



Natural Area  
CONSULTING MANAGEMENT SERVICES

## City of Melville

# John Connell Reserve - Detailed Flora, Vegetation, and Fauna Assessment

December 2020

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## 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 for a portion of John Connell Reserve, Leeming. The survey was undertaken to inform the City's obligations relating to clearing permit applications.

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
- the location of declared rare or priority flora, fauna and/or ecological communities (if present).

The detailed flora and vegetation survey confirmed:

- presence of a total of 98 flora species from 36 families
- a mix of 37 (37.7%) weeds and 61 (62.2%) native flora species
- no priority or threatened flora species, or ecological communities were found during the 2020 survey
- one vegetation type was present within the site, *Banksia attenuata*, *Banksia menziesii* and *Eucalyptus todtiana* Woodland
- vegetation condition across the site ranges from Completely Degraded to Excellent.

The basic fauna survey within the site confirmed:

- a total of eight fauna species recorded, either directly or via indicators of their presence in the form of scats, tracks, diggings and burrows
- no conservation significant fauna species were recorded during the survey, although evidence of threatened black cockatoo feeding by Carnaby's Cockatoo in the form of chewed *Banksia menziesii* flower cones was noted.

The outcomes of the assessment activities carried out by Natural Area suggest that impacts associated with development are likely to be low, with the area for the Carnaby's food source not meeting size and condition criteria for referral. The proposed clearing area is not at variance with any of the ten clearing principles, and ecological impact to the area is likely to be minimal.

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## 1.0 Introduction

Natural Area Consulting Management Services (Natural Area) was commissioned by the City of Melville in November 2020 to undertake a detailed biological survey and a basic fauna survey on a portion of John Connell Reserve, Leeming. The survey was undertaken to inform the City's obligations relating to clearing permit applications.

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

### 1.1 Location

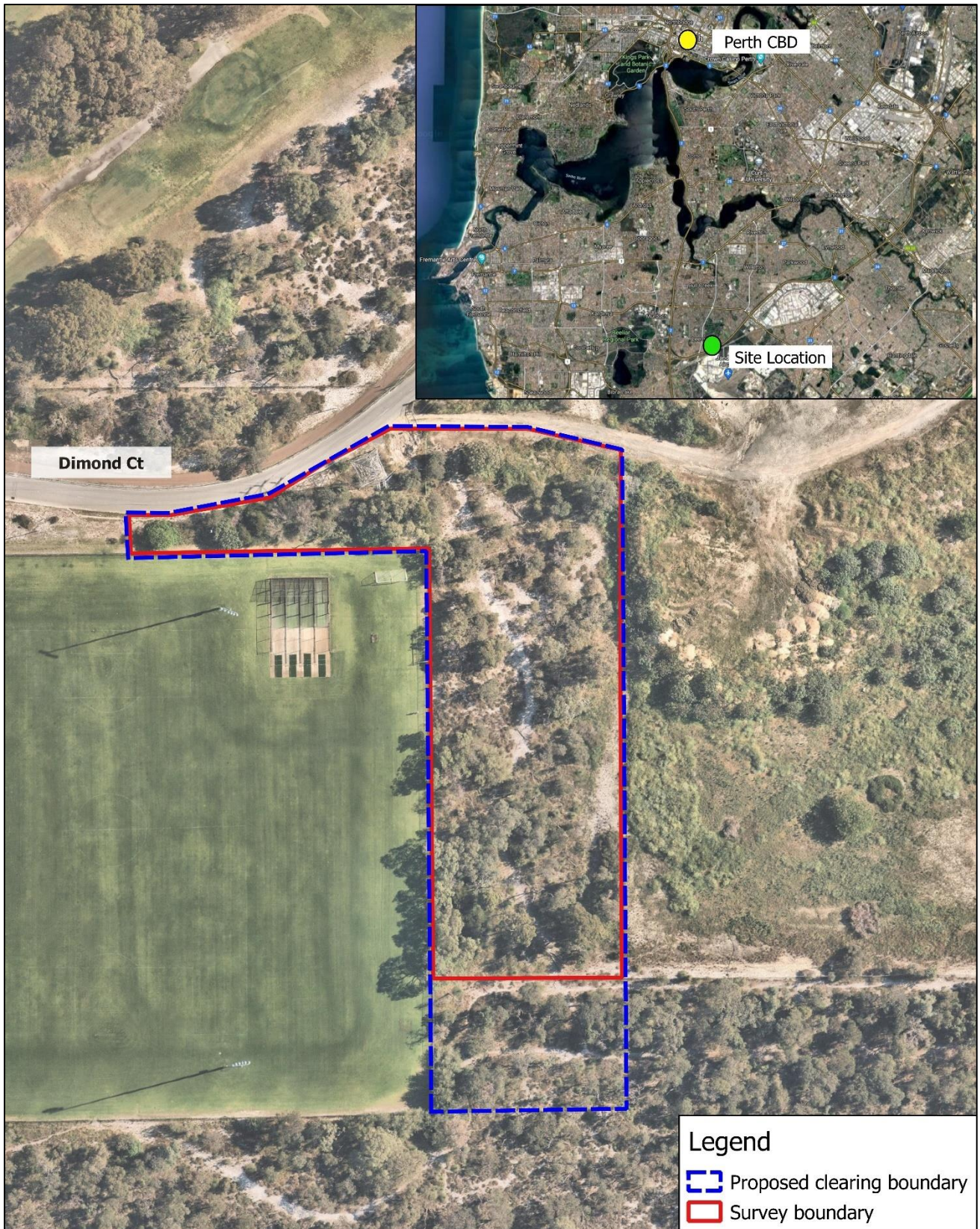
The survey area is located in a portion of John Connell Reserve, Leeming WA, approximately 15km south of the Perth CBD (Figure 1). The total survey area is approximately 0.917 hectares.

An updated clearing boundary was provided to Natural Area by the City in December 2020 which extends the site south to the edge of the sporting fields. This revised boundary was provided to Natural Area after the survey was conducted and therefore the extended area was not surveyed fully.

### 1.2 Scope

Specific tasks associated with the survey and associated reporting included:

- desktop database searches to identify likely flora and fauna species present at the site, including any conservation significant species and ecological communities
- detailed flora survey 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
- reporting outcomes of the survey.



**Figure 1:**  
Site Location  
John Connell Reserve

0 15 30 m



Client: City of Melville  
Date: 10/12/2020  
Created by: K Sadgrove  
Image Source: Nearmap 2020  
Datum: GDA 94

## 2.0 Site Characteristics

Site characteristics have an influence on the flora, vegetation, fauna, and ecological communities present. Key characteristics of 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 Reserve 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 26 m to 30 m AHD, rising from the south to the north east corner (Figure 2). There is one soil type, namely EnvGeol S8 Phase (212Bs\_S8) occurs found on site which was identified using NRInfo Portal (Department of Primary Industries and Regional Development, 2020). This soil type is described as Sand- very light grey at surface, yellow at depth, fine to medium-grained, sub-rounded quartz, moderately well sorted of eolian origin (Department of Primary Industries and Regional Development, 2020).

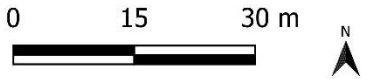


**Legend**

- 2m Contours
- - - Proposed clearing boundary
- Survey boundary



**Figure 2:**  
Topography  
John Connell Reserve, Leeming



Client: City of Wanneroo  
Date: 10/12/2020  
Created by: K. Sadgrove  
Image Source: Nearmap 2020  
Datum: GDA 94

## 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 threatened ecological communities (TEC) to occur within or in proximity to the survey area. These are described in Table 1.

**Table 1** 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.

## 2.7 Cockatoo Habitat

According to the WALGA Environmental Planning Tool (2020), whilst not a roosting site itself, the survey area is within the buffer of a confirmed roosting site from the Melville Glades Golf Course to the north of the site. It is also within a potential feeding habitat for Carnaby's Cockatoo (*Calyptorhynchus latirostris*) on the Swan Coastal Plain (WALGA 2020a).

## 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 (Appendix 2)
- FloraBase to review the likelihood of significant flora listed as potentially present (DBCA 2020b)
- West Australian Local Government Association (WALGA) Environmental Planning Tool to determine if Carnaby's Cockatoo (*Calyptorhynchus latirostris*) and Quenda (*Isoodon fusciventer*) habitat could occur or is confirmed to occur on site (WALGA 2020a).

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

#### 3.2.1 Field Assessment

Natural Area personnel Kylie Sadgrove (Lead Botanist), Megan Gray and Donna Old surveyed the site on November 6<sup>th</sup>, 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 depth, 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).
- 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 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 2).

**Table 2:** Vegetation structural classes

Life Form/Height Class	Canopy Percentage Cover			
	100 – 70%	70 – 30%	30 – 10%	10 – 2 %
<b>Trees over 30 m</b>	Tall closed forest	Tall open forest	Tall woodland	Tall open woodland
<b>Trees 10 – 30 m</b>	Closed forest	Open forest	Woodland	Open woodland
<b>Trees under 10 m</b>	Low closed forest	Low open forest	Low woodland	Low open woodland
<b>Tree Mallee</b>	Closed tree mallee	Tree mallee	Open tree mallee	Very open tree mallee
<b>Shrub Mallee</b>	Closed shrub mallee	Shrub mallee	Open shrub mallee	Very open shrub mallee
<b>Shrubs over 2 m</b>	Closed tall scrub	Tall open scrub	Tall shrubland	Tall open shrubland
<b>Shrubs 1 – 2 m</b>	Closed heath	Open heath	Shrubland	Open shrubland
<b>Shrubs under 1 m</b>	Closed low heath	Open low heath	Low shrubland	Low open shrubland
<b>Grasses</b>	Closed grassland	Grassland	Open grassland	Very open grassland
<b>Herbs</b>	Closed herbland	Herbland	Open herbland	Very open herbland
<b>Sedges</b>	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 3) (Government of Western Australia, 2000).

**Table 3:** 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, the five 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 sightings of fauna through sightings, 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 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
- the survey was conducted during late spring and there is potential for threatened orchid species to occur which may not have been observable during the 2020 survey. A targeted survey during their flowering period (September) would be required to determine whether these are present
- not all flora species flower every year
- 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.

## 4.0 Results

### 4.1 Literature Review

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 4 with their potential of occurrence on site based on habitat and soils present. The conservation code descriptions are provided in Appendix 3.

**Table 4:** 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	
<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		No
<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		Unknown
<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 98 flora species were identified from 36 families. Of these 37 were weeds and 61 were native species. Of the 98 recorded, 36 were monocotyledons (Class: Liliopsida), 61 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.



*Dasyogon bromeliifolius*  
(Pineapple Bush)

*Lyginia barbata*

*Hibbertia hypericoides* (Yellow Buttercups)



*Regilea inops*

*Patersonia occidentalis* (Purple Flag)

*Poranthera microphylla* (Small Poranthera)

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



Bridal Creeper (*Asparagus asparagoides*)

*Yucca* sp.

Common Fig (*Ficus carica*)

**Figure 4:** Examples of weed species found on site

#### 4.2.2 Vegetation Type

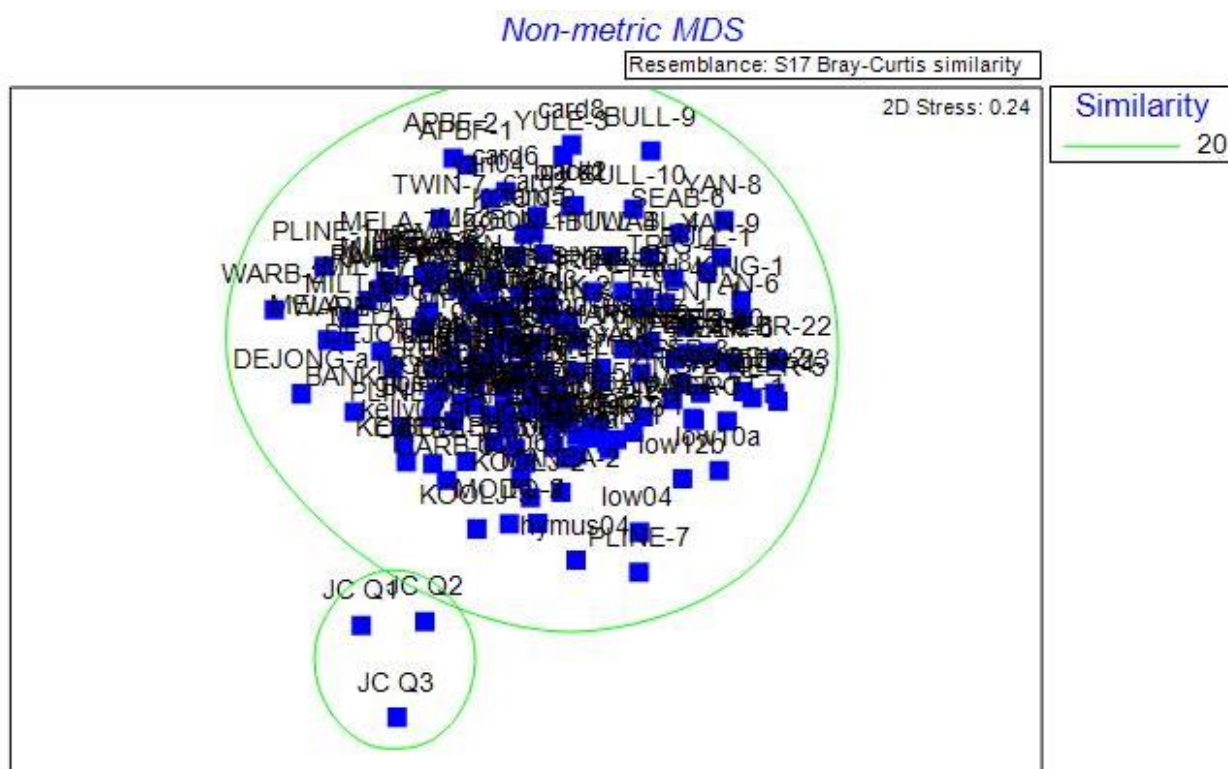
One vegetation type was present within the survey area, *Banksia attenuata*, *Banksia menziesii* and *Eucalyptus todtiana* Woodland (Figure 5). This comprised a woodland of *Banksia attenuata*, *Banksia menziesii* and *Eucalyptus todtiana* trees over *Xanthorrhoea preissii*, *Xanthorrhoea brunonis* and mixed shrubs and an understorey of *Dasyogon bromeliifolius*, *Phlebocarya ciliata* and weedy grasses, predominantly *Ehrharta calycina*, which is an introduced grass.



**Figure 5:** *Banksia menziesii* and *Eucalyptus tottiana* Woodland, John Connell Reserve

#### **4.2.3 Threatened Ecological Community Assessment**

No dominant species associated with the Tuart Woodlands or the Subtropical and Temperate Coastal Saltmarsh community were present on site, and the landform present was not consistent with the habitat required for these communities to occur. Comparison of the quadrat data from John Connell (2020) against the Gibson *et al.* data (1994) quadrats associated with the threatened ecological community (TEC) Banksia Woodlands on the Swan Coastal Plain listed as endangered under the *EPBC Act 1999* (Cwlth) showed very little similarity. All the John Connell quadrats had a percentage similarity between 4.3% - 25% with the TEC quadrats (Figure 6). The highest similarity of 25% was with the Gibson quadrat FI-5 which is the community type SCP 21c – Low lying *Banksia attenuata* woodlands or shrublands which is listed as a Priority 3 under the *Biodiversity Conservation Act 2016* (WA). Due to the low similarity and most of them being the weed species on site, Natural Area does not consider the area to be part of this TEC.



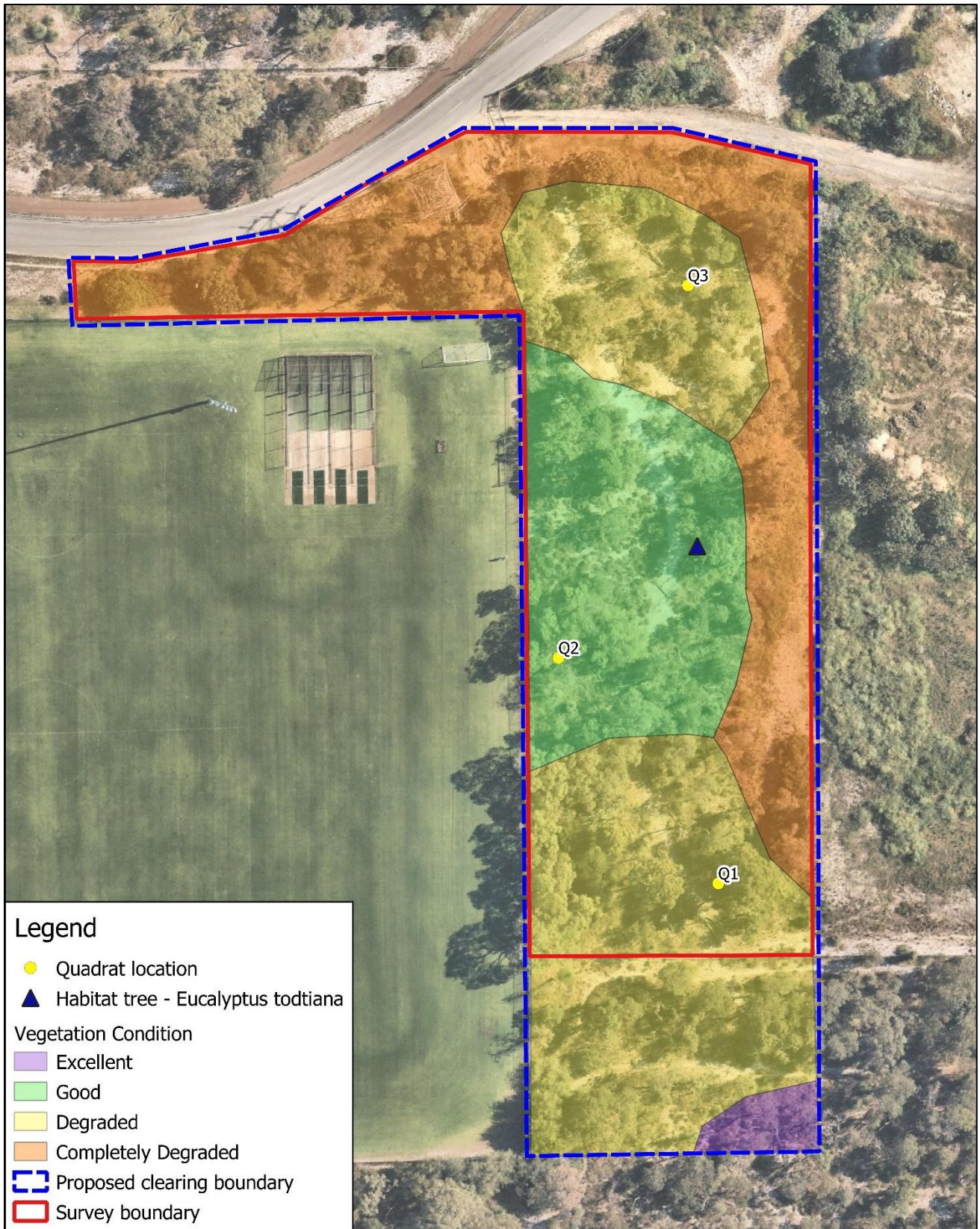
**Figure 6:** Resemblance graph of John Connell quadrats to the Banksia Woodlands of the Swan Coastal Plain TEC quadrats from Gibson et al. (1994) data with a 20% similarity

#### 4.2.4 Vegetation Condition

Vegetation condition ranged from Completely Degraded to Good within the survey area, with majority of the site either in Degraded or Completely Degraded Condition (Figure 7, Table 5). Completely Degraded areas occurred on the periphery of the site and along the road verges due to weed encroachment from the surrounding land. Additional information was used from another flora survey of the remainder of John Connell Reserve conducted by Natural Area (2020) to provide information on the condition of the reserve outside of the surveyed area.

**Table 5:** Vegetation condition, John Connell Reserve

Vegetation Condition	Pristine	Excellent	Very Good	Good	Degraded	Completely Degraded	Totals
Area (ha)	0.000	0.018	0.000	0.204	0.405	0.29	0.917
Area (%)	0.000	1.98	0.000	22.24	44.16	31.62	100



**Legend**

- Quadrat location
- ▲ Habitat tree - *Eucalyptus totidiana*

**Vegetation Condition**

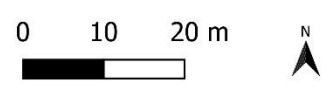
- Excellent
- Good
- Degraded
- Completely Degraded

Proposed clearing boundary (dashed blue line)

Survey boundary (solid red line)



**Figure 7:**  
Vegetation Condition, Quadrat Locations and Habitat Tree  
John Connell Reserve



Client: City of Melville  
Date: 26/11/2020  
Created by: K. Sadgrove  
Image Source: Nearmap 2020  
Datum: GDA 94

## 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 6). 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 6:** Threatened and priority fauna species potentially occurring in the survey area

Species Name	Common Name	Cons. Code	Nature Map	PMST
<b>Birds</b>				
<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
<i>Sternula neresis neresis</i>	Australian Fairy Turn	VU		X

Species Name	Common Name	Cons. Code	Nature Map	PMST
<b>Invertebrates</b>				
<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>	Stylet Bush Cricket	P1	X	
<b>Mammals</b>				
<i>Dasyurus geoffroii</i>	Chuditch, Western Quoll	V		X
<i>Isoodon 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 eight fauna species were recorded, including two birds, two reptiles and evidence of the presence of kangaroos and rabbits in the form of scats (Table 7). Evidence of cockatoo feeding in the form of chewed *Banksia menziesii* flower cone located on the ground was recorded within the survey area (Figure 8). Examples of fauna recorded during the survey in the form of photographs are shown in Figure 8.

**Table 7:** Fauna species. \* Denotes introduced species

Family	Species	Common Name	Lifeform
Araneidae	<i>Nephila edulis</i>	Australian Golden Orb-weaving Spider	Invertebrate
Meliphagidae	<i>Anthochaera carunculata</i>	Red Wattlebird	Bird
Scincidae	<i>Cryptoblepharus buchananii</i>	Buchanan's Snake-eyed Skink	Reptile
Scincidae	<i>Ctenotus fallens</i>	West-coast Laterite Ctenotus	Reptile
Macropodidae	<i>Macropus fuliginosus</i>	Kangaroo scat	Mammal
Leporidae	<i>Oryctolagus cuniculus</i>	Rabbit (scat)	Mammal
Columbidae	* <i>Spilopelia senegalensis</i>	Laughing Turtle Dove	Bird
Apidae	* <i>Apis mellifera</i>	European Honey Bee	Invertebrate



Buchanan's Snake-eyed Skink  
(*Cryptoblepharus buchananii*)

\*European Honey Bee (*Apis mellifera*)

Carnaby's Cockatoo feeding on  
*Banksia menziesii* (Firewood  
Banksia)

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**Figure 8:** Examples of fauna recorded during the survey

## 6.0 Implications of Results

### 6.1 Flora and Vegetation

Natural Area's late spring survey within a portion of John Connell reserve recorded 98 flora species from 36 families. The majority (62) of species were native (62.2%), with 37 (37.7%) introduced species. The number of native species indicates a moderate level of floral diversity for the small and degraded nature of the area, with species recorded consistent with those recorded in bushland areas nearby. One vegetation type was recorded, namely *Banksia attenuata*, *Banksia menziesii* and *Eucalyptus todtiana* Woodland. Vegetation condition ranged from Completely Degraded to Good, with the majority of the site being in Completely Degraded and Degraded condition particularly on the periphery of the vegetation block.

### 6.2 Significant Flora

No threatened or priority species were recorded during the on-ground 2020 spring survey. Due to the small size of the area and poor quality of the understorey present it is unlikely that any of the potential priority or threatened flora species listed in Table 4 exist within the site.

### 6.3 Threatened Ecological Communities

No threatened ecological communities were recorded on site, with only a 25% or lower similarity to the Banksia Woodlands on the Swan Coastal Plain TEC. The Subtropical and Temperate Coastal Saltmarsh and Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain ecological communities were ruled out due to lack of dominant species or habitat present for these communities.

In a regional context, the proposed clearing area is adjacent to a TEC, Banksia Woodlands of the Swan Coastal Plain which was determined through a survey conducted by Natural Area in November 2020 (Natural Area 2020). Currently due to the poor condition and the small patch size of the survey area and the species present, the proposed clearing area does not meet the criteria to be considered part of the Banksia Woodlands of the Swan Coastal Plain TEC.

### 6.4 Fauna Survey

A total of eight fauna species were recorded by Natural Area during the 2020 spring survey, of which two were introduced species. As a basic fauna survey was carried out, the number of species recorded will be lower than that occurring within the broader bushland area. No conservation significant fauna species were recorded within the area during the survey. Although, signs of feeding by threatened Carnaby's Cockatoo was noted so the area is likely to be utilised as a transient feeding site for this species in conjunction with the larger nearby bushland areas of the remaining John Connell Reserve and Ken Hurst Park, which have the same food sources. The nature of the survey site relatively small and between other vegetated areas would also limit the number of species sighted as animals tend to avoid human presence where possible to do so. Accordingly, the likelihood of additional species in more vegetated areas is likely.

### 6.5 Black Cockatoos

The Carnaby's Cockatoo (*Calyptorhynchus latirostris*) is listed as endangered under the EPBC Act 1999 (Cwlth), with the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*) and the Baudin's Black

Cockatoo (*Calyptorhynchus baudinii*) listed as vulnerable; all are listed as threatened under the *Biodiversity Conservation Act 2016* (WA). The presence of *Banksia* species and *Eucalyptus todtiana*, preferred food sources for the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*) and the Carnaby's Cockatoo (*Calyptorhynchus latirostris*) was noted within the survey area, with evidence of feeding by Carnaby's in the form of chewed *Banksia* cones (Figure 7). Although the area is considered a good quality feeding habitat for black cockatoos, the proposed area to be cleared is less than the 1 ha trigger value for EPA referral guidelines for the three threatened black cockatoos.

The site is located adjacent to the south of the Melville Glades Golf Course, which is a known roosting area for endangered black cockatoos. Whilst one *Eucalyptus todtiana* was large enough to be considered a potential roosting tree (DBH >500 mm) it did not contain any hollows for nesting by black cockatoos. No nesting habitat was observed on site and no individual black cockatoos.

## 6.6 Assessment of Impacts

The outcomes of the assessment activities carried out by Natural Area suggest that impacts associated with development are likely to be low, with the area for the Carnaby's food source not meeting size and condition criteria for referral. The requirement for fauna relocation should be considered during any proposed clearing.

## 6.7 Assessment Against Clearing Principles

An assessment of information obtained during the November 2020 survey has been made against the Western Australian clearing principles. It is suggested that the clearing application is not at variance with any of the ten clearing principles (Table 8). As the proposed clearing area is 0.917 hectares and the majority of the site is in Completely Degraded and Degraded condition is not considered to be required for referral.

An updated clearing boundary was provided to Natural Area by the City in December 2020 which extends the site south to the edge of the sporting fields. This revised boundary was provided to Natural Area after the survey was conducted and therefore the extended area was not surveyed fully. The revised clearing area increases the potential clearing area from 0.763 to 0.917 hectares, which is less than the trigger value for referral of 1 hectare.

**Table 8:** Assessment against clearing principles

Clearing Principle	Comment
A Native vegetation should not be cleared if it comprises a high level of biological diversity.	<p>The area to be cleared is not likely to be at variance with this principle:</p> <ul style="list-style-type: none"> <li>▪ The area of the proposed clearing area has a moderate level of species diversity, 61 native species were recorded during the November 2020 survey by Natural Area botanists</li> <li>▪ The majority of the vegetation to be cleared is in Degraded to Completely Degraded condition with one area classified as Excellent.</li> <li>▪ There were no observed threatened or priority species recorded during the November 2020 survey by Natural Area botanists.</li> <li>▪ Flora and vegetation present within the survey boundary is consistent with extensive bushland areas adjacent to and in the broader area.</li> </ul>
B Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.	<p>The area to be cleared is not likely to be at variance with this principle:</p> <ul style="list-style-type: none"> <li>▪ A review of the information available on the WALGA Environmental Planning Tool identified that the potential clearing area is within the buffer of confirmed roosting area, Melville Glades Golf Course to the north of the site, within potential feeding habitat for Carnaby's Cockatoo (<i>Calyptorhynchus latirostris</i>), however, larger and better quality feeding habitat is present within the remaining John Connell Reserve to the south and in Ken Hurst Park to south-east</li> <li>▪ During the November 2020 survey by Natural Area botanists, only one habitat tree was recorded, <i>Eucalyptus todtiana</i> which is considered a potential roosting however it was not very tall and no evidence of hollows or roosting was noted</li> <li>▪ Evidence of cockatoo feeding in survey site in the form of chewed <i>Banksia menziesii</i> was minimal with only one location noted in the centre of the site</li> </ul>
C Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	<p>The area to be cleared is not likely to be at variance with this principle:</p> <ul style="list-style-type: none"> <li>▪ During the November survey by Natural Area, no conservation significant flora was identified within the proposed clearing area</li> </ul>
D Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the	<p>The area to be cleared is not likely to be at variance with this principle:</p> <ul style="list-style-type: none"> <li>▪ No threatened or priority ecological communities were recorded during the November survey.</li> </ul>

Clearing Principle	Comment
maintenance of a threatened ecological community.	
E Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	The area to be cleared is not likely to be at variance with this principle as there are large areas of uncleared vegetation to the south, namely the remainder of John Connell Reserve and Ken Hurst park.
F Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	The area to be cleared is not likely to be at variance with this principle as the site has no association with a watercourse or wetland.
G Native Vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	The area to be cleared is not likely to be at variance with this principle as the land surrounding the proposed clearing area is sporting fields to the north and west and a previously cleared area to the east.
H Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.	<p>The area to be cleared is not likely to be at variance with this principle:</p> <ul style="list-style-type: none"> <li>▪ previous land clearing has occurred to the west and east of the site and is not considered to further impact on the environmental values of the adjacent conservation areas.</li> </ul>
I Native vegetation should not be cleared if the clearing of	<p>The area to be cleared is not likely to be at variance with this principle:</p> <ul style="list-style-type: none"> <li>▪ No surface water courses were identified during the November 2020 survey by Natural Area</li> </ul>

Clearing Principle	Comment
<p>the vegetation is likely to cause deterioration in the quality of surface or underground water.</p>	
<p>J Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.</p>	<p>The area to be cleared is not likely to be at variance with this principle:</p> <ul style="list-style-type: none"> <li>▪ The proposed clearing area is not expected to change or exacerbate the incidence of flooding, remaining vegetation within John Connell Reserve is likely to mitigate any incidence of flooding</li> </ul>

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## **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
<b>TOTAL</b>	<b>817</b>	<b>25770</b>

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
<b>Amphibian</b>				
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)			
<b>Bird</b>				
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	<sup>1</sup> 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	<sup>1</sup> 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 anthopeplus</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)			

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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>			

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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	

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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		

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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	<sup>1</sup> 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>Allothoreua 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>			

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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*

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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>			

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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.			
<b>Pteridophyte (Fern)</b>				
708.	42902 <i>Azolla rubra</i>			
709.	51 <i>Cyathea cooperi</i>	Y		
<b>Reptile</b>				
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>			

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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	<sup>1</sup> 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

<sup>1</sup> 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](#)

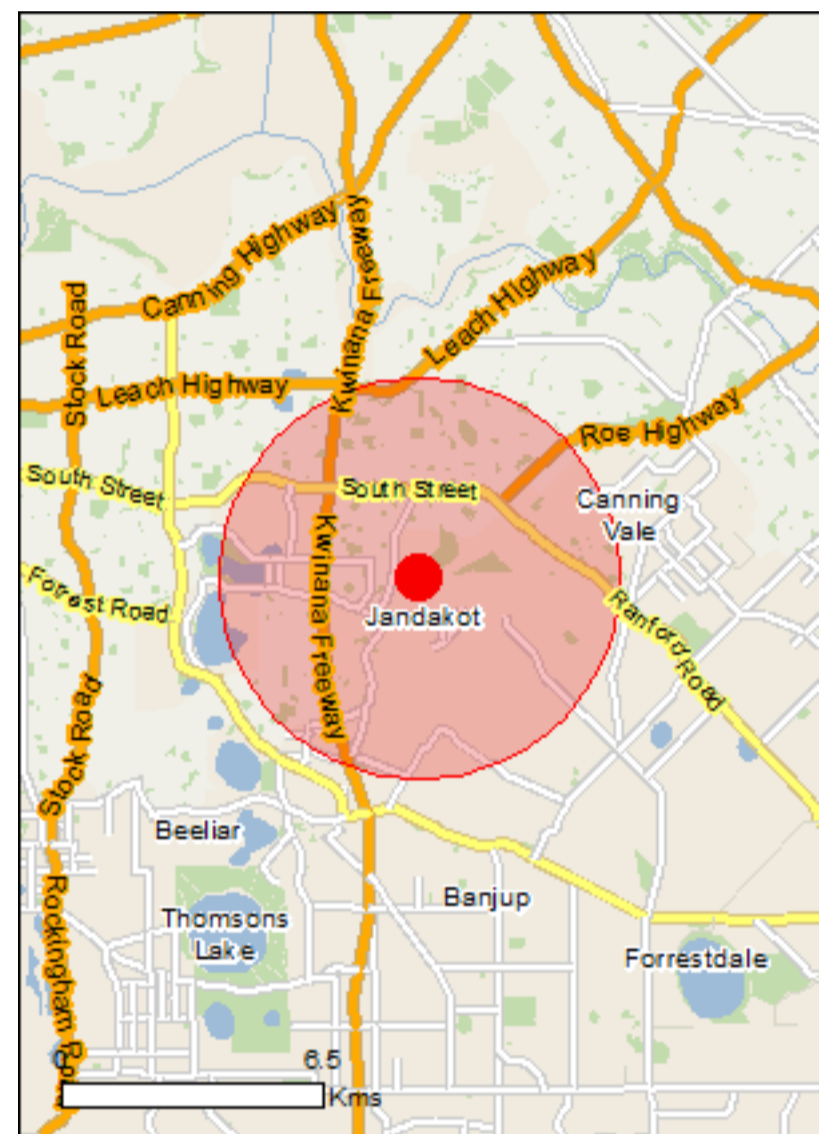
[Matters of NES](#)

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

[Extra Information](#)

## [Caveat](#)

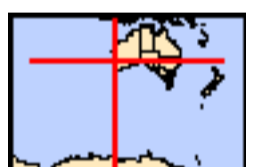
## [Acknowledgements](#)



This map may contain data which are  
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[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](#).

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance:</a>	1
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	3
<a href="#">Listed Threatened Species:</a>	42
<a href="#">Listed Migratory Species:</a>	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.

<a href="#">Commonwealth Land:</a>	1
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	44
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	1
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Invasive Species:</a>	38
<a href="#">Nationally Important Wetlands:</a>	3
<a href="#">Key Ecological Features (Marine)</a>	None

# Details

## Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[ Resource Information ]
Name	Proximity
<a href="#">Forrestdale and thomsons lakes</a>	Within 10km of Ramsar

## Listed Threatened Ecological Communities

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
<a href="#">Banksia Woodlands of the Swan Coastal Plain ecological community</a>	Endangered	Community likely to occur within area
<a href="#">Subtropical and Temperate Coastal Saltmarsh</a>	Vulnerable	Community likely to occur within area
<a href="#">Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community</a>	Critically Endangered	Community likely to occur within area

## Listed Threatened Species

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

Name	Status	Type of Presence
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Species or species habitat likely to occur within area
<a href="#">Leipoa ocellata</a> Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Pachyptila turtur subantarctica</a> Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area
<a href="#">Sternula nereis nereis</a> Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Species or species habitat likely to occur within area
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Species or species habitat likely to occur within area
<b>Mammals</b>		
<a href="#">Dasyurus geoffroii</a> Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Neophoca cinerea</a> Australian Sea-lion, Australian Sea Lion [22]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pseudocheirus occidentalis</a> Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat likely to occur within area
<b>Plants</b>		
<a href="#">Andersonia gracilis</a> Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area
<a href="#">Caladenia huegelii</a> 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
<a href="#">Diuris drummondii</a> Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Diuris micrantha</a> Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diuris purdiei</a> Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat known to occur within area
<a href="#">Drakaea elastica</a> Glossy-leaved Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat known to occur within area
<a href="#">Drakaea micrantha</a> Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Eleocharis keigheryi</a> Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat may occur within area
<a href="#">Eremophila glabra subsp. chlorella</a> [84927]	Endangered	Species or species habitat may occur within area
<a href="#">Eucalyptus x balanites</a> Cadda Road Mallee, Cadda Mallee [87816]	Endangered	Species or species habitat may occur within area
<a href="#">Macarthuria keigheryi</a> Keighery's Macarthuria [64930]	Endangered	Species or species habitat likely to occur within area
<a href="#">Synaphea sp. Fairbridge Farm (D. Papenfus 696)</a> Selena's Synaphea [82881]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Thelymitra dedmaniarum</a> Cinnamon Sun Orchid [65105]	Endangered	Species or species habitat may occur within area
<b>Reptiles</b>		
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
<b>Listed Migratory Species</b>		<b>[ Resource Information ]</b>
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
<b>Migratory Marine Birds</b>		
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Diomedea amsterdamensis</a> Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Species or species habitat likely to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Species or species habitat likely to occur within area
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Species or species habitat likely to occur within area
<b>Migratory Marine Species</b>		
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
<a href="#">Lamna nasus</a> Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
<a href="#">Manta alfredi</a> 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
<a href="#">Manta birostris</a> Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area

Name	Threatened	Type of Presence
<b>Migratory Terrestrial Species</b>		
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<b>Migratory Wetlands Species</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat known to occur within area
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Species or species habitat known to occur within area
<a href="#">Calidris subminuta</a> Long-toed Stint [861]		Species or species habitat known to occur within area
<a href="#">Charadrius dubius</a> Little Ringed Plover [896]		Species or species habitat known to occur within area
<a href="#">Limosa limosa</a> Black-tailed Godwit [845]		Species or species habitat known to occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area
<a href="#">Philomachus pugnax</a> Ruff (Reeve) [850]		Species or species habitat known to occur within area
<a href="#">Tringa glareola</a> Wood Sandpiper [829]		Species or species habitat known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
<a href="#">Tringa stagnatilis</a> 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
<b>Birds</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat likely to occur within area
<a href="#">Anous tenuirostris melanops</a> Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Breeding known to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat known to occur within area
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Species or species habitat known to occur within area
<a href="#">Calidris subminuta</a> Long-toed Stint [861]		Species or species habitat known to occur within area
<a href="#">Charadrius dubius</a> Little Ringed Plover [896]		Species or species habitat known to occur within area
<a href="#">Charadrius ruficapillus</a> Red-capped Plover [881]		Species or species habitat known to occur within area

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

Name	Threatened	Type of Presence
Albatross [64459]		habitat may occur within area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Thinornis rubricollis</a> Hooded Plover [59510]		Species or species habitat known to occur within area
<a href="#">Tringa glareola</a> Wood Sandpiper [829]		Species or species habitat known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
<a href="#">Tringa stagnatilis</a> Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area

#### Mammals

<a href="#">Neophoca cinerea</a> Australian Sea-lion, Australian Sea Lion [22]	Vulnerable	Species or species habitat known to occur within area
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#### Reptiles

<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area

#### Extra Information

State and Territory Reserves	[ <a href="#">Resource Information</a> ]
Name	State
Canning River	WA

#### Invasive Species

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
<b>Birds</b>		
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
<b>Mammals</b>		
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
<b>Plants</b>		
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
<b>Reptiles</b>		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area

Nationally Important Wetlands	[ Resource Information ]
Name	State
<a href="#">Booragoon Swamp</a>	WA
<a href="#">Gibbs Road Swamp System</a>	WA
<a href="#">Swan-Canning Estuary</a>	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.

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## 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
<b>Class CYCADOPSIDA (Cycads)</b>		
Zamiaceae	<i>Macrozamia riedlei</i>	Zamia
<b>Class LILIOPSIDA (Monocotyledons)</b>		
ANARTHRIACEAE	<i>Lyginia barbata</i>	
	<i>Lyginia imberbis</i>	
ASPARAGACEAE	* <i>Asparagus asparagoides</i>	Bridal creeper
	<i>Lomandra caespitosa</i>	Tufted Mat Rush
	<i>Lomandra hermaphrodita</i>	
	<i>Lomandra preissii</i>	
	<i>Lomandra suaveolens</i>	
	* <i>Yucca</i> sp.	Yucca
DASYPOGONACEAE	<i>Calectasia narragara</i>	
	<i>Dasyopogon bromeliifolius</i>	Pineapple Bush
HAEMODORACEAE	<i>Conostylis aculeata</i>	Prickly Conostylis
	<i>Conostylis setigera</i>	Bristly Cottonhead
	<i>Phlebocarya ciliata</i>	
	<i>Phlebocarya filifolia</i>	
HEMEROCALLIDACEAE	<i>Dianella revoluta</i>	Blueberry Lily
IRIDACEAE	* <i>Freesia alba</i> × <i>leichtlinii</i>	Freesia
	* <i>Gladiolus caryophyllaceus</i>	Wild Gladiolus
	<i>Patersonia occidentalis</i>	Purple Flag
	* <i>Romulea rosea</i>	Guildford Grass
ORCHIDACEAE	* <i>Disa bracteata</i>	
	<i>Microtis media</i>	Mignonette orchis
	<i>Pterostylis vittata</i>	Banded Greenhood
POACEAE	* <i>Avena barbata</i>	Bearded Oat
	* <i>Briza maxima</i>	Blowfly Grass

Family	Scientific Name	Common Name
	<i>*Bromus diandrus</i>	Great Brome
	<i>*Cenchrus clandestinus</i>	Kikuyu Grass
	<i>*Cynodon dactylon</i>	Couch
	<i>*Ehrharta calycina</i>	Perennial Veldt Grass
	<i>*Ehrharta longiflora</i>	Annual Veldt Grass
	<i>*Eragrostis curvula</i>	African Lovegrass
	<i>*Lagurus ovatus</i>	Hare's Tail Grass
POACEAE	<i>*Lolium rigidum</i>	Rye Grass
RESTIONACEAE	<i>Desmodcladus flexuosus</i>	
	<i>Hypolaena exsulca</i>	
XANTHORRHOEACEAE	<i>Xanthorrhoea brunonis</i>	
	<i>Xanthorrhoea preissii</i>	Grass Tree, Balga
<b>CLASS MAGNOLIOPSIDA (Dicotyledons)</b>		
AIZOACEAE	<i>*Carpobrotus edulis</i>	Hottentot Fig
	<i>*Galenia pubescens</i>	Coastal Galenia
ANACARDIACEAE	<i>*Schinus terebinthifolia</i>	Japanese Pepper
ASTERACEAE	<i>*Hypochaeris glabra</i>	Smooth Cats-ear
	<i>*Hypochaeris radicata</i>	Flat Weed
	<i>*Sonchus oleraceus</i>	Common Sowthistle
	<i>*Urospermum picroides</i>	False Hawkbit
	<i>*Ursinia anthemoides</i>	Ursinia
BRASSICACEAE	<i>*Brassica tournefortii</i>	Mediterranean Turnip
	<i>*Raphanus raphanistrum</i>	Wild Radish
CASUARINACEAE	<i>Allocasuarina fraseriana</i>	Sheoak
	<i>Allocasuarina humilis</i>	Dwarf Sheoak
COLCHICACEAE	<i>Burchardia congesta</i>	
CRASSULACEAE	<i>*Crassula alata</i>	
DILLENACEAE	<i>Hibbertia huegelii</i>	
	<i>Hibbertia hypericoides</i>	Yellow Buttercups
ERICACEAE	<i>Conostephium pendulum</i>	Pearl Flower
EUPHORBIACEAE	<i>*Euphorbia terracina</i>	Geraldton Carnation Weed

Family	Scientific Name	Common Name
	<i>*Ricinus communis</i>	Castor Oil Plant
FABACEAE	<i>Acacia applanata</i>	
	<i>*Acacia longifolia</i>	Sydney Golden Wattle
	<i>Acacia pulchella</i>	Prickly Moses
	<i>Acacia saligna</i>	Orange Wattle
	<i>Acacia willdenowiana</i>	Grass Wattle
	<i>Bossiaea eriocarpa</i>	Common Brown Pea
	<i>Daviesia triflora</i>	
	<i>Gastrolobium capitatum</i>	
	<i>Gompholobium tomentosum</i>	Hairy Yellow Pea
	<i>Hovea trisperma</i>	Common Hovea
	<i>Jacksonia furcellata</i>	Grey Stinkwood
	<i>*Lupinus angustifolius</i>	Narrowleaf Lupin
GERANIACEAE	<i>*Pelargonium capitatum</i>	Rose Pelargonium
GOODENIACEAE	<i>Dampiera linearis</i>	Common Dampiera
	<i>Lechenaultia floribunda</i>	Free-flowering Lechenaultia
LAURACEAE	<i>Cassytha</i> sp.	
LORANTHACEAE	<i>Nuytsia floribunda</i>	Christmas Tree
MELIACEAE	<i>*Melia azedarach</i>	White Cedar
MORACEAE	<i>*Ficus carica</i>	Common Fig
MYRTACEAE	<i>*Chamelaucium uncinatum</i>	Geraldton Wax
	<i>Corymbia calophylla</i>	Marri
	<i>Eremaea asterocarpa</i>	
	<i>Eremaea pauciflora</i>	
	<i>Eucalyptus todtiana</i>	Pricklybark
	<i>Hypocalymma angustifolium</i>	White Myrtle
	<i>Hypocalymma robustum</i>	Swan River Myrtle
	<i>Kunzea glabrescens</i>	Spearwood
	<i>Melaleuca seriata</i>	
	<i>Melaleuca thymoides</i>	
	<i>Regelia inops</i>	

Family	Scientific Name	Common Name
	<i>Scholtzia involucrata</i>	Spiked Scholtzia
OLEACEAE	* <i>Olea europaea</i>	Olive
PAPARVERACEAE	* <i>Fumaria capreolata</i>	White Flowered Fumitory
PHYLLANTHACEAE	<i>Poranthera microphylla</i>	Small Poranthera
PROTEACEAE	<i>Banksia attenuata</i>	Slender Banksia
	<i>Banksia ilicifolia</i>	Holly-leaved Banksia
	<i>Banksia menziesii</i>	Firewood Banksia
	<i>Petrophile linearis</i>	Pixie Mops
	<i>Stirlingia latifolia</i>	Blueboy
SOLANACEAE	* <i>Solanum nigrum</i>	Black Berry Nightshade
STYLIDIACEAE	<i>Stylidium repens</i>	Matted Triggerplant
THYMELAEACEAE	<i>Pimelea sulphurea</i>	Yellow Banjine

## Appendix 5: Quadrat Data

\*Locations of quadrats: Figure 5

**Quadrat No.:** 1  
**Survey Date:** 06/11/2020  
**Personnel:** Megan Gray, Kylie Sadgrove, Donna Old  
**Easting:** 393500.66  
**Northing:** 6449884.45  
**Location:** Bowling Club  
**Topography:** Mid-slope  
**Aspect:** West  
**Slope:** 5-10%  
**Soil:** Sand  
**Rock:** Nil  
**Leaf Litter:** 80%  
**Bare Ground:** 10%  
**Drainage:** Well  
**Condition:** Very Good



**Note:** *Banksia attenuata* and *Eucalyptus todtiana* Woodlands

Native Species	Height (m)	Cover (%)	Invasive Species	Height (m)	Cover (%)
<i>Banksia attenuata</i>	10	4.5	* <i>Asparagus asparagoides</i>	0.5	0.1
<i>Bossiaea eriocarpa</i>	0.5	0.3	* <i>Avena barbata</i>	40	0.3
<i>Burchardia congesta</i>	0.1	0.3	* <i>Briza maxima</i>	50	0.2
<i>Conostephium pendulum</i>	0.1	0.1	* <i>Bromus diandrus</i>	0.2	0.3
<i>Corymbia calophylla</i>	30	10	* <i>Cenchrus clandestinus</i>	0.3	0.2
<i>Eucalyptus todtiana</i>	40	4	* <i>Erharta calycina</i>	55	1
<i>Gompholobium tomentosum</i>	0.1	0.1	* <i>Euphorbia terracina</i>	0.1	0.2
<i>Lomandra caespitosa</i>	0.2	0.1	* <i>Fumaria capreolata</i>	0.1	0.2
<i>Lomandra preissii</i>	0.1	0.2	* <i>Gladiolus caryophyllaceus</i>	0.1	0.3
<i>Lomandra suaveolens</i>	0.3	0.1	* <i>Hypochaeris radicata</i>	0.1	0.1
<i>Lyginia imberbis</i>	0.1	0.2	* <i>Sonchus oleraceus</i>	0.1	0.1
<i>Melaleuca thymoides</i>	2	2.5	* <i>Ursinia anthemoides</i>	3	0.2
<i>Microtis media</i>	0.1	0.3			

<b>Native Species</b>	<b>Height (m)</b>	<b>Cover (%)</b>	<b>Invasive Species</b>	<b>Height (m)</b>	<b>Cover (%)</b>
<i>Patersonia occidentalis</i>	0.2	0.5			
<i>Petrophile linearis</i>	0.1	0.2			
<i>Phlebocarya ciliata</i>	2	0.2			
<i>Regelia inops</i>	3	1.5			
<i>Scholtzia involucrata</i>	0.1	0.5			
<i>Xanthorrhoea brunonis</i>	5	1			
<i>Xanthorrhoea preissii</i>	5	1.5			

---

**Quadrat No.:** 2**Survey Date:** 06/11/2020**Personnel:** Megan  
Gray, Kylie  
Sadgrove,  
Donna Old**Latitude:** 393473.82**Longitude:** 6449921.33**Location:** Bowling  
Club**Topography:** Mid-slope**Aspect:** South**Slope:** 5-10%**Soil:** Sand**Rock:** Nil**Leaf Litter:** 30%**Bare Ground:** 0%**Drainage:** Well**Condition:** Very Good**Note:** *Banksia menziesii* and *Eucalyptus tottiana* Woodlands

Native Species	Height (m)	Cover (%)	Invasive Species	Height (m)	Cover (%)
<i>Acacia pulchella</i>	1.5	0.8	* <i>Asparagus asparagoides</i>	0.1	0.3
<i>Banksia attenuata</i>	0.5	3	* <i>Avena barbata</i>	0.5	0.5
<i>Banksia menziesii</i>	20	6	* <i>Briza maxima</i>	2	0.1
<i>Bossiaea eriocarpa</i>	1	0.2	* <i>Disa bracteata</i>	0.1	0.1
<i>Burchardia congesta</i>	0.1	0.2	* <i>Erharta calycina</i>	70	0.5
<i>Conostylis aculeata</i>	3	0.2	* <i>Erharta longiflora</i>	5	1
<i>Conostylis pendulum</i>	0.1	0.1	* <i>Gladiolus caryophyllaceus</i>	3	0.3
<i>Dampiera linearis</i>	1	0.1	* <i>Hypochaeris glabra</i>	0.1	0.1
<i>Dasypogon bromeliifolius</i>	20	0.4	* <i>Pelargonium capitatum</i>	0.1	0.2
<i>Desmocladius flexuosus</i>	5	0.1	* <i>Romulea rosea</i>	0.1	0.1
<i>Eucalyptus tottiana</i>	50	6	* <i>Sonchus oleraceus</i>	0.1	0.1
<i>Hibbertia huegelli</i>	0.1	0.1			
<i>Hibbertia hypericoides</i>	2	0.2			
<i>Hovea trisperma</i>	0.1	0.1			
<i>Hypocalymma robustum</i>	2	1			
<i>Lomandra caespitosa</i>	0.2	0.2			

<b>Native Species</b>	<b>Height (m)</b>	<b>Cover (%)</b>	<b>Invasive Species</b>	<b>Height (m)</b>	<b>Cover (%)</b>
<i>Lomandra hermaphrodita</i>	0.1	0.2			
<i>Lomandra preissii</i>	1	0.3			
<i>Lyginia barbata</i>	2	0.4			
<i>Lyginia imberbis</i>	1	0.3			
<i>Microtis media</i>	0.1	0.2			
<i>Petrophile linearis</i>					
<i>Phlebocarya ciliata</i>	30	0.3			
<i>Phlebocarya filifolia</i>	0.1	0.1			
<i>Poranthera microphylla</i>	0.1	0.1			
<i>Pterostylis vittata</i>	0.1	0.1			
<i>Xanthorrhoea brunonis</i>	3	1			

**Quadrat No.:** 3**Survey Date:** 06/11/2020**Personnel:** Megan  
Gray, Kylie  
Sadgrove,  
Donna Old**Latitude:** 393494.63**Longitude:** 6449982.9**Location:** Bowling  
Club**Topography:** Upper-slope**Aspect:** North-  
north-west**Slope:** 5-10%**Soil:** Sand**Rock:** Nil**Leaf Litter:** 30%**Bare Ground:** 10%**Drainage:** Well**Condition:** Very Good**Note:** *Banksia menziesii* and *Banksia attenuata* Woodlands

Native Species	Height (m)	Cover (%)	Invasive Species	Height (m)	Cover (%)
<i>Banksia attenuata</i>	30	5	* <i>Asparagus asparagoides</i>	0.1	1
<i>Banksia menziesii</i>	15	4	* <i>Avena barbata</i>	3	0.5
<i>Cassytha sp.</i>	2	0.2	* <i>Brassica tournefortii</i>	0.2	0.4
<i>Conostephium pendulum</i>	0.1	0.2	* <i>Briza maxima</i>	5	0.2
<i>Conostylis aculeata</i>	2	0.3	* <i>Carpobrotus edulis</i>	0.1	0.1
<i>Conostylis aculeata</i>	0.1	0.2	* <i>Crassula alata</i>	0.1	0.1
<i>Dampiera linearis</i>	0.2	0.2	* <i>Erharta calycina</i>	60	1.2
<i>Daviesia triflora</i>	0.1	0.5	* <i>Euphorbia terracina</i>	0.1	0.3
<i>Eremaea pauciflora</i>	1	0.5	* <i>Gladiolus caryophyllaceus</i>	0.5	0.5
<i>Hibbertia hypericoides</i>	1	0.2	* <i>Raphanus raphanistrum</i>	0.1	0.2
<i>Lechenaultia floribunda</i>	0.2	0.2	* <i>Sonchus oleraceus</i>	0.3	0.3
<i>Lomandra caespitosa</i>	0.1	0.2	* <i>Ursinia anthemoides</i>	20	0.3
<i>Lomandra preissii</i>	0.1	0.2			
<i>Lyginia imberbis</i>	15	0.5			
<i>Microtis media</i>	0.1	0.2			

<b>Native Species</b>	<b>Height (m)</b>	<b>Cover (%)</b>	<b>Invasive Species</b>	<b>Height (m)</b>	<b>Cover (%)</b>
<i>Nuytsia floribunda</i>	3	0.5			
<i>Scholtzia involucrata</i>	3	0.5			
<i>Stirlingia latifolia</i>	0.1	0.3			