*			
2151.	1139	*Trithuria bibracteata*			
2152.	13479	*Trymalium ledifolium var. rosmarinifolium*			
2153.	15757	*Trymalium spatulatum*			
2154.	98	*Typha domingensis (Bulrush, Djandjid)*			
2155.	35260	*Ulva compressa*			
2156.	38388	*Ursinia anthemoides subsp. anthemoides*	Y		
2157.	1766	*Urtica incisa (Scrub Nettle)*			
2158.	7145	*Utricularia menziesii (Redcoats)*			
2159.	7148	*Utricularia multifida*			
2160.	7153	*Utricularia tenella*			
2161.	13160	*Velleia exigua*		P2	
2162.	7665	*Velleia trinervis*			
2163.	6072	*Verticordia brownii*			
2164.	6073	*Verticordia chrysantha*			
2165.	6076	*Verticordia densiflora (Compacted Featherflower)*			
2166.	15432	*Verticordia densiflora var. densiflora*			
2167.	6079	*Verticordia fastigiata (Mouse Featherflower)*			
2168.	6090	*Verticordia humilis*			
2169.	12432	*Verticordia inclusa*			
2170.	6096	*Verticordia minutiflora*			
2171.	12450	*Verticordia plumosa var. grandiflora*			
2172.	14718	*Verticordia sieberi var. sieberi*			
2173.	12470	*Verticordia vicinella*			
2174.	11474	*Vicia sativa subsp. nigra*	Y		
2175.	27360	*Vidalia spiralis*			
2176.	4325	*Viminaria juncea (Swishbush, Koweda)*			
2177.	8266	*Vittadinia gracilis*			
2178.	12052	*Vulpia myuros forma megalura*	Y		
2179.	33101	*Vulpia myuros forma myuros*	Y		
2180.		*Vulpia sp.*			
2181.	7384	*Wahlenbergia capensis (Cape Bluebell)*	Y		
2182.	7386	*Wahlenbergia gracilenta (Annual Bluebell)*			
2183.	7389	*Wahlenbergia preissii*			
2184.	18108	*Watsonia meriana var. bulbillifera*	Y		
2185.	27362	*Webervanbossea splachnoides*			
2186.	6939	*Westringia dampieri*			
2187.	6658	*Wilsonia backhousei (Narrow-leaf Wilsonia)*			
2188.	6659	*Wilsonia humilis (Silky Wilsonia)*			
2189.	6660	*Wilsonia rotundifolia (Round-leaf Wilsonia)*			
2190.	27364	*Wollastoniella myriophylloides*			
2191.	27369	*Wrangelia velutina*			
2192.	1389	*Wurmbea cernua*			
2193.	1394	*Wurmbea dioica (Early Nancy)*			
2194.	1255	*Xanthorrhoea platyphylla*			
2195.	6289	*Xanthosia huegelii*			
2196.	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.

Australian Government

Department of Agriculture, Water and the Environment

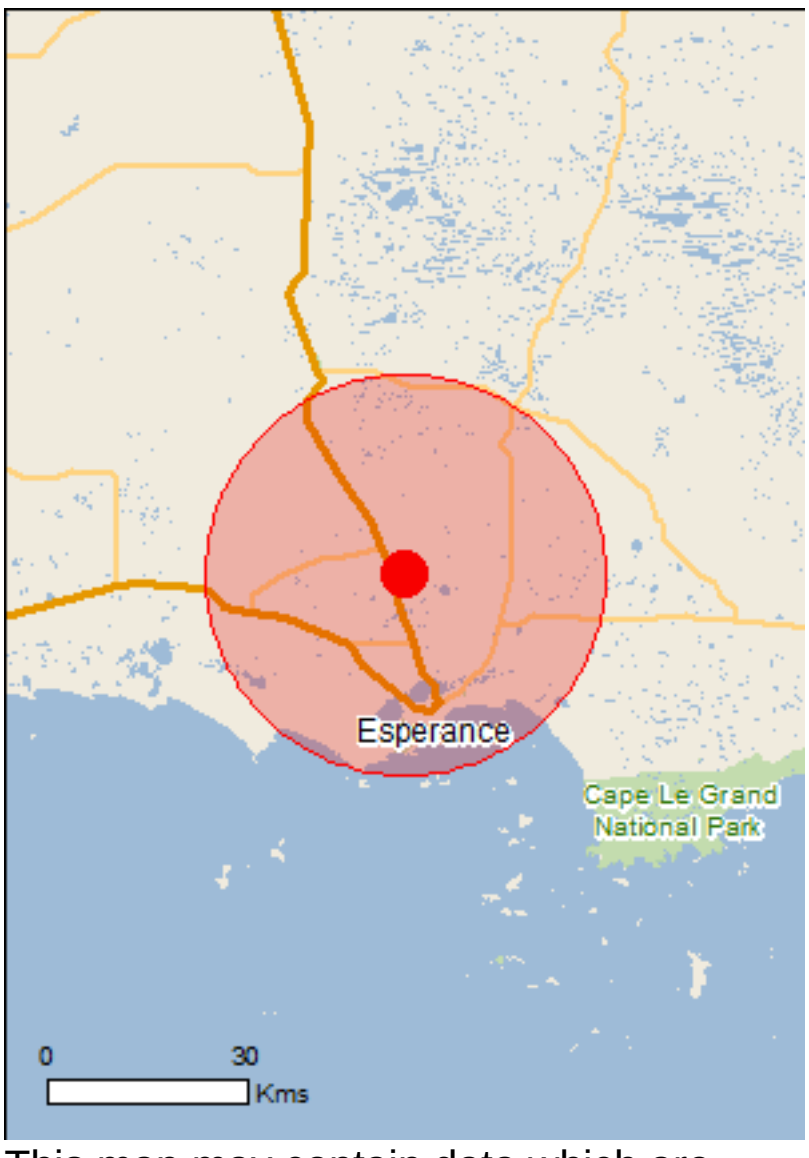
EPBC Act Protected Matters Report

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

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

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

Report created: 21/09/21 15:44:28



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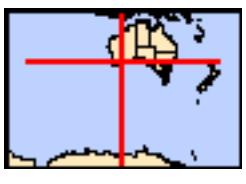

Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	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:	19
Regional Forest Agreements:	None
Invasive Species:	14
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

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.

Listed Threatened Ecological Communities	[Resource Information]
Name	Status	Type of Presence
Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia	Endangered	Community likely to occur within area

Listed Threatened Species	[Resource Information]
Name	Status	Type of Presence
Birds		
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Foraging, feeding or related behaviour known to occur within area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area
Cereopsis novaehollandiae grisea Cape Barren Goose (south-western), Recherche Cape Barren Goose [25978]	Vulnerable	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

Name	Status	Type of Presence
		to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Critically Endangered	Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat may occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Mammals		
Balaenoptera 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

Name	Status	Type of Presence
		area
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
Plants		
Anigozanthos bicolor subsp. minor Little Kangaroo Paw, Two-coloured Kangaroo Paw, Small Two-colour Kangaroo Paw [21241]	Endangered	Species or species habitat known to occur within area
Eremophila glabra subsp. Scaddan (C. Turley s.n. 10/11/2005) [89454]	Critically Endangered	Species or species habitat known to occur within area
Eucalyptus 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]		Foraging, feeding or related behaviour known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris ruficollis Red-necked Stint [860]		Foraging, feeding or related behaviour known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Foraging, feeding or related behaviour known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Species or species habitat known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Foraging, feeding or related behaviour likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Foraging, feeding or related behaviour known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

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

Name
Commonwealth Land -

Listed Marine Species [Resource Information]

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

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris alba Sanderling [875]		Foraging, feeding or related behaviour known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris ruficollis Red-necked Stint [860]		Foraging, feeding or related behaviour known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Foraging, feeding or related behaviour known to occur within area
Catharacta skua Great Skua [59472]		Species or species habitat may occur within area
Cereopsis novaehollandiae grisea Cape Barren Goose (south-western), Recherche Cape Barren Goose [25978]	Vulnerable	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]		Foraging, feeding or related behaviour known to occur within area

Name	Threatened	Type of Presence
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Eudyptula minor Little Penguin [1085]		Breeding known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Foraging, feeding or related behaviour likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Foraging, feeding or related behaviour known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area
Larus 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

Name	Threatened	Type of Presence
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 within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour likely to occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
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

Name	Threatened	Type of Presence
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Fish		
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area
Campichthys galei Gale's Pipefish [66191]		Species or species habitat may occur within area
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [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

Name	Threatened	Type of Presence
[Stigmatopora argus](#) Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area
[Stigmatopora nigra](#) Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
[Urocampus carinirostris](#) Hairy Pipefish [66282]		Species or species habitat may occur within area
[Vanacampus margaritifer](#) Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area
[Vanacampus phillipi](#) Port Phillip Pipefish [66284]		Species or species habitat may occur within area
[Vanacampus poecilolaemus](#) Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area
Mammals		
[Arctocephalus forsteri](#) Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species 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

Name	Status	Type of Presence
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves [Resource Information]

Name	State
Dalyup	WA
Esperance 827 and Part 373 & 826	WA
Helms Arboretum	WA
Kendall Road	WA
Lake Mortijinup	WA
Lake Warden	WA
Mount Ridley	WA
Mullet Lake	WA
Recherche Archipelago	WA
Shark Lake	WA
Speddingup East	WA
Truslove Townsite	WA
Unnamed WA04182	WA
Unnamed WA24511	WA
Unnamed WA24953	WA
Unnamed WA31313	WA
Unnamed WA32259	WA
Unnamed WA42379	WA
Woody Lake	WA

Invasive Species [Resource Information]

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

Name	Status	Type of Presence
Birds		
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Mammals		
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur 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
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

-33.6875 121.8495

Acknowledgements

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

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

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

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

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