



Natural Area
CONSULTING MANAGEMENT SERVICES

City of Melville

John Connell Reserve - Threatened Ecological Community Assessment

December 2020

Natural Area Holdings Pty Ltd
233C Drumpellier Drive, Whiteman, WA, 6068
Ph: (08) 9209 2767
info@naturalarea.com.au
www.naturalarea.com.au



Disclaimer

Natural Area Holdings Pty Ltd, trading as Natural Area Consulting Management Services (Natural Area), has prepared this report for the sole use of the Client and for the purposes as stated in the agreement between the Client and Natural Area under which this work was completed. This report may not be relied upon by any other party without the express written agreement of Natural Area.

Natural Area has exercised due and customary care in the preparation of this document and has not, unless specifically stated, independently verified information provided by others. No other warranty, expressed or implied, is made in relation to the contents of this report. Therefore, Natural Area assumes no liability for any loss resulting from errors, omission or misrepresentations made by others. This document has been made at the request of the Client. The use of this document by unauthorised third parties without written permission from Natural Area shall be at their own risk, and we accept no duty of care to any such third party.

Any recommendations, opinions or findings stated in this report are based on circumstances and facts as they existed at the time Natural Area performed the work. Any changes in such circumstances and facts upon which this document is based may adversely affect any recommendations, opinions or findings contained in this document.

No part of this document may be copied, duplicated or disclosed without the express written permission of the Client and Natural Area.

Document Title	MELV John Connell TEC Assesment.docx				
Location	Client Folders NAC/City of Melville V2\2020 John Connell\ John Connell TEC Assessment Report\Report				
Draft/Version No.	Date	Changes	Prepared by	Approved by	Status
D1	December 2020	New document	KS	BC	Draft for client comment

Executive Summary

Natural Area Consulting Management Services (Natural Area) was commissioned by the City of Melville in November 2020 to undertake a detailed flora survey and a basic fauna survey within John Connell Reserve, Leeming. The survey was undertaken to inform the City's obligations relating to management of the site and to determine if the area is a Threatened Ecological Community (TEC).

The survey aimed to determine:

- flora and fauna species present within the site (native and introduced)
- the extent and boundaries of vegetation types and their condition
- determine if the area is part of a Threatened Ecological Community
- the location of declared rare or priority flora and fauna (if present).

The detailed flora and vegetation survey confirmed:

- presence of a total of 125 flora species from 35 families
- a mix of 18 (14%) weeds and 107 (86%) native flora species
- presence of one vegetation type within the site (*Banksia attenuata* and *Banksia menziesii* Woodland)
- vegetation condition across the site ranges from Completely Degraded to Excellent, with the majority of the site in Excellent condition
- through statistical analysis that the reserve is part of the floristic community 23a-Central *Banksia attenuata*, *Banksia menziesii* woodland
- the floristic community determined is a component of the Banksia Woodlands of the Swan Coastal Plain threatened ecological community.

The basic fauna survey within the site confirmed:

- a total of four fauna species including one introduced and three native were recorded, either directly or via indicators of their presence in the form of scats
- no conservation significant fauna species were recorded during the survey.

The outcomes of the assessment activities carried out by Natural Area identified that John Connell Reserve is part of the Banksia Woodlands of the Swan Coastal Plain threatened ecological community. The floristic community identified, 23a-Central *Banksia attenuata*, *Banksia menziesii* woodland is classified as a Priority 3 for Western Australia.

Contents

Executive Summary	3
1.0 Introduction	6
1.1 Location	6
1.2 Scope	6
2.0 Site Characteristics	8
2.1 Regional Context	8
2.2 Climate.....	8
2.3 Topography and Soils	8
2.4 Vegetation Complex	10
2.5 Threatened Ecological Communities.....	10
2.6 Hydrology.....	10
3.0 Methodology	11
3.1 Desktop and Literature Review.....	11
3.2 On-ground Flora Survey.....	11
3.2.1 Field Assessment	11
3.2.2 Flora Species.....	12
3.2.3 Vegetation Type	12
3.2.4 Vegetation Condition.....	12
3.3 Statistical Analysis	13
3.4 Basic Fauna Survey	14
3.5 Limitations	14
4.0 Results	15
4.1 Literature Review	15
4.1.1 Conservation Significant Flora.....	15
4.2 On-ground Flora Survey.....	16
4.2.1 Flora	16
4.2.2 Vegetation Type	18
4.2.4 Vegetation Condition.....	18
4.2.3 Threatened Ecological Community Assessment.....	20
5.0 Fauna Survey Results.....	22
5.1 Desktop fauna	22

5.2	Fauna Recorded	23
6.0	Implications of Results	25
6.1	Flora and Vegetation	25
6.2	Significant Flora	25
6.3	Threatened Ecological Communities.....	25
6.4	Fauna Survey.....	25
7.0	References	26
Appendix 1:	NatureMap Report	28
Appendix 2:	Protected Matter Search Tool Report	42
Appendix 3:	Conservation Codes	58
Appendix 4:	Flora Species List.....	60
Appendix 5:	Quadrat Data	66

1.0 Introduction

Natural Area Consulting Management Services (Natural Area) was commissioned by the City of Melville in November 2020 to undertake a detailed flora and vegetation survey and a basic fauna survey on a portion of John Connell Reserve, Leeming. The survey was undertaken to collect information to determine if John Connell Reserve is a threatened ecological community (TEC) and inform the City's obligations relating to the future management of the site.

The Environmental Protection Authority has recently revised the naming of flora and fauna surveys undertaken according to their guidelines. Level 1 fauna surveys are now known as basic fauna surveys (EPA 2020).

1.1 Location

The survey area is located in a portion of John Connell Reserve, Leeming WA, approximately 15km south of the Perth CBD (Figure 1). The total survey area is approximately 5.89 hectares.

1.2 Scope

Specific tasks associated with the survey and associated reporting included:

- desktop database searches to identify flora and fauna species that have potential to occur onsite, including any conservation significant species and ecological communities
- detailed flora and vegetation survey on site to determine vegetation type and condition, flora species present including the presence of threatened and priority species
- basic fauna survey recording opportunistic sightings of fauna or evidence of fauna within the site
- analysis of data collected to determine the presence of a potential threatened ecological community (TEC)
- reporting outcomes of the survey.



Figure 1:
Site Location
John Connell Reserve, Leeming

Client: City of Melville
Date: 07/12/2020
Created by: K. Sadgrove
Image Source: Nearmap, 2020
Datum: GDA 94

0 100 200 m



2.0 Site Characteristics

Site characteristics have an influence on the flora, vegetation, fauna, and ecological communities present. Key characteristics of the John Connell Reserve assessment area are outlined in this section.

2.1 Regional Context

According to the Interim Biogeographical Regionalisation of Australia (IBRA) descriptions, the John Connell survey area is located within the Swan Coastal Plain (SWA 2 – Swan Coastal Plain subregion) (NRInfo Portal, 2020). This area is described as a low-lying coastal plain with sands of colluvial and aeolian origin, as well as alluvial river flats and coastal limestone. The region is dominated by Banksia and/or Jarrah Woodland over sandy soils associated with the dune systems, with Paperbark (*Melaleuca*) in swampy/damp areas and Jarrah Woodland to the east where the Swan Coastal Plain rises (Mitchell, Williams & Desmond, 2002).

2.2 Climate

The climate experienced in the area is Mediterranean, with dry, hot summers and cool, wet winters.

According to the Bureau of Meteorology (Perth Airport, Station ID 009021, 2020):

- average rainfall is 762.1 mm pa, with the majority falling between June and July
- average maximum temperature ranges from 18.0 °C in winter to 32.0 °C in summer, with the highest recorded maximum being 46.7 °C
- average minimum temperature ranges from 8.0 °C in winter to 17.5 °C in summer, with the lowest recorded minimum being -1.3 °C
- predominant wind directions include morning easterlies and westerly sea breezes during summer months, with average windspeeds up to 18.7 km/h.

2.3 Topography and Soils

Topography of the site ranges from 26m to 30m AHD, with the north west corner the highest point (Figure 2). There are two soil types present within the survey area, namely EnvGeol S8 Phase and Bassendean B1 Phase, identified using NRInfo Portal (Department of Primary Industries and Regional Development, 2020) (Table 1, Figure 2).

Table 1: Soil type descriptions

Name	Symbol	Description
EnvGeol S8 Phase	212Bs_S8	Sand: very light grey at surface, yellow at depth, fine to medium grained, sub-rounded quartz, moderately well sorted of eolian origin
Bassendean B1 Phase	212Bs_B1	Extremely low to very low relief dunes, undulation sandplain and discrete sand rises with deep bleached grey sands sometimes with a pale yellow B horizon or a weak iron-organic hardpan at depths generally greater than 2m, <i>Banksia</i> dominant.

Source: Department of Primary Industries and Regional Development, 2020

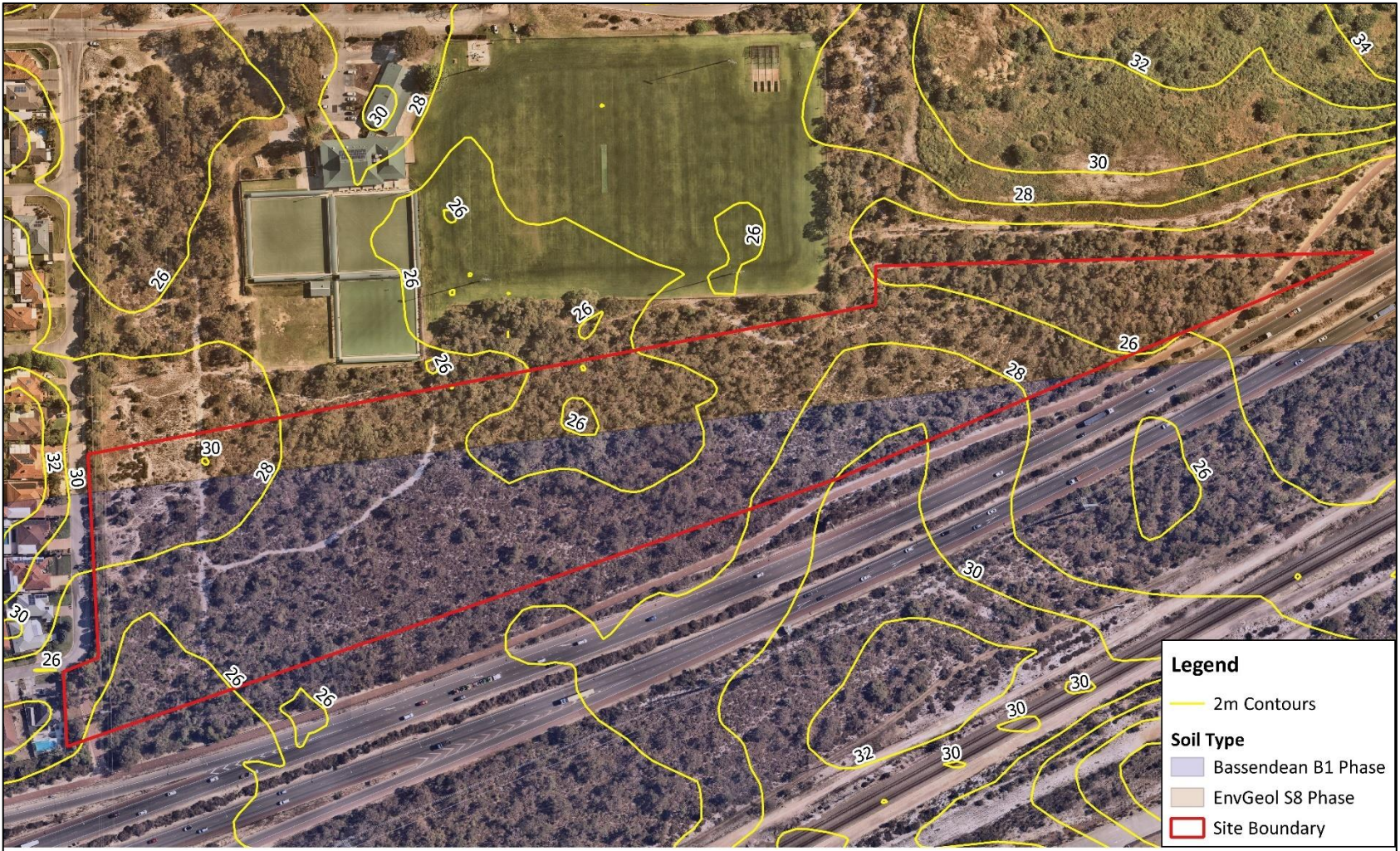


Figure 2:
Soils and Topography
John Connell Reserve, Leeming

Client: City of Melville
Date: 07/12/2020
Created by: K. Sadgrove
Image Source: Nearmap, 2020
Datum: GDA 94

0 100 200 m



2.4 Vegetation Complex

One vegetation complex occurs within the site, Bassendean Complex – Central and South as indicated by the Environmental Planning Tool (WALGA 2020b). This is described as a Jarrah, Sheoak, and Banksia woodlands on higher sand dunes, with *Melaleuca spp.* and sedgelands on low lying depressions and swamps and includes the transition of Jarrah and Prickly Bark in the vicinity of Perth (Hedde *et al.* 1980).

Banksia attenuata, *B. grandis* and *B. menziesii* are common on upper slopes with the latter decreasing at the southern part of its range near Mandurah. *B. ilicifolia*, *B. littoralis* and *Melaleuca preissiana* are common on low lying moister soils, where Marri replaces Jarrah in dominance (Hedde *et al.* 1980). Other common species include *Kunzea vestita*, *Hypocalymma angustifolium*, *Adenanthos obovatus* and *Verticordia spp.* (Hedde *et al.* 1980).

2.5 Threatened Ecological Communities

A review of the PMST report (Department of Agriculture, Water, and the Environment, 2020a) indicated the potential presence of three TEC's to occur within or in proximity to the survey area. These are described in Table 2.

Table 2: Potential Threatened Ecological Communities

Name	Status	Type of presence
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area
Tuart (<i>Eucalyptus gomphocephala</i>) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community likely to occur within area

2.6 Hydrology

No wetland or other water courses were identified within the survey area.

3.0 Methodology

3.1 Desktop and Literature Review

The desktop survey for the flora survey included reviewing online databases to determine preliminary site characteristics, including:

- Natural Resource Info (NRInfo) to determine soil types (Department of Primary Industries and Regional Development 2020)
- NatureMap (5 km buffer) to indicate the flora and fauna species (native and introduced) that could potentially occur (Appendix 1) (Department of Biodiversity, Conservation and Attractions (DBCA) 2020c)
- Protected Matters Search Tool (5 km buffer) to determine if any matters of national environmental significance were likely to occur (Appendix 2)
- FloraBase to review the likelihood of significant flora listed as potentially present (DBCA 2020b).

3.2 On-ground Flora Survey

The flora and vegetation surveys were carried out in accordance with *EPA Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (Environmental Protection Authority, 2016).

Samples were collected of flora unable to be identified in the field and any unfamiliar species were recorded and photographed to enable later identification.

3.2.1 Field Assessment

Natural Area personnel Kylie Sadgrove (Lead Botanist) and assistant Megan Gray surveyed the entire reserve on November 11 and 12, 2020, with key GPS data recorded using Mappt software on a handheld Samsung tablet. Field activities included:

- setting up three (10 m x 10 m) quadrats in the single vegetation type present
- recording GPS coordinates in the north-west corner of each quadrat using GDA94 datum on the GPS unit
- recording soil types, colour, slope, aspect, presence of surface rock, topography and drainage using a modified recording sheet based on NAIA templates developed for the Perth Biodiversity project
- determining leaf litter percentage cover, and percentage of bare ground
- recording vegetation type and condition using scale attributed to Keighery (Government of Western Australia, 2000)
- determining the presence of significant flora and/or ecological communities listed under the *Biodiversity and Conservation Act 2016* (WA) and/or the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) with comparison to Floristic Community Types determined by Gibson *et al.* (1994)
- for each flora species within quadrats, the following was recorded:
 - percentage cover and height
 - habitat and life form.

3.2.2 Flora Species

Native and introduced flora species were recorded on observation within each quadrat and when traversing the site. A list of potential declared rare or priority flora species compiled from the desktop and literature review was used to guide targeted searches for those species.

3.2.3 Vegetation Type

The vegetation type was determined using the structural classes described in *Bush Forever Volume 2* (Government of Western Australia, 2000), and records dominant over storey, middle and understory species (Table 3).

Table 3: Vegetation structural classes

Life Form/Height Class	Canopy Percentage Cover			
	100 – 70%	70 – 30%	30 – 10%	10 – 2 %
Trees over 30 m	Tall closed forest	Tall open forest	Tall woodland	Tall open woodland
Trees 10 – 30 m	Closed forest	Open forest	Woodland	Open woodland
Trees under 10 m	Low closed forest	Low open forest	Low woodland	Low open woodland
Tree Mallee	Closed tree mallee	Tree mallee	Open tree mallee	Very open tree mallee
Shrub Mallee	Closed shrub mallee	Shrub mallee	Open shrub mallee	Very open shrub mallee
Shrubs over 2 m	Closed tall scrub	Tall open scrub	Tall shrubland	Tall open shrubland
Shrubs 1 – 2 m	Closed heath	Open heath	Shrubland	Open shrubland
Shrubs under 1 m	Closed low heath	Open low heath	Low shrubland	Low open shrubland
Grasses	Closed grassland	Grassland	Open grassland	Very open grassland
Herbs	Closed herbland	Herbland	Open herbland	Very open herbland
Sedges	Closed sedgeland	Sedgeland	Open sedgeland	Very open sedgeland

(Source: Government of Western Australia, 2000)

3.2.4 Vegetation Condition

Vegetation condition was assessed using the rating scale attributed to Keighery in *Bush Forever Volume 2* (Table 4) (Government of Western Australia, 2000).

Table 4: Vegetation condition ratings

Category	Description	
1	Pristine	Pristine or nearly so, no obvious signs of disturbance.
2	Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
3	Very Good	Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
4	Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.
5	Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
6	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 or shrubs.

(Source: Government of Western Australia, 2000)

3.3 Statistical Analysis

Statistical analysis using PRIMER was undertaken to determine the floristic community types present on site by comparing them to the Gibson *et al.* dataset (1994) from *A Floristic Survey of the Southern Swan Coastal Plain*. The Gibson *et al.* (1994) study included surveys of the plant communities within the Swan Coastal Plain, with 509 sites (quadrats) established and floristic data used to define the major regional community types (Government of Western Australia, 2000). The community types assigned by this dataset are commonly used in literature to describe conservation significant communities.

Taxa names from Gibson *et al.* (1994) that were no longer current were updated to match current taxa names. Quadrat data collected in the field was converted to presence/absence (PA) data and added to the Gibson *et al.* (1994) dataset. A PA matrix was created and inputted into the statistical analysis package PRIMER (version 7) and resemblance matrices created to determine the similarities in species composition between quadrats. A hierarchical cluster analysis was performed and dendrograms plotted to visually ascertain the similarities between quadrats. This analysis gives the similarity between quadrats species composition as a percentage. As this information does not consider species abundance within community types, only species diversity and the most similar quadrats are assessed, and the most suitable community type is determined using the descriptions of dominant species outlined in Gibson *et al.* (1994).

3.4 Basic Fauna Survey

The basic fauna survey was undertaken in accordance with *Technical Guidance: Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment* (EPA 2020). Opportunistic observations of fauna through direct sightings and via indirect evidence such as scats, tracks, and calls were carried out in conjunction with the flora survey and recorded. The following data was collected and recorded:

- identification of fauna species present, targeting declared rare and priority species
- recording presence indicators.

3.5 Limitations

Several limitations associated with both desktop and on-ground flora and fauna surveys exist, including:

- database searches provide an indication of what flora and fauna species may be present, with on ground surveys required to confirm those present
- individual plants may have been missed as they were outside the area traversed
- on-ground surveys indicate species present at the time of the assessment, with species flowering at different times are not always able to be identified
- not all flora species flower every year
- many fauna species are highly mobile and may only use the site as a transient habitat or resource and may not be present on site all year round
- the differing databases are reliant on information submitted via various reporting mechanisms, so all records of a particular species or ecological community within a specified area may not be complete.

Despite these limitations, Natural Area estimates that 80 – 90% of flora species within the survey area were identified.

4.0 Results

4.1 Literature Review

A desktop search using DBCA's NatureMap indicated a potential for 374 flora plant species which could potentially occur within a 5 km radius of the site including:

- 231 dicotyledons
- 143 monocotyledons.

4.1.1 Conservation Significant Flora

NatureMap indicated 19 conservation significant flora species listed under the *Biodiversity Conservation Act 2016 (WA)*, potentially occurring within 5 km of the site (Department of Biodiversity Conservation and Attractions, 2019b). The Protected Matters Search Tool (PMST) (Department of Agriculture, Water and the Environment, 2020) indicated 13 significant flora species listed under the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* (Cwlth) as potentially occurring within a 5 km radius of the site. These species are listed in Table 5 with their potential of occurrence on site based on habitat and soils present. The conservation code descriptions are provided in Appendix 3.

Table 5: Potential threatened and priority species

Species	Common Name	Cons. Code	NatureMap	PMST	Potential to occur on site
<i>Acacia lasiocarpa</i> var. <i>bracteolata</i> long peduncle variant		P1	x		No
<i>Andersonia gracilis</i>	Slender Andersonia	EN		x	No
<i>Byblis gigantea</i>	Rainbow Plant	P3	x		No
<i>Caladenia huegelii</i>	Grand Spider Orchid	T/EN	x	x	Yes
<i>Cyathochaeta teretifolia</i>		P3	x		Yes
<i>Dampiera triloba</i>		P3	x		Unknown
<i>Diuris drummondii</i>	Tall Donkey Orchid	T/ VU	x	x	No
<i>Diuris micrantha</i>	Dwarf Bee-orchid	VU		x	No
<i>Diuris purdiei</i>	Purdie's Donkey Orchid	T/ EN	x	x	No
<i>Dodonaea hackettiana</i>	Hackett's Hopbush	P4	x		No
<i>Drakaea elastica</i>	Glossy-leaved Hammer Orchid	T/ EN	x	x	No
<i>Drakaea micrantha</i>	Dwarf Hammer-orchid	T/VU	x	x	No
<i>Eleocharis keigheryi</i>	Keighery's Eleocharis	VU		x	No
<i>Eremophila glabra</i> subsp. <i>chlorella</i>		T/EN	x	x	No
<i>Eucalyptus x balanites</i>	Cadda Road Mallee, Cadda Mallee	EN		x	No

Species	Common Name	Cons. Code	NatureMap	PMST	Potential to occur on site
<i>Hydrocotyle striata</i>		P1	x		No
<i>Jacksonia gracillima</i>		P3	x		Unknown
<i>Jacksonia sericea</i>	Waldjumi	P4	x		Yes
<i>Macarthuria keigheryi</i>	Keighery's Macarthuria	EN		x	Yes
<i>Phlebocarya pilosissima</i> subsp. <i>pilosissima</i>		P3	x		Yes
<i>Stylidium paludicola</i>		P3	x		No
<i>Styphelia filifolia</i>		P3	x		No
<i>Synaphea</i> sp. Fairbridge Farm	Selena's Synaphea	T/CN	x	x	No
<i>Thelymitra dedmaniarum</i>	Cinnamon Sun Orchid	EN		x	No
<i>Tripterococcus</i> sp. Brachylobus		P4	x		Unknown

4.2 On-ground Flora Survey

4.2.1 Flora

A total of 125 flora species were identified from 35 families. Of these, 18 were weeds and 107 were native species. Of the recorded species, 56 were monocotyledons (Class: Liliopsida), 68 were dicotyledons (Class: Magnoliopsida) and one was a Cycad or palm (Class: Cycadopsida). No threatened or priority flora species were found during the 2020 survey. Examples of native flora species are shown in Figure 3, with weed species shown in Figure 4. A complete flora list is provided in Appendix 4, quadrat data in Appendix 5.



Lechenaultia floribunda (Free-flowering Leschenaultia) *Acacia huegelii*



Pterostylis sp.

Dampiera linearis (Common Dampiera)

Figure 3: Examples of native flora species recorded during the survey



Pampas Grass (*Cortaderia selloana*) Ursinia (*Ursinia anthemoides*)

Perennial Veldt Grass (*Ehrharta calycina*)

Figure 4: Examples of weed species found on site

4.2.2 Vegetation Type

One vegetation type was present within the survey area, *Banksia attenuata* and *Banksia menziesii* Woodland (Figure 5). This comprised a woodland of *Banksia attenuata* and *Banksia menziesii*, *Xanthorrhoea preissii*, *Allocasuarina humilis* and other mixed native shrubs and an understorey of *Lyginia barbata* and *Desmocladius flexuosus*.



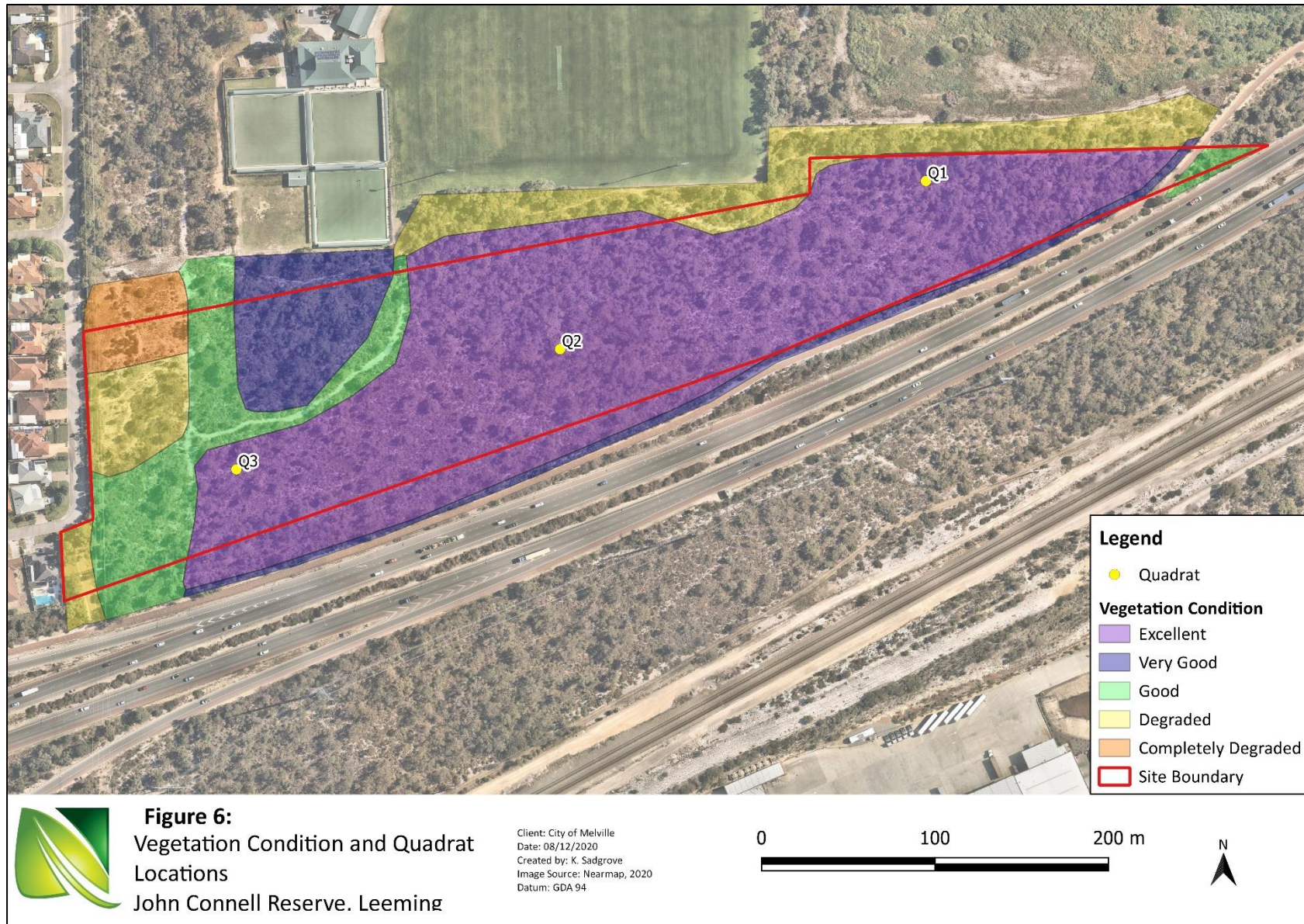
Figure 5: *Banksia attenuata* and *Banksia menziesii* woodland at John Connell Reserve

4.2.4 Vegetation Condition

Vegetation condition ranged from Completely Degraded to Excellent within the survey area (Figure 6, Table 5). The Degraded and Completely Degraded areas occurred on the periphery of the site adjacent to the sporting fields and to the west adjacent to the housing. Majority of the site is in Excellent condition. Although condition has been mapped outside of the reserve boundary the percentages of the vegetation condition in Table 5 have been calculating only using areas within the site boundary.

Table 6: Vegetation condition, John Connell Reserve

Vegetation Condition	Pristine	Excellent	Very Good	Good	Degraded	Completely Degraded	Total
Area (ha)	0.000	4.319	0.512	0.874	0.482	0.145	6.332
Area (%)	0.000	68.2	8	13.8	7.6	2.3	100



4.2.3 Threatened Ecological Community Assessment

No dominant species associated with the Tuart Woodlands or the Subtropical and Temperate Coastal Saltmarsh community as identified through the PMST report were present on site, and the landform present was not consistent with the habitat required for these communities to occur.

Statistical analysis of the quadrata data collected was undertaken to determine if the site is part of a TEC. Comparison of the quadrat data from John Connell Reserve (2020) against the Gibson *et al.* data (1994) quadrats associated with the Banksia Woodlands on the Swan Coastal Plain TEC, listed as endangered under the *EPBC Act 1999* (Cwlth), showed similarity with the floristic community type 23a-Central *Banksia attenuata*, *Banksia menziesii* woodland. Floristic Community Types are assigned to vegetation types based on quadrat similarity matrix results and assessment of vegetation structure and species present. The highest similarity was shown with quadrat 3, 44.068%, (Table 7). The four highest community groups as identified by Primer are shown in Table 7 and 8.

The community type 23a contain typical species which include (Gibson *et al.* 1994):

- *Banksia menziesii* (Firewood Banksia)
- *Banksia attenuata* (Slender Banksia)
- *Bossiaea eriocarpa* (Common Brown Pea)
- *Gompholobium tomentosum* (Hairy Yellow Pea)
- *Petrophile linearis* (Pixie Mops)
- *Styphelia conostephioides*
- *Scholtzia involucrata* (Spiked Scholtzia)
- **Briza maxima* (Blowfly Grass)
- *Burchardia congesta*
- *Conostylis juncea*
- *Dampiera linearis*
- *Lyginia barbata*.

Under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act), Approved Conservation Advice for the Banksia Woodlands of the Swan Coastal Plain ecological community (Department of Agriculture, Water and the Environment 2016) the community type 23a Central *Banksia attenuata* *Banksia menziesii* woodlands is classified as a component of the Banksia Woodlands of the Swan Coastal Plain TEC.

Table 7: Highest four similarity with Gibson *et al.* data

John Connell Quadrats	MODO-4 23a	hurst03 23a	CAPEL-2 21b	AUSTRA-1 21a
Q1	25.2435%	31.481%	26.087%	30.108%
Q2	25.743%	26.415%	24.444%	35.165%
Q3	44.068%	42.276%	39.252%	40.741%

Table 8: Statistical analysis of John Connell community types with Quadrat 3

Site Vegetation type	Most similar community type (from Gibson <i>et al.</i> 1999)	Similarity	Comments	Community Type determined
Banksia Woodland	23a (MODO-4) Central <i>Banksia attenuata</i> , <i>Banksia menziesii</i> woodland	44.068%	Most likely community type as structure and species composition fits description in Gibson <i>et al.</i>	23a Central <i>Banksia attenuata</i> , <i>Banksia menziesii</i> woodland
	23a (hurst3) Central <i>Banksia attenuata</i> , <i>Banksia menziesii</i> woodland	42.276%		
	21a (AUSTR-1) <i>Banksia attenuata</i> <i>Eucalyptus marginata</i> woodlands	40.741%	Similar tree and shrub species recorded although no <i>Eucalyptus marginata</i> were identified during the survey.	Not present due to higher similarity with type 23a
	21b (CAPEL-2) Southern <i>Banksia attenuata</i> woodland	39.252%	Unlikely due to this community type located near Bunbury and Busselton.	Not present

5.0 Fauna Survey Results

The Basic fauna survey activities included desktop and field activities, both of which are reported in this section.

5.1 Desktop fauna

A desktop survey of online databases indicated the potential for a total of 25 conservation significant fauna species (taxa) to occur within 5 km radius of the survey site (Table 9). There were 17 conservation significant fauna species listed under the *Biodiversity Conservation Act 2016* (WA) identified as potentially occurring within a 5 km radius of the survey site by NatureMap (DBCA, 2020c) (Appendix 1). A review of the Protected Matters Search tool (PMST) (Department of Agriculture, Water and the Environment 2020a) indicated the potential for 11 fauna species listed as protected under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Cwlth) to occur within a 5 km radius of the site (Appendix 2).

Table 9: Threatened and priority fauna species potentially occurring in the survey area

Species Name	Common Name	Cons. Code	NatureMap	PMST
Birds				
<i>Actitis hypoleucos</i>	Common Sandpiper	IA	X	
<i>Apus pacificus</i>	Fork-tailed Swift, Pacific Swift	IA	X	
<i>Calidris canutus</i>	Red Knot, Knot	T, EN		X
<i>Calidris ferruginea</i>	Curlew Sandpiper	T, CR	X	X
<i>Calyptorhynchus banksii naso</i>	Forest Red-tailed Black Cockatoo	T, VU	X	X
<i>Calyptorhynchus baudinii</i>	Baudin's Cockatoo	T, EN		X
<i>Calyptorhynchus latirostris</i>	Carnaby's Cockatoo	EN, T	X	X
<i>Calyptorhynchus sp.</i>	White-tailed Black Cockatoo	T	X	
<i>Charadrius dubius</i>	Little Ringed Plover	IA	X	
<i>Falco peregrinus</i>	Peregrine Falcon	S	X	
<i>Gallinago hardwickii</i>	Latham's Snipe, Japanese snipe	IA	X	
<i>Hydroprogne caspia</i>	Caspian Tern	IA	X	
<i>Leipoa ocellata</i>	Malleefowl	T, VU		X
<i>Limosa limosa</i>	Black-tailed Godwit	IA	X	
<i>Numenius madagascariensis</i>	Eastern Curlew	T, CR		X
<i>Rostratula australis</i>	Australian Painted Snipe	T, EN		X

Species Name	Common Name	Cons. Code	NatureMap	PMST
<i>Sternula neresis neresis</i>	Australian Fairy Turn	VU		X
Invertebrates				
<i>Idiosoma sigillatum</i>	Swan Coastal Plain shield-backed trapdoor spider	P3	X	
<i>Leioproctus contrarius</i>	Short-tongued bee	P3	X	
<i>Synemon gratiosa</i>	Graceful Sunmoth	P4	X	
<i>Throscodectes xiphos</i>	Styler Bush Cricket	P1	X	
Mammals				
<i>Dasyurus geoffroii</i>	Chuditch, Western Quoll	V		X
<i>Isodon fusciventer</i>	Quenda, Southwestern brown bandicoot	P4	X	
<i>Notamacropus irma</i>	Western Brush Wallaby	P4	X	
<i>Pseudocheirus occidentalis</i>	Western Ringtail Possum	T, CR		X

5.2 Fauna Recorded

Opportunistic sightings of fauna were recorded, either directly or indications of their presence, on the days the flora survey activities were carried out. A total of four fauna species were recorded, including three reptiles and evidence of the presence in the form of scats (Table 10, Figure 8).

Table 10: Fauna species (* denotes introduced species)

Family	Species	Common Name	Lifeform
Pygopodidae	<i>Lialis burtonis</i>	Burton's Legless Lizard	Reptile
Scincidae	<i>Menetia greyii</i>	Dwarf Skink	Reptile
Leporidae	* <i>Oryctolagus cuniculus</i>	Rabbit (scat)	Mammal
Scincidae	<i>Tiliqua rugosa rugosa</i>	Bobtail (2 individuals)	Reptile



Figure 8: Bobtail (*Tiliqua rugosa rugosa*) recorded during the survey

6.0 Implications of Results

6.1 Flora and Vegetation

Natural Area's spring survey within a portion of John Connell reserve recorded 125 flora species from 35 families. The majority of species were native (107, or 85.6%), with 18 (14.4%) introduced species. The number of native species indicates a high level of floral diversity within the site. One vegetation type was recorded, namely *Banksia attenuata* and *Banksia menziesii* Woodland. Vegetation condition ranged from Completely Degraded to Excellent, the majority of the site being in Excellent condition. Areas which were in Degraded and Completely Degraded condition were located around the edge of the site and lower condition tended to be prevalent adjacent to informal tracks within the reserve.

6.2 Significant Flora

No threatened or priority species were recorded during the on-ground 2020 spring survey.

6.3 Threatened Ecological Communities

The outcomes of the assessment activities carried out by Natural Area determined that John Connell Reserve is part of the Threatened Ecological Community, Banksia Woodlands on the Swan Coastal Plain. A similarity of 44.068% (Quadrat 3) to the community 23a, Central *Banksia attenuata*, *Banksia menziesii* woodland and the presence of the dominant species which make up this community, it was determined this vegetation community is classified as a Priority 3 for WA and is included as part of the endangered Banksia Woodlands of the Swan Coastal Plain community according to the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act), Approved Conservation Advice for the Banksia Woodlands of the Swan Coastal Plain ecological community (Department of Agriculture, Water and the Environment 2016).

6.4 Fauna Survey

A total of four fauna species were recorded by Natural Area during the 2020 spring survey, one of which introduced. As a basic fauna survey was carried out, the number of species recorded will likely be lower than that occurring within the broader bushland area. No conservation significant fauna species were recorded within the area during the survey.

7.0 References

Bureau of Meteorology. (2020). *Climate and Weather Statistics – Perth Airport Site (Station ID 009021)*. Accessed November 2020: http://www.bom.gov.au/climate/averages/tables/cw_009965.shtml.

Department of Agriculture, Water, and the Environment. (2020a). *Protected Matters Search Tool*. Accessed November 2020: <http://www.environment.gov.au/epbc/pmst/>.

Department of Agriculture, Water, and the Environment. (2020b). *Threatened species under the EPBC Act*, viewed September 2020 from: <https://www.environment.gov.au/biodiversity/threatened/species>.

Department of Agriculture, Water and the Environment (2016) Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act), Approved Conservation Advice for the Banksia Woodlands of the Swan Coastal Plain ecological community. Accessed December 2020: <http://www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=131&status=Endangered>

Department of Biodiversity, Conservation and Attractions. (2020a). *Conservation Codes for Western Australian Flora and Fauna*. Accessed November 2020: <https://www.dpaw.wa.gov.au/images/documents/plants-animals/threatened-species/Listings/Conservation%20code%20definitions.pdf>.

Department of Biodiversity, Conservation and Attractions. (2020b). *FloraBase – The Western Australian Flora*. Accessed October 2020: <https://florabase.dpaw.wa.gov.au/>.

Department of Biodiversity, Conservation and Attractions. (2020c). *NatureMap*. Accessed November 2020: <http://naturemap.dpaw.wa.gov.au/default.aspx>.

Department of Primary Industries and Regional Development. (2020). *NRInfo for Western Australia: map application*. Accessed November 2020: <https://www.agric.wa.gov.au/resource-assessment/nrinfo-western-australia>.

Environmental Protection Authority. (2016). *Technical Guidance: Flora and Vegetation survey for Environmental Impact Assessment*, accessed November 2020 via: http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf.

Environmental Protection Authority. (2020). *Technical Guidance: Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment*. Accessed November 2020: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA-Technical-Guidance-Vertebrate-Fauna-Surveys.pdf.

Gibson, N, Keighery, B, Keighery, G, Burbidge, A, Lyons, M. (1994) *A Floristic Survey of the southern Swan Coastal Plain*, Department of Conservation and Land Management, Western Australia.

Government of Western Australia. (2000). *Bush Forever, Volume 2*. Government of Western Australia, Perth, Western Australia.

Hedde, E., Loneragan, O., and Havel, J. (1980). *Vegetation Complexes of the Darling System Western Australia*. In *Atlas of Natural Resources - Darling System, Western Australia* (pp. 37 - 72). Department of Conservation and Environment, Western Australia.

Western Australian Local Government Association. (2020a). *Environmental Planning Tool – Environmental Considerations*. Accessed November 2020: <http://lbp.asn.au/module/enviro#map>.

Western Australian Local Government Association (WALGA). (2020b). *Environmental Planning Tool – Vegetation Complexes*. Accessed November 2020: <http://lbp.asn.au/module/enviro#map>.

Appendix 1: NatureMap Report

NatureMap Species Report

Created By Guest user on 26/11/2020

Current Names Only Yes
 Core Datasets Only Yes
 Method 'By Circle'
 Centre 115° 52' 16" E, 32° 04' 58" S
 Buffer 5km
 Group By Species Group

Species Group	Species	Records
Amphibian	9	480
Bird	175	22270
Bryopsid (Moss)	4	6
Dicotyledon	231	1000
Fish	11	13
Fungus	42	143
Gymnosperm	2	6
Hepatic (Liverwort)	2	2
Invertebrate	69	230
Lichen	1	2
Mammal	18	362
Monocotyledon	143	534
Pteridophyte (Fern)	2	2
Reptile	41	620
Slime Mould	67	100
TOTAL	817	25770

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
Amphibian				
1.	25398 <i>Crinia georgiana</i> (Quacking Frog)			
2.	25399 <i>Crinia glauerti</i> (Clicking Frog)			
3.	25400 <i>Crinia insignifera</i> (Squelching Froglet)			
4.	25410 <i>Heleioporus eyrei</i> (Moaning Frog)			
5.	25415 <i>Limnodynastes dorsalis</i> (Western Banjo Frog)			
6.	25378 <i>Litoria adelaidensis</i> (Slender Tree Frog)			
7.	25388 <i>Litoria moorei</i> (Motorbike Frog)			
8.	25420 <i>Myobatrachus gouldii</i> (Turtle Frog)			
9.	25433 <i>Pseudophryne guentheri</i> (Crawling Toadlet)			
Bird				
10.	24260 <i>Acanthiza apicalis</i> (Broad-tailed Thornbill, Inland Thornbill)			
11.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			
12.	24262 <i>Acanthiza inornata</i> (Western Thornbill)			
13.	24560 <i>Acanthorhynchus superciliosus</i> (Western Spinebill)			
14.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
15.	25536 <i>Accipiter fasciatus</i> (Brown Goshawk)			
16.	25755 <i>Acrocephalus australis</i> (Australian Reed Warbler)			
17.	41323 <i>Actitis hypoleucos</i> (Common Sandpiper)		IA	
18.	25544 <i>Aegotheles cristatus</i> (Australian Owlet-nightjar)			
19.	24310 <i>Anas castanea</i> (Chestnut Teal)			
20.	24312 <i>Anas gracilis</i> (Grey Teal)			
21.	24313 <i>Anas platyrhynchos</i> (Mallard)			
22.	<i>Anas platyrhynchos</i> subsp. <i>domesticus</i>			
23.	24315 <i>Anas rhynchotis</i> (Australasian Shoveler)			
24.	24316 <i>Anas superciliosa</i> (Pacific Black Duck)			
25.	47414 <i>Anhinga novaehollandiae</i> (Australasian Darter)			
26.	<i>Anser anser</i>			
27.	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)			
28.	24562 <i>Anthochaera lunulata</i> (Western Little Wattlebird)			
29.	25554 <i>Apus pacificus</i> (Fork-tailed Swift, Pacific Swift)		IA	
30.	24285 <i>Aquila audax</i> (Wedge-tailed Eagle)			
31.	25558 <i>Ardea ibis</i> (Cattle Egret)			
32.	25559 <i>Ardea intermedia</i> (Intermediate Egret)			
33.	41324 <i>Ardea modesta</i> (great egret, white egret)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
34.	24340 <i>Ardea novaehollandiae</i> (White-faced Heron)			
35.	24341 <i>Ardea pacifica</i> (White-necked Heron)			
36.	25566 <i>Artamus cinereus</i> (Black-faced Woodswallow)			
37.	24353 <i>Artamus cyanopterus</i> (Dusky Woodswallow)			
38.	24318 <i>Aythya australis</i> (Hardhead)			
39.	<i>Barnardius zonarius</i>			
40.	24319 <i>Biziura lobata</i> (Musk Duck)			
41.	25714 <i>Cacatua pastinator</i> (Western Long-billed Corella)			
42.	25715 <i>Cacatua roseicapilla</i> (Galah)			
43.	25716 <i>Cacatua sanguinea</i> (Little Corella)			
44.	24729 <i>Cacatua tenuirostris</i> (Eastern Long-billed Corella)	Y		
45.	25598 <i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)			
46.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
47.	24779 <i>Calidris acuminata</i> (Sharp-tailed Sandpiper)		IA	
48.	24784 <i>Calidris ferruginea</i> (Curllew Sandpiper)		T	
49.	24786 <i>Calidris melanotos</i> (Pectoral Sandpiper)		IA	
50.	24788 <i>Calidris ruficollis</i> (Red-necked Stint)		IA	
51.	24789 <i>Calidris subminuta</i> (Long-toed Stint)		IA	
52.	24790 <i>Calidris tenuirostris</i> (Great Knot)		T	
53.	25717 <i>Calyptorhynchus banksii</i> (Red-tailed Black-Cockatoo)		T	
54.	24731 <i>Calyptorhynchus banksii</i> subsp. <i>naso</i> (Forest Red-tailed Black Cockatoo)		T	
55.	24734 <i>Calyptorhynchus latirostris</i> (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)		T	
56.	48400 <i>Calyptorhynchus</i> sp. (white-tailed black cockatoo)		T	
57.	25574 <i>Charadrius dubius</i> (Little Ringed Plover)		IA	
58.	24377 <i>Charadrius ruficapillus</i> (Red-capped Plover)			
59.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
60.	47909 <i>Cheramoeca leucosterna</i> (White-backed Swallow)			
61.	41332 <i>Chlidonias leucopterus</i> (White-winged Black Tern, white-winged tern)		IA	
62.	<i>Chroicocephalus novaehollandiae</i>			
63.	25601 <i>Chrysococcyx lucidus</i> (Shining Bronze Cuckoo)			
64.	24288 <i>Circus approximans</i> (Swamp Harrier)			
65.	24774 <i>Cladorhynchus leucocephalus</i> (Banded Stilt)			
66.	25675 <i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
67.	24399 <i>Columba livia</i> (Domestic Pigeon)	Y		
68.	25568 <i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
69.	25592 <i>Corvus coronoides</i> (Australian Raven)			
70.	25701 <i>Coturnix ypsilophora</i> (Brown Quail)			
71.	24420 <i>Cracticus nigrogularis</i> (Pied Butcherbird)			
72.	25595 <i>Cracticus tibicen</i> (Australian Magpie)			
73.	24422 <i>Cracticus tibicen</i> subsp. <i>dorsalis</i> (White-backed Magpie)			
74.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)			
75.	24322 <i>Cygnus atratus</i> (Black Swan)			
76.	30901 <i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
77.	25673 <i>Daphoenositta chrysoptera</i> (Varied Sittella)			
78.	24324 <i>Dendrocygna arcuata</i> (Wandering Whistling Duck, Chestnut Whistling Duck)			
79.	25607 <i>Dicaeum hirundinaceum</i> (Mistletoebird)			
80.	<i>Egretta garzetta</i>			
81.	<i>Egretta novaehollandiae</i>			
82.	<i>Elanus axillaris</i>			
83.	25540 <i>Elanus caeruleus</i> (Black-shouldered Kite)			
84.	47937 <i>Euseyornis melanops</i> (Black-fronted Dotterel)			
85.	<i>Eolophus roseicapillus</i>			
86.	24379 <i>Erythronyx cinctus</i> (Red-kneed Dotterel)			
87.	25621 <i>Falco berigora</i> (Brown Falcon)			
88.	25622 <i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
89.	25623 <i>Falco longipennis</i> (Australian Hobby)			
90.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S	
91.	25727 <i>Fulica atra</i> (Eurasian Coot)			
92.	24761 <i>Fulica atra</i> subsp. <i>australis</i> (Eurasian Coot)			
93.	24791 <i>Gallinago hardwickii</i> (Latham's Snipe, Japanese snipe)		IA	
94.	25729 <i>Gallinula tenebrosa</i> (Dusky Moorhen)			
95.	24763 <i>Gallinula tenebrosa</i> subsp. <i>tenebrosa</i> (Dusky Moorhen)			
96.	25730 <i>Gallirallus philippensis</i> (Buff-banded Rail)			
97.	42314 <i>Gavicalis virescens</i> (Singing Honeyeater)			
98.	25530 <i>Gerygone fusca</i> (Western Gerygone)			
99.	47962 <i>Glyciphila melanops</i> (Tawny-crowned Honeyeater)			
100.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
101.	24293 <i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)			
102.	24295 <i>Haliastur sphenurus</i> (Whistling Kite)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
103.	47965 <i>Hieraaetus morphnoides</i> (Little Eagle)			
104.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)			
105.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
106.	48587 <i>Hydroprogne caspia</i> (Caspian Tern)		IA	
107.	25637 <i>Larus novaehollandiae</i> (Silver Gull)			
108.	24511 <i>Larus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Silver Gull)			
109.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
110.	25741 <i>Limosa limosa</i> (Black-tailed Godwit)		IA	
111.	25683 <i>Lonchura castaneothorax</i> (Chestnut-breasted Mannikin)			
112.	24326 <i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			
113.	25651 <i>Malurus lamberti</i> (Variegated Fairy-wren)			
114.	25654 <i>Malurus splendens</i> (Splendid Fairy-wren)			
115.	25758 <i>Megalurus gramineus</i> (Little Grassbird)			
116.	25663 <i>Melithreptus brevirostris</i> (Brown-headed Honeyeater)			
117.	24587 <i>Melithreptus chloropsis</i> (Western White-naped Honeyeater)			
118.	24598 <i>Merops ornatus</i> (Rainbow Bee-eater)			
119.	<i>Microcarbo melanoleucos</i>			
120.	25693 <i>Microeca fascinans</i> (Jacky Winter)			
121.	25542 <i>Milvus migrans</i> (Black Kite)			
122.	24738 <i>Neophema elegans</i> (Elegant Parrot)			
123.	25747 <i>Ninox connivens</i> (Barking Owl)			
124.	25564 <i>Nycticorax caledonicus</i> (Rufous Night Heron)			
125.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
126.	24328 <i>Oxyura australis</i> (Blue-billed Duck)		P4	
127.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)			
128.	48591 <i>Pandion cristatus</i> (Osprey, Eastern Osprey)		IA	
129.	25681 <i>Pardalotus punctatus</i> (Spotted Pardalote)			
130.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
131.	24648 <i>Pelecanus conspicillatus</i> (Australian Pelican)			
132.	48060 <i>Petrochelidon ariel</i> (Fairy Martin)			
133.	48061 <i>Petrochelidon nigricans</i> (Tree Martin)			
134.	48066 <i>Petroica boodang</i> (Scarlet Robin)			
135.	25697 <i>Phalacrocorax carbo</i> (Great Cormorant)			
136.	24665 <i>Phalacrocorax fuscescens</i> (Black-faced Cormorant)			
137.	25698 <i>Phalacrocorax melanoleucos</i> (Little Pied Cormorant)			
138.	24667 <i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
139.	25699 <i>Phalacrocorax varius</i> (Pied Cormorant)			
140.	24409 <i>Phaps chalcoptera</i> (Common Bronzewing)			
141.	48071 <i>Phylidonyris niger</i> (White-cheeked Honeyeater)			
142.	24596 <i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
143.	24841 <i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
144.	24747 <i>Platycercus spurius</i> (Red-capped Parrot)			
145.	25721 <i>Platycercus zonarius</i> (Australian Ringneck, Ring-necked Parrot)			
146.	24843 <i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
147.	24383 <i>Pluvialis squatarola</i> (Grey Plover)		IA	
148.	25703 <i>Podargus strigoides</i> (Tawny Frogmouth)			
149.	25704 <i>Podiceps cristatus</i> (Great Crested Grebe)			
150.	24681 <i>Poliocephalus poliocephalus</i> (Hoary-headed Grebe)			
151.	25722 <i>Polytelis anthoepus</i> (Regent Parrot)			
152.	25731 <i>Porphyrio porphyrio</i> (Purple Swamphen)			
153.	24769 <i>Porzana fluminea</i> (Australian Spotted Crane)			
154.	25732 <i>Porzana pusilla</i> (Baillon's Crane)			
155.	24771 <i>Porzana tabuensis</i> (Spotless Crane)			
156.	24711 <i>Puffinus assimilis</i> subsp. <i>assimilis</i> (Little Shearwater)			
157.	<i>Purpureicephalus spurius</i>			
158.	24776 <i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
159.	48096 <i>Rhipidura albiscapa</i> (Grey Fantail)			
160.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
161.	48237 <i>Rostratula australis</i> (Australian Painted Snipe)		T	
162.	25534 <i>Sericornis frontalis</i> (White-browed Scrubwren)			
163.	30948 <i>Smicronis brevirostris</i> (Weebill)			
164.	48594 <i>Sternula nereis</i> (Fairy Tern)			
165.	24329 <i>Stictonetta naevosa</i> (Freckled Duck)			
166.	25589 <i>Streptopelia chinensis</i> (Spotted Turtle-Dove)	Y		
167.	25590 <i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	Y		
168.	30950 <i>Streptopelia senegalensis</i> subsp. <i>senegalensis</i> (Laughing Turtle-Dove)	Y		
169.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
170.	24682 <i>Tachybaptus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
171.	25552 <i>Tadorna radjah</i> (Radjah Shelduck)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
172.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
173.	48597 <i>Thalasseus bergii</i> (Crested Tern)		IA	
174.	48135 <i>Thinornis rubricollis</i> (Hooded Plover, Hooded Dotterel)		P4	
175.	48136 <i>Threskiornis moluccus</i> (Australian White Ibis)			
176.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
177.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
178.	48141 <i>Tribonyx ventralis</i> (Black-tailed Native-hen)			
179.	25723 <i>Trichoglossus haematodus</i> (Rainbow Lorikeet)			
180.	24806 <i>Tringa glareola</i> (Wood Sandpiper)		IA	
181.	24808 <i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
182.	24809 <i>Tringa stagnatilis</i> (Marsh Sandpiper, little greenshank)		IA	
183.	24386 <i>Vanellus tricolor</i> (Banded Lapwing)			
184.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			

Bryopsid (Moss)

185.	32338 <i>Campylopus introflexus</i>	Y		
186.	32344 <i>Dicranoloma diaphanoneuron</i>			
187.	32345 <i>Didymodon australasiae</i>			
188.	44608 <i>Rosulabryum billardieri</i>			

Dicotyledon

189.	3207 <i>Acacia alata</i> (Winged Wattle)			
190.	15466 <i>Acacia applanata</i>			
191.	3374 <i>Acacia huegelii</i>			
192.	14932 <i>Acacia lasiocarpa</i> var. <i>bracteolata</i> long peduncle variant (G.J. Keighery 5026)		P1	
193.	3502 <i>Acacia pulchella</i> (Prickly Moses)			
194.	3527 <i>Acacia saligna</i> (Orange Wattle, Kudjong)			
195.	30032 <i>Acacia saligna</i> subsp. <i>saligna</i>			
196.	3557 <i>Acacia stenoptera</i> (Narrow Winged Wattle)			
197.	3602 <i>Acacia willdenowiana</i> (Grass Wattle)			
198.	11837 <i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i> (Common Woollybush)			
199.	48513 <i>Aizoon pubescens</i>	Y		
200.	1728 <i>Allocasuarina fraseriana</i> (Sheoak, Kondii)			
201.	1732 <i>Allocasuarina humilis</i> (Dwarf Sheoak)			
202.	2652 <i>Alternanthera nodiflora</i> (Common Joyweed)			
203.	2656 <i>Amaranthus caudatus</i> (Love Lies Bleeding)	Y		
204.	3686 <i>Aotus cordifolia</i>			
205.	3692 <i>Aotus procumbens</i>			
206.	20283 <i>Astartea scoparia</i> (Common Astartea)			
207.	7851 <i>Asteridea pulverulenta</i> (Common Bristle Daisy)			
208.	6323 <i>Astroloma ciliatum</i> (Candle Cranberry)			
209.	6339 <i>Astroloma xerophyllum</i>			
210.	1800 <i>Banksia attenuata</i> (Slender Banksia, Piara)			
211.	1819 <i>Banksia grandis</i> (Bull Banksia, Pulgarta)			
212.	1822 <i>Banksia ilicifolia</i> (Holly-leaved Banksia)			
213.	1830 <i>Banksia littoralis</i> (Swamp Banksia, Pungura)			
214.	1834 <i>Banksia menziesii</i> (Firewood Banksia)			
215.	5382 <i>Beaufortia elegans</i> (Elegant Beaufortia)			
216.	25788 <i>Billardiera fraseri</i> (Elegant Pronaya)			
217.	16636 <i>Boronia crenulata</i> subsp. <i>viminea</i>			
218.	4438 <i>Boronia ramosa</i>			
219.	11381 <i>Boronia ramosa</i> subsp. <i>anethifolia</i>			
220.	3710 <i>Bossiaea eriocarpa</i> (Common Brown Pea)			
221.	6341 <i>Brachyloma preissii</i> (Globe Heath)			
222.	7867 <i>Brachyscome bellidoides</i>			
223.	7878 <i>Brachyscome iberidifolia</i>			
224.	3178 <i>Byblis gigantea</i> (Rainbow Plant)		P3	
225.	2848 <i>Calandrinia corrigioloides</i> (Strap Purslane)			
226.	5415 <i>Calothamnus lateralis</i>			
227.	5458 <i>Calytrix flavescens</i> (Summer Starflower)			
228.	5460 <i>Calytrix fraseri</i> (Pink Summer Calytrix)			
229.	2795 <i>Carpobrotus edulis</i> (Hottentot Fig)	Y		
230.	18321 <i>Casuarina glauca</i>	Y		
231.	7916 <i>Centaurea melitensis</i> (Maltese Cockspur, Malta Thistle)	Y		
232.	6542 <i>Centaureum tenuiflorum</i>	Y		
233.	2483 <i>Chenopodium album</i> (Fat Hen)	Y		
234.	7925 <i>Chondrilla juncea</i> (Skeleton Weed)	Y		
235.	18303 <i>Cinnamomum camphora</i>	Y		
236.	4550 <i>Comesperma calymega</i> (Blue-spike Milkwort)			
237.	6348 <i>Conostephium pendulum</i> (Pearl Flower)			
238.	6349 <i>Conostephium preissii</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
239.	7939 <i>Conyza bonariensis</i> (Flaxleaf Fleabane)	Y		
240.	20074 <i>Conyza sumatrensis</i>	Y		
241.	17104 <i>Corymbia calophylla</i> (Marri)			
242.	3136 <i>Crassula alata</i>	Y		
243.	3137 <i>Crassula colorata</i> (Dense Stonecrop)			
244.	13527 <i>Croninia kingiana</i>			
245.	7454 <i>Dampiera linearis</i> (Common Dampiera)			
246.	7485 <i>Dampiera triloba</i>		P3	
247.	15656 <i>Daviesia brachyphylla</i>			
248.	19747 <i>Daviesia decurrens</i> subsp. <i>decurrens</i>			
249.	18560 <i>Daviesia divaricata</i> subsp. <i>divaricata</i>			
250.	16585 <i>Daviesia nudiflora</i> subsp. <i>nudiflora</i>			
251.	3832 <i>Daviesia physodes</i>			
252.	3845 <i>Daviesia triflora</i>			
253.	4763 <i>Dodonaea hackettiana</i> (Hackett's Hopbush)		P4	
254.	48751 <i>Drosera drummondii</i>			
255.	3095 <i>Drosera erythrorhiza</i> (Red Ink Sundew)			
256.	3106 <i>Drosera macrantha</i> (Bridal Rainbow)			
257.	3109 <i>Drosera menziesii</i> (Pink Rainbow)			
258.	3118 <i>Drosera pallida</i> (Pale Rainbow)			
259.	29178 <i>Drosera porrecta</i>			
260.	3131 <i>Drosera stolonifera</i> (Leafy Sundew)			
261.	33500 <i>Dysphania ambrosioides</i> (Mexican Tea)	Y		
262.	5187 <i>Elatine gratioloides</i> (Waterwort)			
263.	6133 <i>Epilobium hirtigerum</i> (Hairy Willow Herb)			
264.	13949 <i>Eremaea asterocarpa</i>			
265.	13950 <i>Eremaea asterocarpa</i> subsp. <i>asterocarpa</i>			
266.	5541 <i>Eremaea pauciflora</i>			
267.	17150 <i>Eremophila glabra</i> subsp. <i>chlorella</i>		T	
268.	17359 <i>Eucalyptus botryoides</i>	Y		
269.	5708 <i>Eucalyptus marginata</i> (Jarrah, Djara)			
270.	13547 <i>Eucalyptus marginata</i> subsp. <i>marginata</i> (Jarrah)			
271.	5763 <i>Eucalyptus rudis</i> (Flooded Gum, Kulurda)			
272.	13511 <i>Eucalyptus rudis</i> subsp. <i>rudis</i>			
273.	5790 <i>Eucalyptus todtiana</i> (Coastal Blackbutt)			
274.	3872 <i>Euchilopsis linearis</i> (Swamp Pea)			
275.	4627 <i>Euphorbia helioscopia</i> (Sun Spurge)	Y		
276.	3880 <i>Eutaxia virgata</i>			
277.	2969 <i>Fumaria capreolata</i> (Whiteflower Fumitory)	Y		
278.	20475 <i>Gastrolobium capitatum</i>			
279.	20483 <i>Gastrolobium linearifolium</i>			
280.	10909 <i>Gompholobium confertum</i>			
281.	3957 <i>Gompholobium tomentosum</i> (Hairy Yellow Pea)			
282.	6161 <i>Gonocarpus pthyoides</i>			
283.	1982 <i>Grevillea crithmifolia</i>			
284.	3961 <i>Hardenbergia comptoniana</i> (Native Wisteria)			
285.	8010 <i>Helianthus tuberosus</i> (Jerusalem Artichoke)	Y		
286.	16933 <i>Hemiantra glabra</i>			
287.	6839 <i>Hemiantra pungens</i> (Snakebush)			
288.	5117 <i>Hibbertia cuneiformis</i> (Cutleaf Hibbertia)			
289.	5134 <i>Hibbertia huegelii</i>			
290.	<i>Hibbertia huegelii</i> complex			
291.	5135 <i>Hibbertia hypericoides</i> (Yellow Buttercups)			
292.	45534 <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>			
293.	5162 <i>Hibbertia racemosa</i> (Stalked Guinea Flower)			
294.	48381 <i>Hibbertia striata</i>			
295.	5173 <i>Hibbertia subvaginata</i>			
296.	6222 <i>Homalosciadium homalocarpum</i>			
297.	3966 <i>Hovea pungens</i> (Devil's Pins, Puyenak)			
298.	3968 <i>Hovea trisperma</i> (Common Hovea)			
299.	12859 <i>Hovea trisperma</i> var. <i>trisperma</i>			
300.	6240 <i>Hydrocotyle scutellifera</i>			
301.	11074 <i>Hydrocotyle striata</i>		P1	
302.	5817 <i>Hypocalymma angustifolium</i> (White Myrtle, Kudjid)			
303.	5825 <i>Hypocalymma robustum</i> (Swan River Myrtle)			
304.	8086 <i>Hypochaeris glabra</i> (Smooth Catsear)	Y		
305.	8092 <i>Ixiolaena viscosa</i> (Sticky Ixiolaena)			
306.	4012 <i>Jacksonia furcellata</i> (Grey Stinkwood)			
307.	20462 <i>Jacksonia gracillima</i>		P3	
308.	4027 <i>Jacksonia sericea</i> (Waldjumi)		P4	

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
309.	4044 <i>Kennedia prostrata</i> (Scarlet Runner)			
310.	15498 <i>Kunzea glabrescens</i> (Spearwood)			
311.	4052 <i>Latrobea tenella</i>			
312.	7574 <i>Lechenaultia floribunda</i> (Free-flowering Leschenaultia)			
313.	44490 <i>Leontodon rhagadioloides</i>	Y		
314.	8099 <i>Leontodon saxatilis</i> (Hairy Hawkbit)	Y		
315.	6374 <i>Leucopogon conostephioides</i>			
316.	6425 <i>Leucopogon oxycedrus</i>			
317.	6434 <i>Leucopogon polymorphus</i>			
318.	6440 <i>Leucopogon racemosus</i>			
319.	40803 <i>Leucopogon squarrosus</i> subsp. <i>squarrosus</i>			
320.	6451 <i>Leucopogon tenuis</i>			
321.	7674 <i>Levenhookia preissii</i> (Preiss's Stylewort)			
322.	7677 <i>Levenhookia stipitata</i> (Common Stylewort)			
323.	7408 <i>Lobelia tenuior</i> (Slender Lobelia)			
324.	8564 <i>Lotus subbiflorus</i>	Y		
325.	4066 <i>Lupinus cosentinii</i>	Y		
326.	36375 <i>Lysimachia arvensis</i> (Pimpernel)	Y		
327.	6458 <i>Lysinema elegans</i>			
328.	34736 <i>Lysinema pentapetalum</i>			
329.	2838 <i>Macarthuria apetala</i>			
330.	4077 <i>Medicago minima</i> (Small Burr Medic)	Y		
331.	5920 <i>Melaleuca huegelii</i> (Chenille Honey myrtle)			
332.	5942 <i>Melaleuca nervosa</i> (Fibre bark)			
333.	5952 <i>Melaleuca preissiana</i> (Moonah)			
334.	5959 <i>Melaleuca raphiophylla</i> (Swamp Paper bark)			
335.	5964 <i>Melaleuca serjata</i>			
336.	5978 <i>Melaleuca teretifolia</i> (Banbar)			
337.	5980 <i>Melaleuca thymoides</i>			
338.	5983 <i>Melaleuca trichophylla</i>			
339.	8106 <i>Millotia tenuifolia</i> (Soft Millotia)			
340.	4666 <i>Monotaxis occidentalis</i>			
341.	2401 <i>Nuytsia floribunda</i> (Christmas Tree, Mudja)			
342.	14293 <i>Oenothera indecora</i> subsp. <i>bonariensis</i>	Y		
343.	16347 <i>Oenothera laciniata</i>	Y		
344.	18255 <i>Opercularia vaginata</i> (Dog Weed)			
345.	17756 <i>Osteospermum ecklonis</i>	Y		
346.	4343 <i>Pelargonium capitatum</i> (Rose Pelargonium)	Y		
347.	6006 <i>Pericalymma ellipticum</i> (Swamp Teatree)			
348.	16477 <i>Pericalymma ellipticum</i> var. <i>ellipticum</i>			
349.	16478 <i>Pericalymma ellipticum</i> var. <i>floridum</i>			
350.	13911 <i>Persicaria decipiens</i>			
351.	16983 <i>Persicaria maculosa</i>	Y		
352.	2273 <i>Persoonia saccata</i> (Snottygobble)			
353.	2299 <i>Petrophile linearis</i> (Pixie Mops)			
354.	18529 <i>Philothea spicata</i> (Pepper and Salt)			
355.	4141 <i>Phyllota gracilis</i>			
356.	2793 <i>Phytolacca octandra</i> (Red Ink Plant)	Y		
357.	5243 <i>Pimelea ferruginea</i>			
358.	18117 <i>Pimelea rosea</i> subsp. <i>rosea</i>			
359.	5268 <i>Pimelea sulphurea</i> (Yellow Banjine)			
360.	8165 <i>Pithocarpa pulchella</i> (Beautiful Pithocarpa)			
361.	18353 <i>Pithocarpa pulchella</i> var. <i>pulchella</i>			
362.	6249 <i>Platysace compressa</i> (Tapeworm Plant)			
363.	6253 <i>Platysace filliformis</i>			
364.	4524 <i>Platythea galioides</i>			
365.	8175 <i>Podolepis gracilis</i> (Slender Podolepis)			
366.	8182 <i>Podotrochea angustifolia</i> (Sticky Longheads)			
367.	8183 <i>Podotrochea chrysantha</i> (Yellow Podotrochea)			
368.	8184 <i>Podotrochea gnaphalioides</i> (Golden Long-heads)			
369.	2905 <i>Polycarpon tetraphyllum</i> (Fourleaf Allseed)	Y		
370.	2419 <i>Polygonum aviculare</i> (Wireweed)	Y		
371.	4691 <i>Poranthera microphylla</i> (Small Poranthera)			
372.	4181 <i>Pultenaea reticulata</i>			
373.	8195 <i>Quinetia urvillei</i>			
374.	6012 <i>Regelia ciliata</i>			
375.	6014 <i>Regelia inops</i>			
376.	4822 <i>Rhamnus alaternus</i> (Buckthorn)	Y		
377.	3066 <i>Rorippa nasturtium-aquaticum</i> (Watercress)	Y		
378.	2433 <i>Rumex crispus</i> (Curled Dock)	Y		

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
379.	2906 <i>Sagina apetala</i> (Annual Pearlwort)	Y		
380.	13182 <i>Scaevola repens</i> var. <i>repens</i>			
381.	6033 <i>Scholtzia involucreta</i> (Spiked Scholtzia)			
382.	8203 <i>Senecio diaschides</i>			
383.	20663 <i>Senecio multicaulis</i> subsp. <i>multicaulis</i>			
384.	8225 <i>Siloxerus humifusus</i> (Procumbent Siloxerus)			
385.	6988 <i>Solanum americanum</i> (Glossy Nightshade)	Y		
386.	7022 <i>Solanum nigrum</i> (Black Berry Nightshade)	Y		
387.	45036 <i>Solidago chilensis</i>	Y		
388.	8231 <i>Sonchus oleraceus</i> (Common Sowthistle)	Y		
389.	20302 <i>Sphaerolobium hygrophilum</i>			
390.	4211 <i>Sphaerolobium vimineum</i> (Leafless Globe Pea)			
391.	4828 <i>Spyridium globulosum</i> (Basket Bush)			
392.	2316 <i>Stirlingia latifolia</i> (Blueboy)			
393.	7693 <i>Stylidium brunonianum</i> (Pink Fountain Triggerplant)			
394.	7734 <i>Stylidium guttatum</i> (Dotted Triggerplant)			
395.	25800 <i>Stylidium paludicola</i>		P3	
396.	7774 <i>Stylidium piliferum</i> (Common Butterfly Triggerplant)			
397.	7777 <i>Stylidium preissii</i> (Lizard Triggerplant)			
398.	7785 <i>Stylidium repens</i> (Matted Triggerplant)			
399.	20521 <i>Stylidium rigidulum</i>			
400.	7798 <i>Stylidium schoenoides</i> (Cow Kicks)			
401.	<i>Stylidium</i> sp.			
402.	48297 <i>Styphelia filifolia</i>		P3	
403.	25902 <i>Symphotrichum squamatum</i> (Bushy Starwort)	Y		
404.	18590 <i>Synaphea</i> sp. Fairbridge Farm (D. Papenfus 696)		T	
405.	19041 <i>Trachymene coerulea</i> subsp. <i>coerulea</i>			
406.	6280 <i>Trachymene pilosa</i> (Native Parsnip)			
407.	4383 <i>Tribulus terrestris</i> (Caltrop)	Y		
408.	4289 <i>Trifolium angustifolium</i> (Narrowleaf Clover)	Y		
409.	4309 <i>Trifolium scabrum</i> (Rough Clover)	Y		
410.	4737 <i>Tripterococcus brunonis</i> (Winged Stackhousia)			
411.	44444 <i>Tripterococcus</i> sp. <i>Brachylobus</i> (A.S. George 14234)		P4	
412.	8255 <i>Ursinia anthemoides</i> (Ursinia)	Y		
413.	7157 <i>Utricularia violacea</i> (Violet Bladderwort)			
414.	7108 <i>Veronica arvensis</i> (Wall Speedwell)	Y		
415.	6077 <i>Verticordia drummondii</i> (Drummond's Featherflower)			
416.	7389 <i>Wahlenbergia preissii</i>			
417.	8282 <i>Waitzia suaveolens</i> (Fragrant Waitzia)			
418.	6289 <i>Xanthosia huegelii</i>			
419.	2331 <i>Xylomelum occidentale</i> (Woody Pear, Djandin)			

Fish

420.	<i>Acentrogobius bifrenatus</i>			
421.	<i>Aldrichetta forsteri</i>			
422.	<i>Apogon rueppellii</i>			
423.	<i>Atherinomorus vaigiensis</i>			
424.	<i>Atherinosoma wallacei</i>			
425.	<i>Carassius auratus</i>			
426.	<i>Cnidoglanis macrocephalus</i>			
427.	<i>Craterocephalus mugiloides</i>			
428.	<i>Pelates sexlineatus</i>			
429.	<i>Sillago burreus</i>			
430.	<i>Torquigener pleurogramma</i>			

Fungus

431.	<i>Agaricus</i> sp.			
432.	<i>Amanita basiorubra</i>			
433.	18195 <i>Amanita carneiphylla</i>		P3	
434.	38754 <i>Amanita conicobulbosa</i>			
435.	45013 <i>Amanita drummondii</i>		P3	
436.	48320 <i>Amanita eucalypti</i>			
437.	43543 <i>Amanita fibrilloses</i>		P3	
438.	38755 <i>Amanita ochroterrea</i>			
439.	48332 <i>Amanita preissii</i> (Cinnamon-ring <i>Lepidella</i>)		P3	
440.	45014 <i>Amanita quenda</i>		P1	
441.	43542 <i>Amanita wadjukiorum</i>		P3	
442.	46333 <i>Amanita wadulawitu</i> (Long-spored <i>Lepidella</i>)		P2	
443.	38757 <i>Amanita xanthocephala</i>			
444.	38848 <i>Bolbitius titubans</i>			
445.	<i>Boletus</i> sp.			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
446.	<i>Calocera quepinioides</i>			
447.	38767 <i>Campanella gregaria</i>			
448.	38780 <i>Crepidotus eucalyptorum</i>			
449.	<i>Dermocybe clelandii</i>			
450.	<i>Geastrum fornicatum</i>			
451.	<i>Gymnopilus allantopus</i>			
452.	38789 <i>Gymnopilus junonius</i>			
453.	<i>Gymnopilus purpuratus</i>			
454.	38795 <i>Hygrocybe conica</i>			
455.	48549 <i>Inocybe subferruginea</i>			
456.	48837 <i>Laccocephalum mylittae</i>			
457.	38803 <i>Lachnum virgineum</i>			
458.	38808 <i>Limacella pitereka</i>			
459.	<i>Mycena carmeliana</i>			
460.	38812 <i>Mycena kuurkacea</i>			
461.	<i>Mycena nargan</i>			
462.	38813 <i>Mycena subgalericulata</i>			
463.	<i>Peziza</i> sp.			
464.	<i>Phellinus gilvus</i>			
465.	<i>Pholiota communis</i>			
466.	<i>Phytophthora cinnamomi</i>			
467.	49071 <i>Picipes badius</i>			
468.	<i>Pisolithus</i> sp.			
469.	38823 <i>Pleuroflammula praestans</i>			
470.	44729 <i>Porostereum crassum</i>			
471.	<i>Scleroderma cepa</i>			
472.	<i>Tremella mesenterica</i>			

Gymnosperm

473.	18119 <i>Macrozamia fraseri</i>			
474.	85 <i>Macrozamia riedlei</i> (<i>Zamia</i> , <i>Djiridji</i>)			

Hepatic (Liverwort)

475.	<i>Chiloscyphus semiteres</i> var. <i>semiteres</i>			
476.	<i>Marchantia berteroaana</i>			

Invertebrate

477.	<i>Akamptogonus novarae</i>			
478.	<i>Allothereua maculata</i>			
479.	<i>Aname mainae</i>			
480.	<i>Aname tepperi</i>			
481.	<i>Araneus senicaudatus</i>			
482.	<i>Arkys walckenaeri</i>			
483.	<i>Artoria flavimana</i>			
484.	<i>Artoria linnaei</i>			
485.	<i>Artoria taeniifera</i>			
486.	<i>Backbourkia heroine</i>			
487.	<i>Badumna insignis</i>			
488.	<i>Ballarra longipalpus</i>			
489.	33939 <i>Cherax cainii</i> (Marron)			
490.	<i>Cherax destructor</i>			
491.	<i>Cherax quinquecarinatus</i>			
492.	<i>Cherax</i> sp.			
493.	<i>Cormocephalus aurantiipes</i>			
494.	<i>Cormocephalus novaehollandiae</i>			
495.	<i>Cormocephalus rubriceps</i>			
496.	<i>Cryptoerithus quobba</i>			
497.	<i>Daphnia carinata</i>			
498.	<i>Dingosa serrata</i>			
499.	<i>Eodelena convexa</i>			
500.	<i>Eodelena lapidicola</i>			
501.	<i>Eriophora biapicata</i>			
502.	<i>Erythracarus decoris</i>			
503.	<i>Gea theridioides</i>			
504.	<i>Hogna crispipes</i>			
505.	<i>Idiomata blackwalli</i>			
506.	48935 <i>Idiosoma sigillatum</i> (Swan Coastal Plain shield-backed trapdoor spider)		P3	
507.	<i>Isopeda leishmanni</i>			
508.	<i>Ixodes australiensis</i>			
509.	<i>Kangarosa ludwigi</i>			
510.	<i>Kangarosa properipes</i>			
511.	<i>Lampona cylindrata</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
512.	<i>Latrodictus hasseltii</i>			
513.	33982 <i>Leioproctus contrarius</i> (a short-tongued bee)		P3	
514.	<i>Leucauge dromedaria</i>			Y
515.	<i>Longepi woodman</i>			
516.	<i>Lycosa gilberta</i>			
517.	<i>Maratus pavonis</i>			
518.	<i>Missulena granulosa</i>			
519.	<i>Mituliodon tarantulinus</i>			
520.	<i>Mitzoruga insularis</i>			
521.	<i>Notiasemus glauerti</i>			
522.	<i>Paralamyctes cammoensis</i>			Y
523.	<i>Pediana occidentalis</i>			
524.	<i>Phenasteron longiconductor</i>			
525.	<i>Pinkfloydia harveii</i>			
526.	<i>Podykipus collinus</i>			
527.	<i>Poltys lacinosus</i>			
528.	<i>Prionosternum scutatatum</i>			
529.	<i>Raveniella cirrata</i>			
530.	<i>Raveniella peckorum</i>			
531.	<i>Scolopendra laeta</i>			
532.	<i>Simaetha tenuior</i>			
533.	<i>Smeringopus natalensis</i>			
534.	<i>Solaenodolichopus pruvoti</i>			
535.	<i>Supunna funerea</i>			
536.	<i>Supunna picta</i>			
537.	33992 <i>Synemon gratiosa</i> (Graceful Sunmoth)		P4	
538.	<i>Synothele michaelsoni</i>			
539.	<i>Synothele rastelloides</i>			
540.	<i>Tamopsis darlingtoniana</i>			
541.	33994 <i>Throscodectes xiphos</i> (Stylet Bush Cricket, Stylet Throsco (Jandakot))		P1	Y
542.	<i>Urodacus novaehollandiae</i>			
543.	<i>Venator immansueta</i>			
544.	<i>Venatrix pullastra</i>			
545.	<i>Zachria flavicoma</i>			

Lichen

546. 27748 *Flavoparmelia rutidota*

Mammal

547. 47713 *Austronomus australis* (White-striped Free-tailed Bat)

548. 24186 *Chalinolobus gouldii* (Gould's Wattled Bat)

549. 24092 *Dasyurus geoffroi* (Chuditch, Western Quoll) T

550. 30916 *Funambulus pennanti* (Indian Palm Squirrel) Y

551. 24215 *Hydromys chrysogaster* (Water-rat, Rakali) P4

552. 48588 *Isodon fusciventer* (Quenda, southwestern brown bandicoot) P4

553. 24132 *Macropus fuliginosus* (Western Grey Kangaroo)

554. 24223 *Mus musculus* (House Mouse) Y

555. 24146 *Myrmecobius fasciatus* (Numbat, Walpurti) T

556. 48022 *Notamacropus irma* (Western Brush Wallaby) P4

557. 24194 *Nyctophilus geoffroyi* (Lesser Long-eared Bat)

558. 24085 *Oryctolagus cuniculus* (Rabbit) Y

559. 24244 *Rattus norvegicus* (Brown Rat) Y

560. 24245 *Rattus rattus* (Black Rat) Y

561. 24167 *Tarsipes rostratus* (Honey Possum, Noolbenger)

562. 25521 *Trichosurus vulpecula* (Common Brushtail Possum)

563. 24206 *Vespadelus regulus* (Southern Forest Bat)

564. 24040 *Vulpes vulpes* (Red Fox) Y

Monocotyledon

565. 184 *Aira caryophyllea* (Silvery Hairgrass) Y

566. 200 *Amphipogon turbinatus*

567. 1409 *Anigozanthos humilis* (Catspaw)

568. 11434 *Anigozanthos humilis* subsp. *humilis*

569. 1411 *Anigozanthos manglesii* (Mangles Kangaroo Paw, Kurulbrang)

570. 1264 *Arnocrinum preissii*

571. 20752 *Asparagus aethiopicus* Y

572. 1364 *Asphodelus fistulosus* (Onion Weed) Y

573. 17234 *Austrostipa compressa*

574. 17240 *Austrostipa flavescens*

575. 233 *Avena barbata* (Bearded Oat) Y

576. 744 *Baumea laxa*

577. 745 *Baumea preissii*

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
578.	748 <i>Baumea vaginalis</i> (Sheath Twigrush)			
579.	244 <i>Briza maxima</i> (Blowfly Grass)	Y		
580.	245 <i>Briza minor</i> (Shivery Grass)	Y		
581.	249 <i>Bromus diandrus</i> (Great Brome)	Y		
582.	12770 <i>Burchardia congesta</i>			
583.	1277 <i>Caesia occidentalis</i>			
584.	15330 <i>Caladenia arenicola</i>			
585.	1592 <i>Caladenia flava</i> (Cowslip Orchid)			
586.	1596 <i>Caladenia huegelii</i> (Grand Spider Orchid)		T	
587.	15361 <i>Caladenia longicauda</i> subsp. <i>calcigena</i>			
588.	15503 <i>Caladenia paludosa</i>			
589.	<i>Caladenia</i> sp.			
590.	18019 <i>Caladenia vulgata</i>			
591.	15398 <i>Caladenia xantha</i>			
592.	19309 <i>Calectasia narragara</i>			
593.	1162 <i>Cartonema phylloides</i>			
594.	1121 <i>Centrolepis aristata</i> (Pointed Centrolepis)			
595.	1125 <i>Centrolepis drummondiana</i>			
596.	1280 <i>Chamaescilla corymbosa</i> (Blue Squill)			
597.	11299 <i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>			
598.	1418 <i>Conostylis aculeata</i> (Prickly Conostylis)			
599.	11826 <i>Conostylis aculeata</i> subsp. <i>aculeata</i>			
600.	11438 <i>Conostylis candicans</i> subsp. <i>candicans</i>			
601.	1436 <i>Conostylis juncea</i>			
602.	1454 <i>Conostylis setigera</i> (Bristly Cottonhead)			
603.	11597 <i>Conostylis setigera</i> subsp. <i>setigera</i>			
604.	16245 <i>Cyathochaeta teretifolia</i>		P3	
605.	40660 <i>Cycnogeton huegelii</i>			
606.	283 <i>Cynodon dactylon</i> (Couch)	Y		
607.	783 <i>Cyperus congestus</i> (Dense Flat-sedge)	Y		
608.	816 <i>Cyperus tenuiflorus</i> (Scaly Sedge)	Y		
609.	10942 <i>Cyrtostylis tenuissima</i>			
610.	1218 <i>Dasyogon bromeliifolius</i> (Pineapple Bush)			
611.	17691 <i>Desmocladius fasciculatus</i>			
612.	16595 <i>Desmocladius flexuosus</i>			
613.	299 <i>Deyeuxia quadriseta</i> (Reed Bentgrass)			
614.	1287 <i>Dichopogon capillipes</i>			
615.	10796 <i>Diuris drummondii</i> (Tall Donkey Orchid)		T	
616.	1634 <i>Diuris laxiflora</i> (Bee Orchid)			
617.	1637 <i>Diuris purdiei</i> (Purdie's Donkey Orchid)		T	
618.	1639 <i>Drakaea elastica</i> (Glossy-leaved Hammer Orchid)		T	
619.	1640 <i>Drakaea glyptodon</i> (King-in-his-carriage)			
620.	13635 <i>Drakaea micrantha</i>		T	
621.	11105 <i>Echinochloa crus-galli</i>	Y		
622.	347 <i>Ehrharta calycina</i> (Perennial Veldt Grass)	Y		
623.	349 <i>Ehrharta longiflora</i> (Annual Veldt Grass)	Y		
624.	15412 <i>Eriochilus dilatatus</i> subsp. <i>multiflorus</i>			
625.	15414 <i>Eriochilus helonomos</i>			
626.	15415 <i>Eriochilus scaber</i> subsp. <i>scaber</i>			
627.	10802 <i>Eriochilus tenuis</i>			
628.	18392 <i>Freesia alba</i> x <i>leichtlinii</i>	Y		
629.	1520 <i>Gladiolus caryophyllaceus</i> (Wild Gladiolus)	Y		
630.	1475 <i>Haemodorum spicatum</i> (Mardja)			
631.	1293 <i>Hensmania turbinata</i>			
632.	444 <i>Holcus lanatus</i> (Yorkshire Fog)	Y		
633.	449 <i>Hordeum leporinum</i> (Barley Grass)	Y		
634.	1070 <i>Hypolaena exsulca</i>			
635.	917 <i>Isolepis marginata</i> (Coarse Club-rush)			
636.	10831 <i>Isolepis prolifera</i> (Budding Club-rush)	Y		
637.	1188 <i>Juncus pallidus</i> (Pale Rush)			
638.	13562 <i>Lachenalia aloides</i>	Y		
639.	1370 <i>Lachenalia reflexa</i>	Y		
640.	20019 <i>Lachnagrostis filiformis</i>			
641.	467 <i>Lagurus ovatus</i> (Hare's Tail Grass)	Y		
642.	1307 <i>Laxmannia ramosa</i> (Branching Lily)			
643.	1309 <i>Laxmannia squarrosa</i>			
644.	1051 <i>Lemna disperma</i> (Duckweed)			
645.	925 <i>Lepidosperma angustatum</i>			
646.	45753 <i>Lepidosperma oldhamii</i> (Oldham's Sword Sedge)			
647.	945 <i>Lepidosperma squamatum</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
648.	10957 <i>Lolium perenne x rigidum</i>	Y		
649.	1223 <i>Lomandra caespitosa</i> (Tufted Mat Rush)			
650.	1228 <i>Lomandra hermaphrodita</i>			
651.	14542 <i>Lomandra micrantha</i> subsp. <i>micrantha</i>			
652.	1234 <i>Lomandra nigricans</i>			
653.	1236 <i>Lomandra odora</i> (Tiered Matrush)			
654.	1239 <i>Lomandra preissii</i>			
655.	1246 <i>Lomandra suaveolens</i>			
656.	1097 <i>Lyginia barbata</i>			
657.	18049 <i>Lyginia imberbis</i>			
658.	31713 <i>Microtis cupularis</i>			
659.	168 <i>Ottelia ovalifolia</i> (Swamp Lily)			
660.	507 <i>Panicum miliaceum</i> (Millet Panic)	Y		
661.	532 <i>Paspalum urvillei</i> (Vasey Grass)	Y		
662.	1550 <i>Patersonia occidentalis</i> (Purple Flag, Koma)			
663.	30471 <i>Patersonia occidentalis</i> var. <i>angustifolia</i>			
664.	30472 <i>Patersonia occidentalis</i> var. <i>occidentalis</i>			
665.	20460 <i>Pheladenia deformis</i>			
666.	1478 <i>Phlebocarya ciliata</i>			
667.	1479 <i>Phlebocarya filifolia</i>			
668.	11557 <i>Phlebocarya pilosissima</i> subsp. <i>pilosissima</i>		P3	
669.	578 <i>Poa porphyroclados</i>			
670.	582 <i>Polypogon monspeliensis</i> (Annual Beardgrass)	Y		
671.	1673 <i>Prasophyllum gibbosum</i> (Humped Leek Orchid)			
672.	1674 <i>Prasophyllum giganteum</i> (Bronze Leek Orchid)			
673.	1676 <i>Prasophyllum hians</i> (Yawning Leek Orchid)			
674.	1681 <i>Prasophyllum regium</i> (King Leek Orchid)			
675.	15426 <i>Pterostylis aspera</i>			
676.	12217 <i>Pterostylis sanguinea</i>			
677.	<i>Pterostylis</i> sp.			
678.	18655 <i>Pterostylis</i> sp. <i>crinkled leaf</i> (G.J. Keighery 13426)			
679.	1698 <i>Pterostylis vittata</i> (Banded Greenhood)			
680.	16367 <i>Pyrorchis nigricans</i> (Red beaks, Elephants ears)			
681.	40425 <i>Rytidosperma caespitosum</i>			
682.	40426 <i>Rytidosperma occidentale</i>			
683.	978 <i>Schoenus brevisetis</i>			
684.	979 <i>Schoenus caespititius</i>			
685.	982 <i>Schoenus clandestinus</i>			
686.	984 <i>Schoenus curvifolius</i>			
687.	19453 <i>Setaria parviflora</i>	Y		
688.	48862 <i>Sisyrinchium rosulatum</i>	Y		
689.	616 <i>Sorghum bicolor</i> (Grain Sorghum)	Y		
690.	1560 <i>Sparaxis pillansii</i> (Harlequin Flower)	Y		
691.	44492 <i>Stuckenia pectinata</i>			
692.	1702 <i>Thelymitra campanulata</i> (Shirt Orchid)			
693.	1710 <i>Thelymitra mucida</i> (Plum Orchid)			
694.	1716 <i>Thelymitra tigrina</i> (Tiger Orchid)			
695.	20731 <i>Thelymitra vulgaris</i>			
696.	1318 <i>Thysanotus arbuscula</i>			
697.	1338 <i>Thysanotus manglesianus</i> (Fringed Lily)			
698.	1343 <i>Thysanotus patersonii</i>			
699.	<i>Thysanotus</i> sp.			
700.	1351 <i>Thysanotus sparteus</i>			
701.	1357 <i>Thysanotus thyrsoides</i>			
702.	1358 <i>Thysanotus triandrus</i>			
703.	98 <i>Typha domingensis</i> (Bulrush, Djandjidi)			
704.	724 <i>Vulpia myuros</i> (Rat's Tail Fescue)	Y		
705.	1251 <i>Xanthorrhoea brunonis</i>			
706.	1256 <i>Xanthorrhoea preissii</i> (Grass tree, Palga)			
707.	<i>Xanthorrhoea</i> sp.			
Pteridophyte (Fern)				
708.	42902 <i>Azolla rubra</i>			
709.	51 <i>Cyathea cooperi</i>	Y		
Reptile				
710.	42368 <i>Acritoscincus trilineatus</i> (Western Three-lined Skink)			
711.	24991 <i>Aprasia repens</i> (Sand-plain Worm-lizard)			
712.	42381 <i>Brachyurophis semifasciatus</i> (Southern Shovel-nosed Snake)			
713.	24980 <i>Christinus marmoratus</i> (Marbled Gecko)			
714.	30893 <i>Cryptoblepharus buchananii</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
715.	25020 <i>Cryptoblepharus plagiocephalus</i>			
716.	30899 <i>Ctenophorus adelaidensis</i> (Southern Heath Dragon, Western Heath Dragon)			
717.	25027 <i>Ctenotus australis</i>			
718.	25039 <i>Ctenotus fallens</i>			
719.	25040 <i>Ctenotus gemmula</i> (Jewelled South-west Ctenotus (Swan Coastal Plain subpop P3), skink)			
720.	25047 <i>Ctenotus impar</i>			
721.	25766 <i>Delma fraseri</i> (Fraser's Legless Lizard)			
722.	24999 <i>Delma grayii</i>			
723.	25468 <i>Demansia psammophis</i> (Yellow-faced Whipsnake)			
724.	25296 <i>Demansia psammophis</i> subsp. <i>reticulata</i> (Yellow-faced Whipsnake)			
725.	25096 <i>Egernia kingii</i> (King's Skink)			
726.	25100 <i>Egernia napoleonis</i>			
727.	25250 <i>Elapognathus coronatus</i> (Crowned Snake)			
728.	25119 <i>Hemiergis quadrilineata</i>			
729.	25133 <i>Lerista elegans</i>			
730.	25147 <i>Lerista lineata</i> (Perth Slider, Lined Skink)		P3	
731.	25005 <i>Lialis burtonis</i>			
732.	25184 <i>Menetia greyii</i>			
733.	25191 <i>Morethia lineocellata</i>			
734.	25192 <i>Morethia obscura</i>			
735.	25248 <i>Neelaps bimaculatus</i> (Black-naped Snake)			
736.	25249 <i>Neelaps calonotos</i> (Black-striped Snake, black-striped burrowing snake)		P3	
737.	25252 <i>Notechis scutatus</i> (Tiger Snake)			
738.	25253 <i>Parasuta gouldii</i>			
739.	25509 <i>Pletholax gracilis</i> (Keeled Legless Lizard)			
740.	25007 <i>Pletholax gracilis</i> subsp. <i>gracilis</i> (Keeled Legless Lizard)			
741.	25510 <i>Pogona minor</i> (Dwarf Bearded Dragon)			
742.	24907 <i>Pogona minor</i> subsp. <i>minor</i> (Dwarf Bearded Dragon)			
743.	25511 <i>Pseudonaja affinis</i> (Dugite)			
744.	25259 <i>Pseudonaja affinis</i> subsp. <i>affinis</i> (Dugite)			
745.	25008 <i>Pygopus lepidopodus</i> (Common Scaly Foot)			
746.	25203 <i>Tiliqua occipitalis</i> (Western Bluetongue)			
747.	25519 <i>Tiliqua rugosa</i>			
748.	25204 <i>Tiliqua rugosa</i> subsp. <i>aspera</i>			
749.	25207 <i>Tiliqua rugosa</i> subsp. <i>rugosa</i>			
750.	25218 <i>Varanus gouldii</i> (Bungarra or Sand Monitor)			

Slime Mould

751.	38963 <i>Arcyria affinis</i>			Y
752.	38964 <i>Arcyria cinerea</i>			
753.	38965 <i>Arcyria denudata</i>			
754.	38966 <i>Arcyria ferruginea</i>			
755.	38967 <i>Arcyria incarnata</i>			
756.	38970 <i>Arcyria obvelata</i>			
757.	38973 <i>Arcyria pomiformis</i>			
758.	38974 <i>Arcyria stipata</i>			
759.	<i>Badhamia affinis</i>			Y
760.	38975 <i>Badhamia capsulifera</i>			Y
761.	38981 <i>Calomyxa metallica</i>			
762.	38982 <i>Ceratomyxa fruticulosa</i>			
763.	38983 <i>Clastoderma debaryanum</i>			
764.	38988 <i>Comatricha laxa</i>			
765.	38990 <i>Comatricha nigra</i>			
766.	38991 <i>Comatricha pulchella</i>			
767.	38997 <i>Craterium leucocephalum</i>			
768.	38998 <i>Craterium minutum</i>			
769.	39001 <i>Cribraria cancellata</i>			
770.	39002 <i>Cribraria microcarpa</i>			
771.	39003 <i>Cribraria minutissima</i>			
772.	39006 <i>Cribraria tenella</i>			
773.	39008 <i>Diachea leucopodia</i>			
774.	44064 <i>Dictydiaethalium plumbeum</i>			Y
775.	39011 <i>Diderma asteroides</i>			
776.	39015 <i>Diderma hemisphaericum</i>			
777.	48606 <i>Diderma rufostriatum</i>			Y
778.	39020 <i>Didymium difforme</i>			
779.	<i>Didymium minus</i>			Y
780.	39023 <i>Didymium perforatum</i>			Y
781.	39024 <i>Didymium serpula</i>			
782.	39025 <i>Didymium squamulosum</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
783.	39029 <i>Echinostelium minutum</i>			
784.	42241 <i>Elaeomyxa reticulospora</i>			Y
785.	39030 <i>Enerthenema papillatum</i>			
786.	39033 <i>Fuligo septica</i>			
787.	39038 <i>Leocarpus fragilis</i>			
788.	39042 <i>Licea minima</i>			
789.	39046 <i>Licea rufocuprea</i>			Y
790.	39048 <i>Lycogala epidendrum</i>			
791.	39054 <i>Oligonema schweinitzii</i>			
792.	39057 <i>Perichaena corticalis</i>			
793.	39058 <i>Perichaena depressa</i>			
794.	39061 <i>Physarum bitectum</i>			
795.	39062 <i>Physarum bivalve</i>			
796.	39063 <i>Physarum cinereum</i>			
797.	39064 <i>Physarum citrinum</i>			Y
798.	39065 <i>Physarum compressum</i>			
799.	39069 <i>Physarum famintzinii</i>			Y
800.	39072 <i>Physarum melleum</i>			
801.	39074 <i>Physarum pusillum</i>			
802.	39076 <i>Physarum sessile</i>			Y
803.	39079 <i>Physarum viride</i>			
804.	39080 <i>Reticularia intermedia</i>			
805.	39081 <i>Reticularia lycoperdon</i>			
806.	39083 <i>Stemonitis fusca</i>			
807.	39088 <i>Stemonitis virginiensis</i>			
808.	39090 <i>Stemonitopsis gracilis</i>			
809.	39094 <i>Trichia affinis</i>			
810.	39095 <i>Trichia botrytis</i>			
811.	39096 <i>Trichia contorta</i>			
812.	39097 <i>Trichia decipiens</i>			
813.	39100 <i>Trichia persimilis</i>			
814.	39101 <i>Trichia varia</i>			
815.	39102 <i>Trichia verrucosa</i>			
816.	39103 <i>Tubifera ferruginosa</i>			
817.	39104 <i>Willkommlangea reticulata</i>			

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 wholly 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.

Appendix 2: Protected Matter Search Tool Report



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: 27/11/20 11:56:24

[Summary](#)

[Details](#)

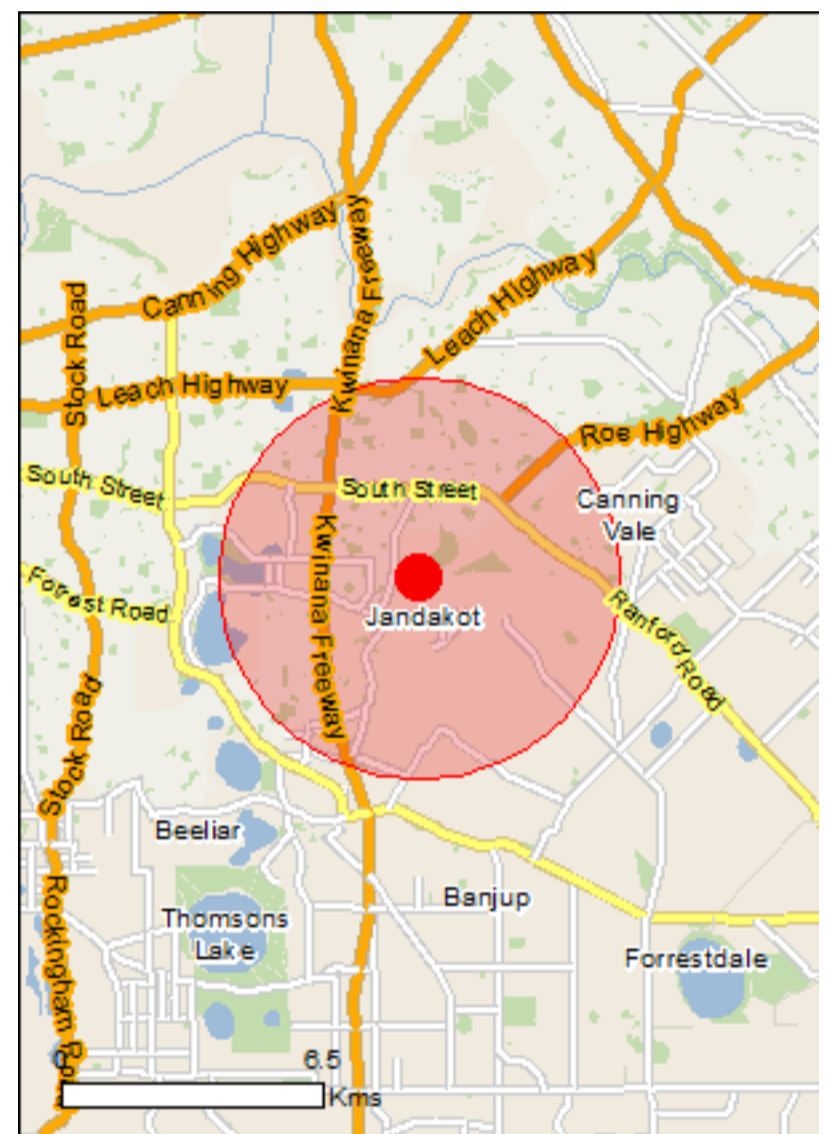
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

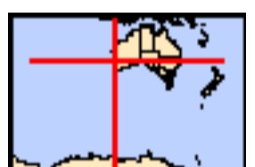
[Acknowledgements](#)



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

[Coordinates](#)

Buffer: 5.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	42
Listed Migratory Species:	35

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:	44
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	1
Regional Forest Agreements:	None
Invasive Species:	38
Nationally Important Wetlands:	3
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)

[\[Resource Information \]](#)

Name	Proximity
Forrestdale and thomsons lakes	Within 10km of Ramsar

Listed Threatened Ecological Communities

[\[Resource Information \]](#)

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area
Tuart (<i>Eucalyptus gomphocephala</i>) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community likely to occur within area

Listed Threatened Species

[\[Resource Information \]](#)

Name	Status	Type of Presence
Birds		
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
Calyptorhynchus baudinii Baudin's Cockatoo, Long-billed Black-Cockatoo [769]	Endangered	Species or species habitat likely to occur within area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat likely to occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely 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 likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat 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	Species or species habitat likely to occur within area
Mammals		
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Vulnerable	Species or species habitat known to occur within area
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat likely to occur within area
Plants		
Andersonia gracilis Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area
Caladenia huegelii King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat known to occur

Name	Status	Type of Presence within area
Diuris drummondii Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat known to occur within area
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat likely to occur within area
Diuris purdiei Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat known to occur within area
Drakaea elastica Glossy-leaved Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat known to occur within area
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat known to occur within area
Eleocharis keigheryi Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat may occur within area
Eremophila glabra subsp. chlorella [84927]	Endangered	Species or species habitat may occur within area
Eucalyptus x balanites Cadda Road Mallee, Cadda Mallee [87816]	Endangered	Species or species habitat may occur within area
Macarthuria keigheryi Keighery's Macarthuria [64930]	Endangered	Species or species habitat likely to occur within area
Synaphea sp. Fairbridge Farm (D. Papenfus 696) Selena's Synaphea [82881]	Critically Endangered	Species or species habitat likely to occur within area
Thelymitra dedmaniarum Cinnamon Sun Orchid [65105]	Endangered	Species or species habitat may occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat likely 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
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat 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	Species or species habitat likely to occur within area
Migratory Marine Species		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
Manta alfredi Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat may occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris subminuta Long-toed Stint [861]		Species or species habitat known to occur within area
Charadrius dubius Little Ringed Plover [896]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Philomachus pugnax Ruff (Reeve) [850]		Species or species habitat known to occur within area
Tringa glareola Wood Sandpiper [829]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		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
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Breeding known 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 canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris subminuta Long-toed Stint [861]		Species or species habitat known to occur within area
Charadrius dubius Little Ringed Plover [896]		Species or species habitat known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Philomachus pugnax Ruff (Reeve) [850]		Species or species habitat known to occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat known to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed	Vulnerable	Species or species

Name	Threatened	Type of Presence
Albatross [64459]		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	Species or species habitat likely to occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat known to occur within area
Tringa glareola Wood Sandpiper [829]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area
Mammals		
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Vulnerable	Species or species habitat known to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Canning River	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 Resources Audit, 2001.	

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		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
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		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
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Funambulus pennantii Northern Palm Squirrel, Five-striped Palm Squirrel [129]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Brachiaria mutica Para Grass [5879]		Species or species habitat may occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Olea europaea Olive, Common Olive [9160]		Species or species habitat may occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss,		Species or species

Name	Status	Type of Presence
Kariba Weed [13665]		habitat likely to occur within area
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area

Nationally Important Wetlands	[Resource Information]
Name	State
Booragoon Swamp	WA
Gibbs Road Swamp System	WA
Swan-Canning Estuary	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

-32.0831 115.87115

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.

© Commonwealth of Australia

Department of Agriculture Water and the Environment

GPO Box 858

Canberra City ACT 2601 Australia

+61 2 6274 1111

Appendix 3: Conservation Codes

Western Australia

Conservation Code	Name	Description
T	Threatened	Flora or fauna that is rare or likely to become extinct, ranked according to their level of threat using IUCN Red List criteria (Schedules 1-3 of the Wildlife Conservation (Specially Protected Fauna) Notice or the Wildlife Conservation (Rare Flora) Notice)
CR	Critically endangered	Species considered to be facing an extremely high risk of extinction within the wild in the immediate future
EN	Endangered	Species considered to be facing a very high risk of extinction in the wild in the near future
VU	Vulnerable	Species considered to be facing a high risk of extinction in the wild in the medium-term future
EX	Extinct Species	Species where 'there is no reasonable doubt that the last member of the species has died (Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice or the Wildlife Conservation (Rare Flora) Notice)
EW	Extinct in the Wild	Species that are known to only survive in cultivation, in captivity, or as a naturalised population well outside its past range; and it has not been recorded in its known or expected habitat at appropriate seasons anywhere in its past range, despite surveys over a timeframe appropriate to its life cycle and form
MI	Migratory Species	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 (Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice)
CD	Conservation Dependent	Species of special conservation interest (conservation dependent fauna), being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened (Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice)
OS	Specially Protected	Fauna otherwise in need of special protection to ensure their conservation (Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice)
P	Priority Species	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. These three categories are ranked in order of priority for survey and evaluation of

Conservation Code	Name	Description
		conservation status so that consideration can be given to their declaration as threatened fauna or flora. Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.
P1	Priority One	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, such as road verges, urban areas, farmland, active mineral lease and under threat of habitat destruction or degradation.
2	Priority Two	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, such as national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves and similar.
3	Priority Three	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
4	Priority Four	Rare or near threatened and other species in need of monitoring.

(Source: Department of Biodiversity, Conservation and Attractions, 2020a)

Commonwealth

Category	Description
Critically Endangered	Species facing an extremely high risk of extinction in the wild in the immediate future
Endangered	Species facing a very high risk of extinction in the wild in the near future
Vulnerable	Species facing a high risk of extinction in the wild in the medium term

(Source: Department of Agriculture, Water, and the Environment, 2020b)

Appendix 4: Flora Species List

A complete flora list is provided in the table below. * Denotes introduced species (weeds). Species are listed in alphabetical order by class, family then species name.

Family	Scientific Name	Common Name
Class CYCADOPSIDA (Cycads)		
Zamiaceae	<i>Macrozamia riedlei</i>	Zamia
Class LILIOPSIDA (Monocotyledons)		
Araceae		
	<i>Zantedeschia aethiopica*</i>	Arum Lily
Asparagaceae		
	<i>Asparagus asparagoides</i>	Bridal Creeper
	<i>Asparagus asparagoides*</i>	Bridal creeper
	<i>Dichopogon capillipes</i>	
	<i>Laxmannia squarrosa</i>	
	<i>Lomandra caespitosa</i>	Tufted Mat Rush
	<i>Lomandra hermaphrodita</i>	
	<i>Lomandra micrantha subsp. micrantha</i>	
	<i>Lomandra preissii</i>	
	<i>Lomandra preissii</i>	
	<i>Lomandra suaveolens</i>	
	<i>Thysanotus sparteus</i>	
	<i>Thysanotus thyrsoideus</i>	
Campanulaceae		
	<i>Wahlenbergia capensis*</i>	
Colchicaceae		
	<i>Burchardia congesta</i>	
Cyperaceae		
	<i>Chaetospora curvifolia</i>	
	<i>Lepidosperma scabrum</i>	
	<i>Mesomelaena pseudostygia</i>	
	<i>Schoenus pedicellatus</i>	

Family	Scientific Name	Common Name
Dasypogonaceae		
	<i>Calectasia narragara</i>	
	<i>Dasypogon bromeliifolius</i>	Pineapple Bush
Haemodoraceae		
	<i>Anigozanthos humulis</i>	Catspaw
	<i>Anigozanthos manglesii</i>	
	<i>Conostylis aculeata</i>	Prickly Conostylis
	<i>Conostylis juncea</i>	
	<i>Conostylis setigera</i>	Bristly Cottonhead
	<i>Phlebocarya ciliata</i>	
	<i>Phlebocarya filifolia</i>	
Hemerocallidaceae		
	<i>Arnocrinum preissii</i>	
	<i>Caesia occidentalis</i>	
	<i>Hensmania turbinata</i>	
	<i>Tricoryne elatior</i>	Yellow Autumn Lily
Iridaceae		
	<i>Gladiolus caryophyllaceus*</i>	Wild Gladiolus
	<i>Patersonia occidentalis</i>	Purple Flag
Orchidaceae		
	<i>Microtis media</i>	Mignonette orchid
	<i>Pterostylis vittata</i>	Banded Greenhood
Poaceae		
	<i>Amphipogon turbinatus</i>	
	<i>Austrostipa compressa</i>	
	<i>Avena barbata*</i>	Bearded Oat
	<i>Briza maxima*</i>	Blowfly Grass
	<i>Briza minor*</i>	Shivery Grass
	<i>Bromus diandrus*</i>	Great Brome
	<i>Cortaderia selloana</i>	Pampas Grass
	<i>Ehrharta calycina</i>	
	<i>Ehrharta calycina*</i>	Perennial Veldt Grass

Family	Scientific Name	Common Name
	<i>Ehrharta longiflora</i>	Annual Veldt Grass
	<i>Lagurus ovatus*</i>	Hare's Tail Grass
	<i>Lolium rigidum</i>	Wimmera Ryegrass
	<i>Stenotaphrum secundatum*</i>	Buffalo Grass
Restionaceae		
	<i>Desmocladus fasciculatus</i>	
	<i>Desmocladus flexuosus</i>	
	<i>Hypolaena exsulca</i>	
Xanthorrhoeaceae		
	<i>Chamaescilla corymbosa</i>	Blue Squill
	<i>Xanthorrhoea brunonis</i>	
	<i>Xanthorrhoea preissii</i>	Grass Tree
CLASS MAGNOLIOPSIDA (Dicotyledons)		
Aizoaceae		
	<i>Carpobrotus edulis*</i>	Hottentot Fig
Apiaceae		
	<i>Platysace filiformis</i>	
	<i>Xanthosia huegelii</i>	
Asteraceae		
	<i>Erigeron bonariensis*</i>	
	<i>Lagenophora huegelii</i>	
	<i>Lactuca serriola</i>	Prickly Lettuce
	<i>Podotheca angustifolia</i>	Sticky Longheads
	<i>Sonchus oleraceus*</i>	Common Sowthistle
	<i>Urospermum picroides*</i>	False Hawkbit
	<i>Ursinia anthemoides*</i>	Ursinia
	<i>Waitzia suaveolens</i>	Fragrant Waitzia
Campanulaceae		
	<i>Lobelia tenuior</i>	Slender Lobelia
Casuarinaceae		
	<i>Allocasuarina fraseriana</i>	Sheoak
	<i>Allocasuarina humilis</i>	

Family	Scientific Name	Common Name
Dilleniaceae		
	<i>Hibbertia cuneiformis</i>	Cutleaf Hibbertia
	<i>Hibbertia huegelii</i>	
	<i>Hibbertia hypericoides</i>	Yellow Buttercups
Ericaceae		
	<i>Conostephium pendulum</i>	Pearl Flower
	<i>Styphelia conostephioides</i>	
Euphorbiaceae		
	<i>Euphorbia terracina</i>	Geraldton Carnation Weed
Fabaceae		
	<i>Acacia applanata</i>	
	<i>Acacia huegelii</i>	
	<i>Acacia iteaphylla</i>	Flinders Range Wattle
	<i>Acacia longifolia</i>	Sydney Golden Wattle
	<i>Acacia pulchella</i>	Prickly Moses
	<i>Acacia stenoptera</i>	
	<i>Bossiaea eriocarpa</i>	Common Brown Pea
	<i>Daviesia physodes</i>	
	<i>Daviesia triflora</i>	
	<i>Euchilopsis linearis</i>	Swamp Pea
	<i>Gastrolobium capitatum</i>	
	<i>Gompholobium tomentosum</i>	Hairy Yellow Pea
	<i>Hovea trisperma</i>	Common Hovea
	<i>Jacksonia furcellata</i>	Grey Stinkwood
Geraniaceae		
	<i>Pelargonium capitatum*</i>	Rose Pelargonium
Goodeniaceae		
	<i>Dampiera linearis</i>	Common Dampiera
	<i>Lechenaultia floribunda</i>	Free-flowering Leschenaultia
	<i>Scaevola repens</i>	
Lauraceae		
	<i>Cassytha racemosa</i>	Dodder Laurel

Family	Scientific Name	Common Name
Loranthaceae		
	<i>Nuytsia floribunda</i>	Christmas Tree
Moraceae		
	<i>Ficus carica</i>	Common Fig
Myrtaceae		
	<i>Calytrix flavescens</i>	Summer Starflower
	<i>Calytrix fraseri</i>	Pink Summer Calytrix
	<i>Eremaea pauciflora</i>	
	<i>Eucalyptus todtiana</i>	Pricklybark
	<i>Hypocalymma angustifolium</i>	White Myrtle
	<i>Kunzea glabrescens</i>	Spearwood
	<i>Leptospermum laevigatum*</i>	Coast Teatree
	<i>Melaleuca preissiana</i>	Moonah
	<i>Melaleuca seriata</i>	
	<i>Melaleuca thymoides</i>	
	<i>Regelia inops</i>	
	<i>Scholtzia involucrata</i>	Spiked Scholtzia
Proteaceae		
	<i>Adenanthos cygnorum</i>	Common Woollybush
	<i>Persoonia saccata</i>	Snottygobble
	<i>Petrophile linearis</i>	Pixie Mops
	<i>Stirlingia latifolia</i>	Blueboy
	<i>Synaphea spinulosa</i>	
	<i>Banksia attenuata</i>	Slender Banksia
	<i>Banksia ilicifolia</i>	Holly-leaved Bankia
	<i>Banksia menziesii</i>	Firewood Banksia
Rubiaceae		
	<i>Opercularia vaginata</i>	Dog Weed
Rutaceae		
	<i>Philotheca spicata</i>	Pepper and Salt
Solanaceae		
	<i>Solanum nigrum</i>	Blackberry Nightshade

Family	Scientific Name	Common Name
Stylidiaceae		
	<i>Stylidium brunonianum</i>	Pink Fountain Triggerplant
	<i>Stylidium repens</i>	Matted Triggerplant
	<i>Stylidium schoenoides</i>	Cow Kicks
Thymelaeaceae		
	<i>Pimelea sulphurea</i>	Yellow Banjine

Appendix 5: Quadrat Data

*Locations of quadrats: Figure 5

Quadrat 1
No.:
Survey 11/11/20
Date:
Personnel: KS MG
Easting: 393561.3179
Northing: 6449840.397
 3
Location: John Connell
Topography Mid Slope
 :
Aspect: North
Slope: 0-3%
Soil: Grey Sand
Rock:
Leaf Litter: 10%
Bare 1
Ground:
Drainage: Well
Condition: Excellent



Note:

Native Species	Height (m)	Cover (%)
<i>Acacia applanata</i>	1	0.2
<i>Acacia pulchella</i>	0.5	0.3
<i>Banksia attenuata</i>	15	8
<i>Banksia menziesii</i>	10	6
<i>Bossiaea eriocarpa</i>	2	0.5
<i>Burchardia congesta</i>	1	0.5
<i>Conostephium pendulum</i>	3	0.3
<i>Dampiera linearis</i>	0.5	0.2
<i>Dasypogon bromeliifolius</i>	1	0.3
<i>Desmocladius flexuosus</i>	8	0.3
<i>Gastrolobium capitatum</i>	0.5	0.3
<i>Gompholobium tomentosum</i>	2	0.3
<i>Hibbertia cuneiformis</i>	1	0.5
<i>Hovea trisperma</i>	1	0.3

Native Species	Height (m)	Cover (%)
<i>Jacksonia furcellata</i>	1	2.5
<i>Lagenophora huegelii</i>	0.1	0.1
<i>Lomandra caespitosa</i>	0.1	0.3
<i>Lomandra hermaphrodita</i>	0.1	0.3
<i>Lomandra micrantha subsp. micrantha</i>	0.1	0.2
<i>Lyginia barbata</i>	60	0.5
<i>Melaleuca seriata</i>	2	0.5
<i>Melaleuca thymoides</i>	1	0.5
<i>Mesomelaena pseudostygia</i>	0.1	0.1
<i>Microtis media</i>	0.5	0.2
<i>Nuytsia floribunda</i>	0.5	0.5
<i>Patersonia occidentalis</i>	5	0.5
<i>Phlebocarya ciliata</i>	4	0.2
<i>Schoenus pedicellatus</i>	2	0.3
<i>Scholtzia involucrata</i>	8	0.3
<i>Styphelia conostephioides</i>	1	0.2
<i>Ursinia anthemoides</i>	3	0.2
<i>Xanthorrhoea brunonis</i>	3	1
<i>Xanthorrhoea preissii</i>	10	2
Invasive Species	Height (m)	Cover (%)
* <i>Asparagus asparagoides</i>	0.5	0.2
* <i>Briza maxima</i>	5	0.3
* <i>Ehrharta calycina</i>	2	1
* <i>Gladiolus caryophyllaceus</i>	0.5	0.5
* <i>Pelargonium capitatum</i>	1	0.2
* <i>Sonchus oleraceus</i>	0.1	0.2
* <i>Urospermum picroides</i>	0.1	0.2
* <i>Wahlenbergia capensis</i>	0.1	0.1

Quadrat No.: 2
Survey Date: 12/11/2020
Personnel: KS MG
Easting: 393350.3662
Northing: 6449743.4873
Location: John Connell
Topography: Mid Slope
Aspect: North East
Slope: 0-3%
Soil: Grey Sand
Rock:
Leaf Litter: 30%
Bare Ground: 0
Drainage: Well
Condition: Excellent



Note:

Native Species	Height (m)	Cover (%)
<i>Acacia pulchella</i>	4	1
<i>Allocasuarina humilis</i>	8	1
<i>Arnocrinum preissii</i>	0.1	0.2
<i>Banksia attenuata</i>	35	8
<i>Banksia menziesii</i>	50	8
<i>Bossiaea eriocarpa</i>	2	0.4
<i>Burchardia congesta</i>	1	0.4
<i>Caesia occidentalis</i>	0.5	0.4
<i>Cassytha racemosa</i>	5	0.4
<i>Conostylis juncea</i>	0.1	0.2
<i>Dampiera linearis</i>	0.5	0.2
<i>Dasypogon bromeliifolius</i>	3	0.3
<i>Desmocladius fasciculatus</i>	1	0.2
<i>Desmocladius flexuosus</i>	6	0.3
<i>Eremaea pauciflora</i>	10	0.5
<i>Eucalyptus todtiana</i>	5	3
<i>Gompholobium tomentosum</i>	5	0.5
<i>Hibbertia cuneiformis</i>	2	0.3
<i>Hibbertia huegelii</i>	0.5	0.3

Native Species	Height (m)	Cover (%)
<i>Hovea trisperma</i>	1	0.3
<i>Hypolaena exsulca</i>	3	0.3
<i>Lechenaultia floribunda</i>	10	0.3
<i>Lepidosperma scabrum</i>	0.1	0.3
<i>Lomandra hermaphrodita</i>	0.1	0.2
<i>Lyginia barbata</i>	0.5	0.4
<i>Melaleuca seriata</i>	15	1
<i>Melaleuca thymoides</i>	1	1
<i>Microtis media</i>	0.1	0.1
<i>Patersonia occidentalis</i>	5	0.3
<i>Phlebocarya ciliata</i>	5	0.3
<i>Platysace filiformis</i>	0.3	0.2
<i>Pterostylis vittata</i>	0.1	0.1
<i>Schoenus pedicellatus</i>	10	0.2
<i>Scholtzia involucrata</i>	3	0.4
<i>Xanthorrhoea brunonis</i>	4	0.5
Invasive Species	Height (m)	Cover (%)
* <i>Briza maxima</i>	2	0.2
* <i>Ehrharta calycina</i>	1	0.5
* <i>Gladiolus caryophyllaceus</i>	0.5	0.3
* <i>Sonchus oleraceus</i>	0.1	0.1

Quadrat No.: 3
Survey Date: 12/11/2020
Personnel: KS MG
Easting: 393163.8118
Northing: 6449674.229
Location: John Connell
Topography: Plain
Aspect: Flat
Slope: 0%
Soil: Grey Sand
Rock: 0
Leaf Litter: 5
Bare Ground: 1
Drainage: Well
Condition: Excellent



Note:

Native Species	Height (m)	Cover (%)
<i>Acacia pulchella</i>	0.1	0.3
<i>Acacia stenoptera</i>	0.1	0.2
<i>Allocasuarina humilis</i>	20	1.5
<i>Amphipogon turbinatus</i>	3	0.2
<i>Anigozanthos manglesii</i>	0.5	0.4
<i>Austrostipa compressa</i>	0.1	0.5
<i>Banksia attenuata</i>	20	8
<i>Banksia menziesii</i>	10	2
<i>Bossiaea eriocarpa</i>	10	0.3
<i>Burchardia congesta</i>	0.5	0.2
<i>Calectasia narragara</i>	0.5	0.2
<i>Calytrix flavescens</i>	0.1	0.2
<i>Chaetospora curvifolia</i>	3	0.2
<i>Conostephium pendulum</i>	8	0.5
<i>Conostylis setigera</i>	1	0.2
<i>Dampiera linearis</i>	0.3	0.2
<i>Dasypogon bromeliifolius</i>	4	0.3

Native Species	Height (m)	Cover (%)
<i>Desmodium fasciculatum</i>	15	0.3
<i>Eremaea pauciflora</i>	10	0.5
<i>Gompholobium tomentosum</i>	0.1	0.2
<i>Hensmania turbinata</i>	0.1	0.3
<i>Hibbertia cuneiformis</i>	2	0.5
<i>Hibbertia huegelii</i>	0.5	0.2
<i>Hibbertia hypericoides</i>	10	0.4
<i>Hovea trisperma</i>	1	0.3
<i>Lobelia tenuior</i>	0.1	0.2
<i>Lomandra caespitosa</i>	0.1	0.2
<i>Lomandra hermaphrodita</i>	0.5	0.3
<i>Lomandra preissii</i>	0.1	0.3
<i>Lomandra suaveolens</i>	0.1	0.2
<i>Lyginia barbata</i>	6	0.5
<i>Melaleuca seriata</i>	5	1
<i>Melaleuca thymoides</i>	3	0.5
<i>Microtis media</i>	0.1	0.3
<i>Patersonia occidentalis</i>	5	0.3
<i>Persoonia saccata</i>	0.1	0.2
<i>Petrophile linearis</i>	0.5	0.2
<i>Philothea spicata</i>	0.5	0.5
<i>Phlebocarya filifolia</i>	0.5	0.2
<i>Pimelea sulphurea</i>	0.1	0.2
<i>Pterostylis vittata</i>	0.1	0.2
<i>Scholtzia involucreta</i>	5	0.5
<i>Stirlingia latifolia</i>	1	0.3
<i>Stylidium brunonianum</i>	0.1	0.3
<i>Stylidium repens</i>	0.5	0.1
<i>Stylidium schoenoides</i>	0.5	0.2
<i>Styphelia conostephioides</i>	10	0.2
<i>Thysanotus sparteus</i>	0.1	0.2
<i>Tricoryne elatior</i>	0.2	0.2

Native Species	Height (m)	Cover (%)
<i>Waitzia suaveolens</i>	0.1	0.1
<i>Xanthosia huegelii</i>	0.1	0.1
Invasive Species	Height (m)	Cover (%)
* <i>Briza maxima</i>	0.5	0.2
* <i>Ehrharta calycina</i>	1	0.5
* <i>Gladiolus caryophyllaceus</i>	1	0.5
* <i>Sonchus oleraceus</i>	0.1	0.2
* <i>Ursinia anthemoides</i>	0.3	0.2